Ministry of Agriculture and Rural Development
VIETNAM

**Forest Carbon Partnership Facility (FCPF)
Carbon Fund**

Emission Reductions Program Document (ER-PD)

**ER Program Name and Country: Vietnam
Date of Submission or Revision:
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ACRONYMS AND ABBREVIATIONS

ACMA	Adaptive Collaborative Management Approach
AD	Activity Data
ADB	Asian Development Bank
AE	Allometric Equation
AF	Afforestation
AGB	Above Ground Biomass
ASEAN	Association of Southeast Asian Nations
BAU	Business As Usual (scenario)
BCC	Biodiversity Conservation Corridors Project
BGB	Below Ground Biomass
BMEL	German Ministry for Agriculture and Food Security
BOT	Build - Operate - Transfer
BSM	Benefit Sharing Mechanism
BSP	Benefit Sharing Plan
BUR	Biannual Updated Report
CAFPD	Centre for Agriculture and Forestry Planning and Design
CC	Climate Change
CCAP	Climate Change Action Plan
CCD	Climate Change Delivery
CCWG	Climate Change Working Group
CDM	Clean Development Mechanism
CEMA	Committee for Ethnic Minority Affairs
CEPF	Critical Ecosystem Partnership Fund
CER	Certified Emissions Reductions
CF	Carbon Fund
CFM	Community Forest Management
COC	Chain of Custody
CPEIR	Climate Public Expenditure and Investment Review
CPMU	Central Program Management Unit
CSIRO	Australian government national Science Agency
CSO	Civil Society Organisation
DARD	Department of Agriculture and Rural Development (at the Province)
DBH	Diameter at Breast Height
DF	Deforestation
DLA	Department of Legal Affairs (of MONRE)
DMHCC	Department of Meteorology, Hydrology and Climate Change (of MONRE)
DOF	Department of Finance
DONRE	Department of Natural Resources and Environment
DOST	Department of Science and Technology
DPC	District People's Committee
DPI	Department of Planning and Investment
EB	Executive Board
EBA	Endemic Bird Area
EBF-M	Evergreen broadleaf forest – Medium
EBF-P	Evergreen broadleaf forest – Poor
EBF-R	Evergreen Broadleaf forest – Rich
EF	Emission Factor
EMP	Environmental Management Plan

EMPF	Ethnic minority planning framework	
ER	Emission Reduction	
ER-P	Emission Reduction Program (area)	
ER-PD	Emissions Reduction Program Document	
ER-PIN	Emissions Reduction Program Identification Note	
ERPA	Emission Reduction Payment Agreement	
ERR	Economic Rate of Return	
ESIA	Environmental and Social Impact Assessment	
ESMF	Environmental Social Management Framework	
EU	European Union	
EVN	Vietnam Electricity company	
FCM	Forest Cover Map	
FCPF	Forest Carbon Partnership Facility	
FD	Forest Degradation	
FE	Forest Enhancement	
FGRM	Feedback grievance and reporting mechanism	
FIPI	Forest Inventory and Planning Institute	
FLA	Forest Land Allocation	
FLEGT	Forest Law Enforcement Governance and Trade	
FORMIS	Management Information System for the Forestry Sector	
FPD	Forest Protection Department	
FREC	Forest Resources and Environment Centre	
FREL	Forest Reference Emission Level	
FSC	Forest Stewardship Council	
FSDP	Forest Sector Development Project	
FSSP	Forest Sector Support Program	
GAP	Gender Action Plan	
GDP	Gross Domestic Product	
GEF	Global Environmental Facility	
GHGI	Greenhouse Gases Inventory	
GIZ	Gesellschaft für Internationale Zusammenarbeit	
GoV	Government of Vietnam	
GSO	General Statistics Office	
HCMC	Ho Chi Minh City	
HCV	High Conservation Value (forest)	
HEP	Hydroelectric power scheme	
HHs/hhs	House Holds	
HPP	Hydro Power Project	
IBA	Important Bird Area	
ICR	Implementation Completion Report (for a project)	
INDC	Intended Nationally Determined Contribution	
IPCC	Intergovernmental Panel on Climate Change	
IPP	Independent Power Producer	
IRR	Internal Rate of Return	
JICA	Japan International Cooperation Agency	
KBA	Key Biodiversity Areas	
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)	
KP	Kyoto Protocol	
LULUCF	Land Use, Land Use Change and Forestry	
LUMP	Land Use Master Plan	
LUP	Land Use Plan	

LURC	Land Use Right Certificate ("Red Book" in Vietnam)
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MB	Management Board
MBFP	Management Board of Forestry Projects
Meth Frame	[Carbon Fund] Methodological Framework
MIC	Ministry of Information and Communications
MMR	Measurement, Monitoring and Reporting
MOF	Ministry of Finance
MOLISA	Ministry of Labour, Invalids and Social Affairs
MONRE	Ministry of Natural Resources and Environment
MOU	Memorandum of Understanding
MPI	Ministry of Planning and Investment
MPLIS	Multipurpose Land Information System
MRV	Measurement, Reporting and Verification
MTR	Mid Term Report
NCB	Non-Carbon Benefits
NCC	North Central Coast i.e. the ER-P region
NCCC	National Climate Change Committee
NCCS	National Climate Change Strategy
NDVI	Normalized Difference Vegetation Index
NFDS	National Forest Development Strategy
NFI	National Forest Inventory
NFIMAP	National Forest Inventory, Monitoring and Assessment Program
NFIS	National Forest Inventory and Statistical Program
NGO	Non-Government Organisation
NP	National Park (a SUF)
NPFPD	National Plan on Forest Protection and Development
NPV	Net Present Value
NR	Nature Reserve (a SUF)
NRAP	National REDD+ Action Plan
NRF	National REDD Fund (of Vietnam)
NTFP	Non-Timber Forest Products
NTP-RCC	National Target Program to Respond to Climate Change
NSDI	National Spatial Data Infrastructure
ODA	Overseas Development Assistance
OMP	Operational Management Plan for a SUF MB
OP/ BP	Operational Policy / Bank Policy of the World Bank
PA	Protected Area (SUF in Vietnam)
PDP	Power Development Plan
PFES	Payment Forest Environment Services
PFMB	Protection Forest Management Board
PFPDF	Provincial Forest Protection and Development Fund
PLR	Policy Laws and Regulations
PPC	People's Provincial Committee
PPMU	Provincial Program Management Unit
PRAP	Provincial REDD+ Action Plan
PRSC	Provincial REDD+ Steering Committee
PSU	Primary Sample Unit
QA/QC	Quality Assurance/ Quality Control
R-PP	Readiness-Preparation Proposal for the FCPF REDD readiness funding

R	Root to Shoot ratio
RL/REL	(Forest) Reference Level/Reference Emission Level
RNA	REDD+ Needs Assessment
RWE	Round-wood Equivalent volume of timber
SD	Standard Deviation
SEDP	Socio-Economic Development Plan
SESA	Strategic Environmental and Social Assessment
SF	Stable Forest
SFC	State Forest Company
SFE	State Forest Enterprise
SFM	Sustainable Forest Management
SNF	Stable Non-Forest
SOC	Soil Organic Carbon
SOE	State Owned Enterprise
SPWP	Secondary Processed (or value-added) Wood Products
SSR	Social Screening Report
STDEV	Standard Deviation
STWG-SG	Sub-technical Working Group-Safeguards
SUF	Special Use Forest (a protected area i.e. a nature reserve or national park)
tC	Tonne of Carbon
TCCRE	Typology of Climate Change Response Expenditure
tCO_2e	Tonne of Carbon dioxide equivalent
TEV	Total Economic Value
TORs	Terms of Reference
TT Hue	Thua Thien Hue (an ER-P province)
TWG	Technical Working Group
UNFCCC	United Nations Framework Convention on Climate Change
UNESCO	The United Nations Educational, Scientific and Cultural Organization
VAFS	Vietnamese Academy of Forest Sciences
VBSP	Vietnam Bank for Social Policies
VCF	Vietnam Conservation Fund
VFD	Vietnam Forest and Delta Program (funded by USAID)
VFU	Vietnam Forestry University
VGGS	Vietnam's/ National Green Growth Strategy
VHLSS	Vietnam Household Living Standards Survey
VIFORES	Vietnam timber and Forest product association
VNFF	Vietnam Forest Protection and Development Fund
VNFOREST	Vietnam Administration of Forestry
VNTLAS	Timber Legality Assurance System of Vietnam
VPA	Voluntary Partnership Agreement
VRO	Vietnam REDD Office
VWU	Vietnam Women's Union
WB	World Bank
WD	Wood Density
	Weights and Measures m = meters; ha = hectares; Mha = million hectares $MtCO_2e$ = million tonne of carbon dioxide equivalent tCO_2e = tonne of carbon dioxide equivalent
	Currency M = million; Currency Unit = US$ Dollar US$1 = VND 22,000 GW = gigawatt; kWh =Kilowatt-hour; TWH= terawatt –hour

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EXECUTIVE SUMMARY

The Emissions Reduction Program Area: The North Central Coast region

The ER program encompasses the entirety of the North-Central Coast Region, an area of land totalling 5.1 Mha (Mha, 16% of Vietnam) and which contains a population of approximately 10.5 million people (12% of the total population of Vietnam). The region was chosen due to its critical biodiversity importance and socio-economic status. It encompasses five internationally recognised conservation corridors and has the highest rates of poverty per capita in the country: nearly one third (29%) of the 10.5 million people living in the landscape are living below the national poverty line. The region is hilly and mountainous and it is representative of other mountainous regions in the country and specific sustainable development needs in these areas, based on agricultural development, sustainable forest management, rehabilitation and protection.

Forest cover data indicates that 57% (2.9 Mha) of the proposed ER-P area was forested in 2015; about 74% of which, was natural forest. Over half (1.7 Mha) of the region's forestland is under the management of the State, and nearly one third (0.9 Mha) has been allocated to individual households or village communities. While the total area of forest in the North Central Coastal region (NCC) significantly increased over the past decade there was a marked shift toward poor degraded forests and to plantations. Spatial analysis shows a net increase in natural and planted forest area due to afforestation and that most of the gross loss of natural forests was in the poor evergreen broadleaf forest (62,201 ha were deforested between 2005 – 2010, and 95,139 ha from 2010–2015).

The drivers and underlying causes of deforestation and forest degradation in the NCC

A significant amount of deforestation in the NCC region has been the result of the expansion of agricultural land, mostly for rubber and cassava. In the period 2010 to 2016, land for agricultural production increased on average by 22,619 ha per year in the NCC. The largest portion of agricultural production expansion was from rubber plantations which increased on average by 3,491 ha per year for the period 2005-2016 and this is 2,804 ha per year for period 2010-2016, while cassava contributed on average 1,318 ha per year for the period of 2005-2016. This expansion has been fuelled both by local companies being designated land, particularly in the case of rubber, and encroachment from local communities, for local use and to supply processing companies.

While forest plantations reduce the pressure on natural forests and have led to a net increase in forest cover in the NCC, in some areas timber plantations have replaced remnants of natural forest. The area of timber plantations in the accounting area increased between 2005 and 2015, reaching 749,627 ha. Spatial analysis indicates that the loss of natural forest to forest plantation during 2005-2015 was about 37,243 ha (around 3,700 ha/year). About 71% of this loss has been in highly degraded forest areas. To ensure that the ER Program does not contribute to further loss of natural forests, robust environmental safeguards have been integrated into the ER Program design.

In five out of the six ER-P provinces, infrastructure projects, specifically hydropower projects, have been reported as having negative impacts on forest cover in the past. While the actual land and forest removed for hydropower projects is relatively small, development often occurs in some of the best remaining upland forested areas and the follow-on impacts, opening up previously underdeveloped areas, can be significant. Many of the proposed hydropower projects in the current provincial plans have now been halted under the resolutions from the Ministry of Industry and Trade.

Logging is an important driver of forest degradation in the NCC affecting the overall quality of the forest cover. Logging in the past has included both 'legal exploitation' of natural forests by government-licensed logging operations and 'informal' logging - usually smaller-scale exploitation that occurs without government permission or licenses and is therefore considered illegal. Since 2014, most commercial logging has been banned in Vietnam. Recent recorded forest law violations[1] in the NCC range from 4,700 to 6,500 per year, but it is likely that more violations go undetected and unrecorded.

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[1] Types of forest crimes in Vietnam include illegal logging, illegal land conversion, and wildlife trade

Behind these direct drivers lie a variety of social, economic, political and cultural factors (the underlying causes and major barriers) that influence resource-use decisions at the national and local levels. Three underlying factors are highlighted as a priority to tackle: conversion of depleted forest land to higher-value land uses, lack of support for sustainable forest management and inadequate implementation of policies to protect natural forests. Major barriers to REDD+ are identified as forest tenure and governance, persistent poverty for forest dwelling communities and land scarcity. Unless these major barriers are addressed there is unlikely to be long lasting change.

Barriers to maximizing the carbon enhancement benefits from tree planting and rehabilitation

Plantation expansion has contributed to the increase in the country's forest cover and increased incomes of local people, while helping meet the supply of some wood products. There are, however, various barriers to sustainably managed plantations and accessing higher value markets. These include the poor production practices, limited financing and ineffective governance and extension support. Barriers to enhancement and restoration of natural forests include a lack of technical investment and a lack of incentives for communities to engage beyond the provision of paid labour. Under the ER Program interventions will be introduced to overcome these barriers.

Vietnam's strong political commitment for REDD+

In order to address the drivers, underlying causes and barriers described above, the government has introduced a raft of policies and programs. This commitment is enshrined in the national constitution and has the support of the Communist Party and the Prime Minister. Vietnam's policy framework strongly supports improvements in forest management, and policy developments contribute to the conservation and enhancement of forest carbon stocks in the NCC. The ER Program will support the implementation of these ambitious policies and schemes at the provincial and regional levels: in particular relating to re-allocation of forest land from state institutions to households, land use and integrated planning, policies to promote sustainable forest management and forest certification, policies to address deforestation and forest degradation, payment for forest ecological services schemes and ongoing support and efforts to transform plantations.

Strong political commitments and policy and legal frameworks are already helping address some of the most serious drivers of deforestation across the country and within the NCC. As a result of deforestation from rubber production, the Prime Minister issued legislation to monitor and control rubber expansion resulting in a significant drop in expansion nationwide. In 2013 the Ministry of Industry and Trade reviewed all pending hydropower projects in the national and provincial hydropower plans resulting in the cancelation of 424 projects. Vietnam's commitment to stop the conversion of natural forests is a high priority for Prime Minister, Nguyen Xuan Phuc. Directive 13/2017 on forest management, protection and development specifically highlights the need ''to strengthen mechanisms to manage and closely monitor projects on conversion of forest use purposes, especially for hydropower development projects; as well as the need to review and reassess projects on the conversion of forests to rubber plantation''. This commitment is also clear in the new Forestry Law which includes improved and strengthened forest governance and clearer laws on how to deal with deforestation and more emphasis on involving local communities in protection, and provides for the Vietnam Timber Legality Assurance System.

Another critical milestone is the Prime Minister's endorsement of the revised National REDD+ Action Plan (NRAP) 2017-2030 on April 5th, 2017. The updated NRAP sets out priority policies and measures with which the ER Program aligns. REDD+ is also recognised as an important component of Vietnam's Nationally Determined Contribution with a commitment to increase forest cover to 45%. Finally, a new Forest Law was passed in November 2017 which supports the aim of addressing deforestation and forest degradation and promoting forest rehabilitation, sustainable forest management and conservation.

Overall design of the ER Program

The overall approach and design of the program in order to address the drivers and underlying causes of forest loss and barriers to SFM and forest enhancement is to build on and support implementation of the current ambitious national and sub national policies and initiatives in the NCC region while at the site-level, an Adaptive

Collaborative Management Approach (ACMA) will be supported. The ER Program will support a combination of enabling conditions for emissions reduction and sectoral activities - with a focus on the forest and agriculture sectors. The three inter-related components of the program are:

- *Component 1:* Strengthening enabling conditions for emission reductions
- *Component 2:* Promoting sustainable management of forests and carbon stock enhancement
- *Component 3:* Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people
- *Component 4:* Program management and emission monitoring

The diagram below provides a summary of the different components and sub components of the ER Program responding to the drivers of forest and land use change in the NCC.
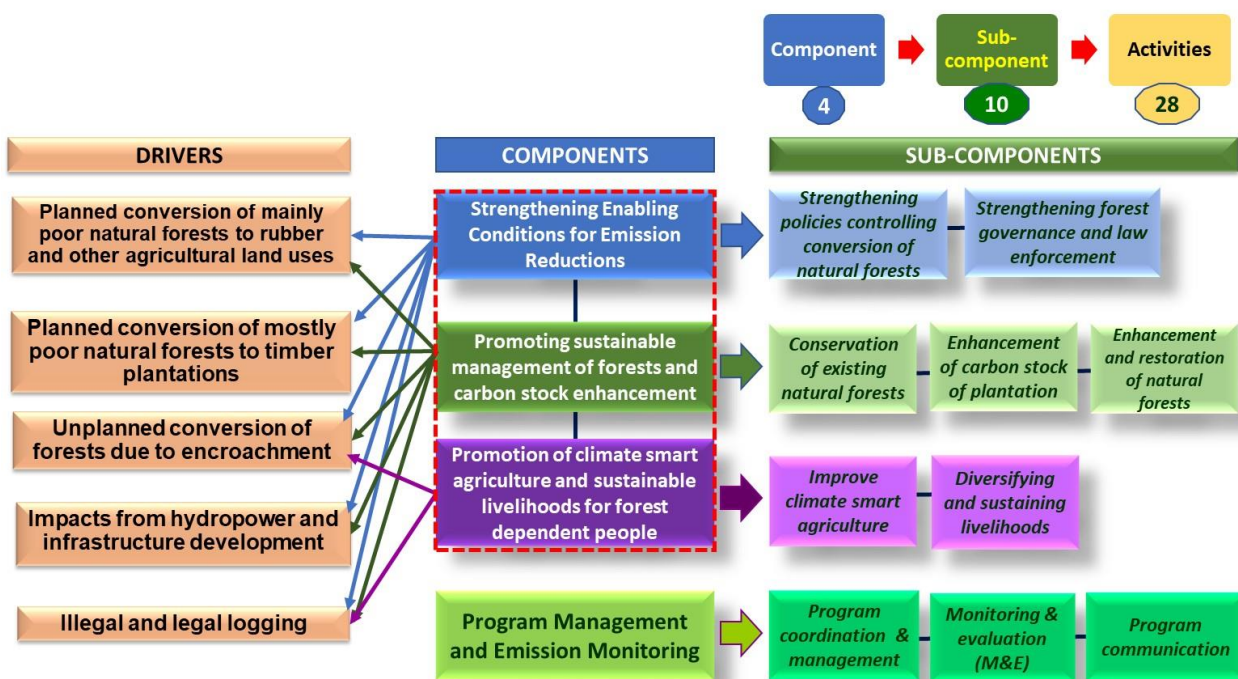
Component 1 includes actions to strengthen the enabling conditions for emissions reductions. It contains two sub components, strengthening policies controlling the conversion of natural forests (Sub Component 1.1) and strengthening forest governance and law enforcement (1.2). This specifically addresses the underlying causes of conversion of depleted forest land to higher-value land uses and inadequate implementation of policies to protect natural forests. The proposed activities build upon strong political commitments enshrined in recent policies and plans which will be implemented during the lifetime of the ER Program. Strengthening the enabling conditions is expected to have a transformative impact across the NCC. Lessons from the efforts under this work package will be replicated in areas beyond the NCC.

Component 2 focuses on supporting ongoing forest sector restructuring. The ER Program builds upon efforts in the NCC to meet national forest targets for: (i) conservation of existing natural forests; (ii) enhancement of carbon stock of plantation and (iii) enhancement and restoration of natural forests. Interventions supporting the conservation of existing natural forests (Sub Component 2.1) respond to the need to address some of the major barriers to REDD+, namely forest governance and ownership, poverty and limited available land. Long term sustainable development depends on greater involvement and benefits to local communities. This indicates the need for more collaborative approaches to forest management, coupled with support to diversifying and sustaining livelihoods for forest dependent people (Component 3), particularly in hotspot

areas. These activities will be introduced as part of the Adaptive Collaborative Management Approach (ACMA) which is described further under Benefit Sharing Arrangement (described below).

Sub Component 2.2 contains a number of interventions to overcome the various barriers to sustainably manage plantations and accessing higher value markets. This builds on the lessons from the World Bank Forest Development Support Program. Sub Component 2.3 supports interventions which overcome barriers to enhancement and restoration of natural forests.

For some agricultural commodities produced in the NCC, in particular those with large export markets, they have the potential with price swings to cause expansion and deforestation and it is necessary to more closely monitor production. In the NCC rubber and shrimp aquaculture, which are both sold on international markets, will be specifically targeted to ensure that production is 'deforestation free' (Sub Component 3.2).

Social and environmental concerns and safeguards

Several program safeguards instruments have been prepared or are under preparation. An Environmental and Social Management Framework is in the final process of being prepared and includes the following safeguard instruments: a Resettlement Policy Framework which is in the final stage of preparation developed to address potential involuntary resettlement issues that may occur during the program; and an Ethnic Minority Policy Framework which includes safeguard measures in relation to Free, Prior and Informed Consultation (FPIC) of Ethnic Minorities in the ER-P area. These measures are designed to ensure ethnic minority people derive benefits from the ER Program as non-ethnic minority persons. The objective of the Gender Action Plan is to promote women participation in the program, share in the benefits, and maximize gender equality.

The main social concerns relate to security of land tenure, access to resources and improvement to livelihood, lack of recognition of customary land tenure rights for agricultural and forest land and gender issues. The overall ER-P activities are not expected to cause significant negative impacts in terms of loss of access to land or other resources, and where such restrictions do occur they are addressed through the Environment and Social Management Framework and the Resettlement Policy Framework and through safeguards measures embedded in the Adaptive Collaborative Management Approach (ACMA). This approach supports the involvement of forest dependent communities in sustainable forest management and requires the state forest managers to engage with the communities. This process is supported in the new Forestry Law (2017). The program also includes several pragmatic measures which are expected to strengthen individual and collective ethnic minority tenure rights and effectively safeguard ethnic minority communities from negative impacts in terms of their access and use of customary lands and resources. This includes program design elements, in particular, the ACMA and support for FLA; social safeguards, specifically the Process Framework and the Ethnic Minority Process Framework; as well as targeted livelihood incentives. A Feedback and Grievance Redress Mechanism based on the existing and well established laws of Vietnam is under preparation. 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.

An environmental concern is the perceived risk of plantation development leading to the clearing of natural forests. However, this risk is believed to be moderate and will be limited to a small area. The development of new plantations covers only approximately 53,000 ha. The ER Program will work through ACMA to ensure that plantation establishment follows SFM practices, and does not replace natural forests. 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. Furthermore, simple codes-of-practice will contribute towards ensuring viable, sustainable and environmentally compatible plantation management among plantation owners. To this end, the ER Program will build on the Environmental Protection Guidelines for Plantation Management that were developed as part of the Environmental Impact Assessment for the Forest Sector Development Program. An improved provincial forest monitoring system which uses mobile electronic devices to monitor and update forest area changes will be applied to identify conversion from natural forest to plantation on a periodic basis.

The ER Program's design is the outcome of a comprehensive stakeholder consultation process that included all the ER provinces. Participation methods included village-level meetings with households, focus group

discussions particularly with women, workshops, participatory forest transects, natural resource assessments, interviews of key informants, and a quantitative Probability Proportional to Size (PPS) sampling survey of 102 communes (over 3,000 households) focusing on forest dependence, poverty and livelihoods of primarily ethnic minority households in the six proposed ER-P provinces. 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. In this way, a picture of challenges and opportunity-costs of potential REDD+ activities in the localities was formed. Qualitative data acquired through these processes has been used in the design of the overall program and the approach to the Benefit Sharing Mechanism. The implementation of the program is built around the ACMA. and the process is supported in the new Forestry Law.

The benefit sharing mechanism: the adaptive collaborative management approach

The ACMA, besides being an effective framework to improve forest management will ensure that activities are inclusive and pro-poor. Vietnam's forestry sector in general, and PFES and REDD+ in particular has the explicitly stated mission of national poverty reduction and this pro-poor objective is integrated into the ER Program.

The ACMA entities will play a central role in benefit sharing. It is proposed that 94% of funds available will be allocated by the provinces to the participating ACMA entities on the condition that it demonstrates a very clear commitment to include all forest users and contributes to sustainable forest management and to reduce pressure on Special Use Forests and protected areas. The Government of Vietnam hopes that linking benefit sharing with collaborative management will go beyond simply incentivizing individuals and communities to sustainably manage and protect their forests through just providing compensation for their efforts. It wants to narrow the divide between the managers and users of forests and recognize the veracity of both "indigenous" and "technical" knowledge. It recognizes that forests cannot be managed in isolation from land not utilized for forestry purposes and that local forest-dependent persons have livelihoods that include both forest and non-forest based resources and land use. The Government of Vietnam through the ACMA also wants to facilitate the empowerment of local communities in their relationships with managers of forests and biodiversity conservation through greater participation of ethnic minority women and poor and vulnerable villagers that have been largely excluded from meaningful forms of participation.

Reference level and expected emission reduction

Reference Level is from 2005-2015 and it includes carbon pools in above and below ground biomass. Estimates of Emissions and Removals for the Reference Level are based on Vietnam's National Forest Inventory (NFIMAP), which was conducted in 2005 and 2010, plus IPCC default assumptions. In response to previous comments from the TAP, Vietnam has extended the Reference Period to 2015 by generating an updated forest cover map, with accuracy assessment, and calculating the Reference Level starting from 2005. Vietnam has also adjusted the forest cover type parcel boundaries in the 2005 forest cover map to be consistent with the same boundaries (where they exist) in the 2010 forest cover map, and used the 2010 forest cover map as the base year for deriving the 2015 forest cover map to ensure mapping consistency. Vietnam did this to reduce the uncertainty associated with differencing independent maps.

Estimates of Emission Factors (tCO_2e/ha by forest type) are available for 2005 and for 2010 based on national allometric equations and measurement plots of the NFIMAP. Since there was no NFIMAP conducted in 2015, Vietnam will use the 2010 Emission Factors for 2015. The Activity Data come from a series of forest cover maps for 2005, 2010, and 2015 which have been improved through various international collaborative projects. Estimates of emissions and removals were calculated by following the time series change from 2005-2010-2015 for individual parcels of land, with adjustments to C removals made in the case of forest regrowth, to remain consistent with IPCC best practices. Since the current data is not sufficient to estimate emissions associated with degradation for stable forests (forest types remain unchanged over the inventory cycle), the omission of such emissions is considered conservative. Consequently, the estimate of reference level for ER-P area likely to includes underestimate of emissions from stable forest degradation and a step-wide approach is considered for future improvement.

Estimates of many components of uncertainty for the Emission Factors and for the Activity Data were calculated using standard methods and combined using a propagation-of-error approach to address uncertainty. Vietnam proposes to continue this system in the future for the Measurement, Monitoring and Reporting (MMR) for the ER program, using methods consistent with those used to calculate the Reference Level, and repeating the inventory at five year intervals and tracking the time series classification of land parcels in order to improve Activity classification.

The average annual net emission for 2005 – 2015 for the NCC is 4.6 MtCO$_2$e (average annual emission is 10.8 MtCO$_2$e and average annual removal is – 6.2 MtCO$_2$e). The results of the uncertainty assessment for emissions and removals show that overall weighted uncertainty of emissions and removals vary from 26 -35%

The ER program is expected to generate about **32.09 MtCO$_2$e** from reduced emissions and increased removals by sinks over the program period of 2018-2025. The ex-ante estimate of reduced emissions and increased removals by sinks will amount to **26 MtCO$_2$e** over the ERPA period of 2019-2024 (6 years). Expected emission reductions from reduced deforestation and forest degradation will amount at **13.26 MtCO$_2$e** (or a reduction of 20 % compared to the RL emissions) and the increase in removals by sinks due to carbon stock enhancement amount at 12.7 million tCO$_2$e (an increase by 34% compared to the RL removals). Excluding the calculated 4% uncertainty factor and the 21% buffer, the net ex-ante estimated GHG emission reductions reduces to **19.5 million tCO$_2$**e over 6 years (2019 – 2024), which excludes **6.5 million tCO$_2$e** for uncertainty and reversal buffer.

The ER Program's MMR system will identify and quantify any natural forest that is converted to plantations across the entire accounting area. A preliminary analysis of the 2005 - 2015 time series data indicated that conversion of natural forest to plantation accounted for 54,645 ha in the NCC. Two-thirds of that conversion occurred on poor evergreen forest. The methodology applied for both the Reference Level and the MMR takes a forest inventory approach across the landscape that will measure all activities at the landscape scale, integrating changes from ER Program projects with all other changes taking place in the landscape. The MMR system will follow the time series of change for each parcel, from the beginning of the reference period, and any change from natural forest to plantation will not be counted as Afforestation or Reforestation, and no credit will be claimed for removals.

Displacement and reversal risk

There is some risk that the ER Program may lead to international displacement of emissions if illegal logging in the NCC is displaced to Lao or Cambodia, but this risk is expected to decrease over time due to: improvements in forest governance linked to FLEGT, increases in chain of custody certification, MoUs with Lao and Cambodia aimed at improving cooperation to combat illegal logging and ongoing work with the provinces which have border crossings in the NCC. Recent policies in both Lao PDR and Cambodia have led to a significant fall in the movement of timber into Vietnam. Also, in the long-run, the ER-Program investments in plantations are expected to increase the domestic timber supply, making up for any reduction in illegal logging.

There are also concerns raised around displacement as a consequence of tackling the expansion of rubber in NCC. However, this risk is deemed low. Since 2012 there has been high level commitment to control rubber expansion which has led to a large-scale slowdown in conversion. Prime Minister, Nguyen Xuan Phuc introduced *Directive 13/* 2017 which highlights the need to review and re-assess projects on conversion of forest to rubber plantation. Considering most conversion is due to ''planned conversion'' from provinces (often within SFCs) over larger areas, these developments can be monitored. With the introduction of Instruction 1685 and Directive 13, it will become more difficult for provinces to get permission from central government to convert areas for rubber.

The overall risk of reversal is deemed at 21%. The main risks relate to the lack of long term effectiveness in addressing underlying drivers (3%), exposure and vulnerability to natural disturbances (3%) and lack of institutional capacities and/or ineffective vertical/cross sectoral coordination (5%).

Program financing

The program costs are closely linked to the interventions over 8 years they are estimated at **USD 312.8 million**. The costs for the ER-P by the components are as follows:

- Component 1: Strengthening policies controlling conversion of natural forests: USD 6.84 million (or 2.2% of total costs).
- Component 2: Promoting sustainable management of forests and carbon stock enhancement: USD 240.4 million (or 77% of the total program budget), of which, costs for Sub-component 2.1: Conservation of existing natural forests is USD 113.2 million; for Sub-component 2.2: Enhancement of carbon stock of plantation is USD 70.5 million; and for Sub-component 2.3: Enhancement and restoration of natural forests is USD 56.6 million.
- Component 3: Promotion of climate-smart agriculture and sustainable livelihoods for forest dependent people: USD 60.9 million (19%); and
- Component 4: Program Management and Emissions Monitoring: USD 4.7 million (1.5%)

ODA funds are mainly estimated from the WB loan for the Forest Sector Modernization and Coastal Resilience Enhancement (FMCR) project, expected KfW loans for the forestry sector to the government of Vietnam and JICA 2 project on restoration and sustainable management project (JICA 2), USAID financed Vietnam Forests and Deltas Program; and KfW financed Forest Restoration and Sustainable Management in Central and Northern regions of Vietnam. About 50% **(USD 51.4 million)** of the ODA financing source is expected to come from the WB loan on coastal protection, financing all coastal and sandy forest protection, reforestation (component 2) and the related livelihood development activities under component 3. The remaining **USD 25.1 million** will be covered from the ODA projects currently under preparation or implementation.

The results-based emission reduction payments from the sale of emission reductions to the Carbon Fund are estimated at **USD 51.5 million.** A portion of USD 7.5 million financing gap up to year 3 is proposed to be met with advance payment from the Carbon Fund. The cash flow analysis for ER-P implementation (see Figure below) shows that Government of Vietnam is committed to the implementation of the program and will start with the implementation of the ER-P in 2018 while the ERPA is expected to be for the period 2019 - 2024. The ER-P program is fully integrated into the governmental 5 years planning and budgeting cycles (2016-2018 and 2021-2025).
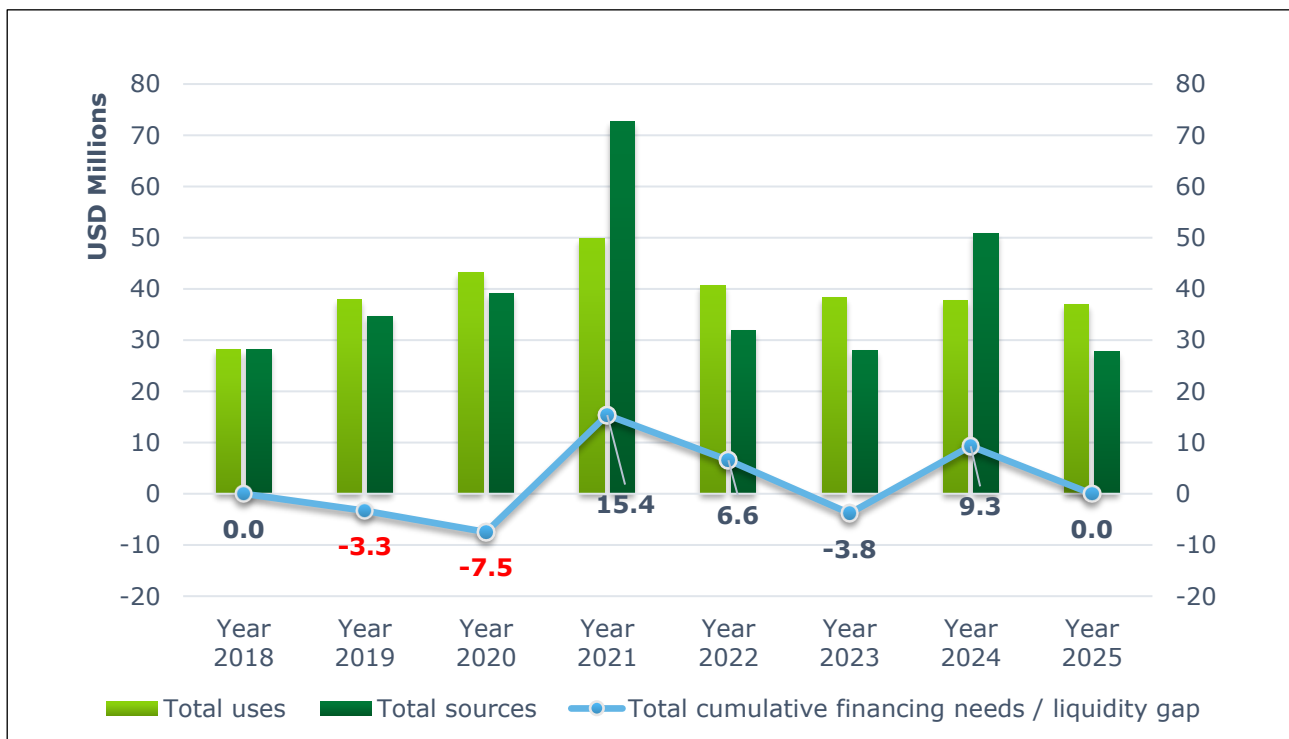
1 ENTITIES RESPONSIBLE FOR THE MANAGEMENT AND IMPLEMENTATION OF THE PROPOSED ER PROGRAM

1.1 ER Program Entity that is expected to sign ERPA with the FCPF Carbon Fund

Name of entity	Ministry of Agriculture and Rural Development
Type and description of organization	Government Organization
Main contact person	H. E. Nguyen Xuan Cuong
Title	Minister
Address	No. 2 Ngoc Ha Street Hanoi Vietnam
Telephone	+844 3734 6993/+844 3846 8161
Email	vp@mard.gov.vn
Website	http://www.mard.gov.vn

1.2 Organization(s) responsible for managing the proposed ER Program

Same entity as ER Program Entity identified in 1.1 above?	Yes
If no, please provide details of the organizations(s) that will be managing the proposed ER Program	
Name of organization	Management Board of Forestry Projects
Type and description of organization	Government organization
Organizational or contractual relation between the organization and the ER Program Entity identified in 1.1 above	Implementation of forestry projects
Main contact person	Mr Vu Xuan Thon
Title	Director
Address	Management Board of Forestry Projects
Telephone	Tel: 0913211306
Email	vuxuanthon@yahoo.com

1.3 Partner agencies and organizations involved in the ER Program

Name of partner	Contact name, telephone and email	Core capacity and role in the ER Program
Government Agencies		
VNFOREST	Mr. Ha Cong Tuan, Vice Minister	Managing entity
Ministry of Natural Resources and Environment	Mr. Tran Hong Ha, Minister	Managing entity
Ministry of Planning and Investment	Mr. Nguyen Chi Dung, Minister Nguyenchidzung@mpi.gov,vn	Managing entity
Ministry of Finance	Mr. Dinh Tien Dung, Minister	Managing entity
Community Ethnic Minority Affair	Ms. Be Thi Hong Van Vice Director of Ethnic Policy Tel: 04 37173181/ 09129047067	
Department of Agriculture and Rural Development of Nghe An	Mr. Nguyen Tien Lam Vice Director Tel: 0913274025 E: lamccln@yahoo.com.vn	Provincial representative
Department of Agriculture and Rural Development of Thanh Hoa	Mr. Le Van Doc Vice Director Tel: 0913293958	Provincial representative
Department of Agriculture and Rural Development of Ha Tinh	Mr. Nguyen Huy Loi Vice Director Tel: 0913294136	Provincial representative

Name of partner	Contact name, telephone and email	Core capacity and role in the ER Program
	E: huyloihatinh@gmail.com	
Department of Agriculture and Rural Development of Quang Binh	Mr. Pham Hong Thai Vice Director Tel: 0912 037 673 Duythai67@gmail.com	Provincial representative
Department of Agriculture and Rural Development of Quang Tri	Mr. Khong Trung Vice Director Tel: 0913485114 E: trungklqt@yahoo.com.vn	Provincial representative
Department of Agriculture and Rural Development of TTHue	Mr. Vo Van Du E: Vanduvo@gmail.com 0913425191	Provincial representative
Nghe An Department of Natural Resources and Environment	Mr. Vo Duy Viet Director Tel: 0913272376 E: Vietnamvina@gmail.com	Provincial representative
Thanh Hoa Department of Natural Resources and Environment	Mr. Vu Dinh Xinh Director Tel: 0912281567 E: vudinhxinh@gmail.com	Provincial representative
Ha Tinh Department of Natural Resources and Environment	Mr. Vo Ta Dinh	Provincial representative
Quang Binh Department of Natural Resources and Environment	Hoang Quoc Viet Vice Director Tel: 0912256937 E: viethq.stnmt@quangbinh.gov.vn	Provincial representative
Quang Tri Department of Natural Resources and Environment	Nguyen Truong Khoa Vice Director Tel: 0903.519.056 E: nguyentruongkhoa@quangtri.gov.vn	Provincial representative
Hue Department of Natural Resources and Environment	Mr. Phan Van Thong Director E: pvthong.stnmt@thuathienhue.gov.vn	Provincial representative
Nghe An CEMA	Mr. Luong Quang Kinh Director Tel: 0983157545	Support for stakeholder engagement
Thanh Hoa CEMA	Mr. Luong Van Buong	Support for stakeholder engagement
Ha Tinh community ethnic minority office under Ha Tinh PPC	Mr. Le Van Khuong Head of Office Tel: 0912342136	Support for stakeholder engagement
Quang Binh CEMA	Mr. Hoang Duc Thang Vice Director Tel: 0912062518 E: thanghd.bdt@quangbinh.gov.vn	Support for stakeholder engagement
Quang Tri CEMA	Mr. Le Van Quyen Director Tel: 0913400451 E: levanquyen@quangtri.gov.vm	Support for stakeholder engagement
Hue CEMA	Ms. Nguyen Thi Suu Director	Support for stakeholder engagement
Technical partners		
UN-REDD Vietnam Phase II Program	Fabien Monteils Chief Technical Advisor Tel: 01267 165 521 E: fabien.monteils@undp.org	Technical and financial support for the development of technical issues

Name of partner	Contact name, telephone and email	Core capacity and role in the ER Program
FCPF project	Christopher Turtle Chief Technical Advisor Tel: 0903443252 E: christopher_turtle@yahoo.com	Technical support for the ER Program; and FCPF readiness project
JICA	Mr. Hiroki Miyazono Chief Technical Advisor Tel: 0986683204 E haskimiyazono@gmail.com; Miyazono.Hiroki@jica.go.jp	Technical and financial support for the development of technical issues
FAO	Ms Akiko Inoguchi Akiko.Inoguchi@fao.org	Technical partner and co-chair on MRV
The Forest and Delta Program	Brian Bean Tel: 03 718 2127 bbean@Winrock.org	Program partner, working Thanh Hoa and Nghe An Provinces, technical and financial support for the development of technical issues
Vietnam Academy of Forest Sciences	Dr. Vu Tan Phuong Tel: 0986875371 E: phuong.vt@vafs.gov.vn	Technical support for development of base line and estimation of ER (REL/RL)
Forest Inventory and Planning Institute	Mr. Vu Tien Dien Tel: 01696994569 E: dienfipi@gmail.com	Technical support for development of base line and estimation of ER (REL/RL)
Forest Inventory and Planning Institute	Dr. Nguyen Dinh Hung Tel: 0987542167 E: dinhhung28@yahoo.com	Technical support for development of base line and estimation of ER (MMR/MRV)
DOSTIC – VNFOREST (cum chair of BDS and MRV TWGs)	Dr. Nguyen Phu Hung E: phuhungdostic@gmail.com/ hungfipi@vnn.vn Tel: 0912094190	Technical support for MRV and benefit sharing
Non-government organizations		
Centre of Research and Development in Upland Area (CERDA) (cum co-chair of BDS TWG)	Ms. Vu Thi Hien tranvuhientk@gmail.com	Stakeholder information sharing, consultation, participation, benefit sharing (co-chair)
Centre for sustainable development in mountainous areas (CSDM)	Ms. Luong Thi Truong lt.truong@csdm.vn	Stakeholder information sharing, consultation, participation
SNV	Ms Ly Thi Minh Hai www.sn	Safeguards (co-chair), local implementation (co-chair)
SRD Centre for Sustainable Rural Development	Mrs. Vu Thi Bich Hop, Executive Director of The Centre for Sustainable Rural Development (SRD), Email: info@srd.org.vn; hop@srd.org.vn Telephone (office): +84 43943 6676 www.srd.org.vn	VNGO-FLEGT network
WWF	WWF Vietnam Landscape Manager for all Carbon and Biodiversity Project (Car-bi) (Vietnam) Quoc.Nguyenanh@wwfgreatermekong.org REDD coordinator Thang.nguyenngoc@wwfgreatermekong.org	The Car-bi project has some overlap in project area in TT Hue Province and Quang Tri
RECOFTC	Mr Nguyen Quang Tan Tan@recoftc.org	Governance (co-chair)
PanNature	Mr Viet Dung Dungnv@nature.org.vn	Governance (co-chair)
Forest Trends	Nguyen Vinh Quang	Private Sector engagement (co-chair)

2 STRATEGIC CONTEXT AND RATIONALE FOR THE ER PROGRAM

2.1 Current status of the Readiness Package and summary of additional achievements of readiness activities in the country

The Readiness Assessment Package was submitted to the Carbon Fund (CF) in September 2016, and shows the overall progress of readiness for REDD+ in Vietnam. As outlined in the Self-Assessment of the Readiness Package[2], the main outcomes in REDD+ readiness preparation include the following:

- The National REDD+ Action Plan (NRAP) was approved in 27June 2012, making Vietnam one of the first countries to introduce a NRAP;
- Ten (10) Provincial REDD+ Action Plans (PRAPs) have been approved (six of which for provinces in the North Central Coast);
- The National Reference Emission Level (REL) document was submitted to the UNFCCC in January 2016;
- A National Forest Monitoring System has been established;
- A decision on piloting a REDD+ benefit sharing mechanism has been issued;
- The proposal for a REDD+ Fund has been approved;
- A guideline for FPIC has been drafted;
- The REDD+ institutional framework includes a national REDD+ office, Provincial REDD+ Steering Committees, and committees set up under the NRAP;
- REDD+ training, and capacity building has been carried out; and
- A REDD+ communication system has been developed.

Key remaining gaps are being addressed as follows:

- Further development of the legal framework related to REDD+ such as land use, forest resource use rights, forest entitlement, carbon rights, and other technical aspects of REDD+ etc.;
- Establishment of cross-sectoral coordination mechanisms to support REDD+;
- Integration of REDD+ action plans with the Forest Protection and Development Plan, and the Socio-Economic Development Plan;
- Establishment of the National REDD+ Fund as part of the Forest Protection and Development Fund;
- Further development and institutionalization of REDD+ safeguards mechanisms such as the grievance redress mechanism, SESA (the regional SESA Phase 1 is complete; a national SESA Phase 2 in due in 2018), FPIC guidelines, Safeguards Information System (SIS), and capacity strengthening on REDD+ for the community, especially ethnic minorities, vulnerable groups, etc.;
- Governmental approval of a Benefit sharing mechanism in REDD+;
- Approval and operationalization of the REDD+ communication strategy, including the establishment of a national REDD+ Portal;
- A new NRAP, including an elaboration of action plans for the period 2016 – 2020 and improved guidance on strategy and implementation;
- Production of the National REDD+ Investment Plan to implement the NRAP;
- Approval of National REL and NCC RL;
- Establishment of an MRV system at all levels.

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[2] https://www.forestcarbonpartnership.org/sites/fcp/files/2016/Aug/Vietnam%20R-Package%2017Aug16.pdf

2.2   Ambition and strategic rationale for the ER Program

Between 1943 and 1993 much of the country's forests were cleared, with forest cover declining from an estimated 43% to 28%. Since then, forest cover has increased significantly due to a number of factors[3]. Plantations[4] and natural regeneration have helped to increase the total forest area to an estimated 13.3 Mha in 2010, from 9.2 Mha in 1992.[5] Vietnam has moved away from a period of forest conversion and towards forest protection and sustainable forest use. There is a growing need for interventions which can support activities across multiple sectors, while meeting economic growth and poverty alleviation targets as set out it the Socio-Economic Development Plans. This requires the country to move towards more sustainable development, or green growth.

The proposed ER program encompasses the entirety of the North-Central Agro-Ecological Region, an area of land totalling 5.1 Mha (16% of the total land area of Vietnam), of which 80% is hills and mountains and the remaining is coastal plains with agricultural land, accounting for 14% of the natural area. The landscape of the ER Program was chosen due to its critical biodiversity importance and socio-economic status. The area encompasses five internationally recognised conservation corridors (ranked 'high' or 'critical' global conservation priority) and has the highest and deepest rates of poverty per capita in the country. Nearly one third (29%) of the 11 million people living in the landscape are living below the national poverty line. It is also representative of other regions in the country and the need to promote sustainable development, based on sustainable forest management, rehabilitation and protection.

While the total area of forest in the NCC has increased, there has been a marked shift towards poorer forests and to plantations. Gross deforestation, between 2000 and 2015, across all 6 provinces was 318,218 ha and this was offset by afforestation of 758,224 ha. Deforestation was primarily driven by planned and unplanned conversion of forest land, particularly poor quality forest land, to agriculture. The goal of the ER Program is to directly respond to this situation and work across key land use sectors to address the drivers of deforestation and forest degradation and encourage forest rehabilitation and sustainable forest management. Vietnam is unusual among the FCPF countries in having experienced a net increase in forest cover in recent decades. Thus, it can be expected that the Program will provide important lessons for the implementation of REDD+ in other countries that are characterized by a similar forest transition process.

The program will have strategic importance in the following areas: (i) supporting large scale integrated forest and land use practices; (ii) addressing the agriculture-deforestation nexus; (iii) supporting poverty reduction; and (iv) applying innovative financing mechanisms for payments for forest services. The Program will provide critical lessons and models not only across the NCC but throughout the country and to other countries. For each of these areas the ER Program builds on current government commitments, expressed through recent policies and programs.

Supporting large scale integrated forest and land use practices

The ER program aims to make substantial achievements to promote more integrated and sustainable land use practices which reduce pressure on forests while supporting local livelihoods. The issues which will be addressed under the ER program and the cross-sectoral solutions introduced are relevant to land use dynamics in many parts of the country. The proposed ER Program is strategically relevant for the development and to deliver on integrated planning and national sustainable development priorities, as expressed in some major policies and legislation, including:

- Vietnam's Climate Change commitments are outlined in their Nationally Determined Contribution (NDC) which commits to an 8% reduction of GHG emissions by 2030 (and 25% with external support) compared to the Business As Usual (BAU) scenario. REDD+ is an important component of this contribution with a commitment to increase forest cover to 45%. The INDC was submitted to the UNFCCC on 30 September 2015.

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[3] Central to this were the land reforms of the Doi Moi (renovation) policies - in particular the forest and agriculture land allocation policies - as well as forest zoning through the Forest Protection and Development Code, a partial logging ban, changes in the responsibilities of State Forest Enterprises, as well as the beginning of large-scale reforestation programs.

[4] Plantations are considered forests if they meet the criteria for forest definition. See more in Section 8.2.1

[5] Information from Decision No. 1828/QD-BNN-TCLN of MARD dated 11th August 2011 on national forest data for 2010

- Development planning is currently undergoing improvements with a new planning law in 2017. Under the revised law, all national sectoral plans will be required to take account of environmental protection, biodiversity conservation and climate change. This will be a far reaching legislation to promote cross sectoral development in the country.
- The Ministry of Planning and Investment and Ministry of Natural Resources and the Environment are supporting the mainstreaming of cross-cutting issues of sustainable development, climate change, and green growth in the formulation of the 5-year Socio-Economic Development Plans (SEDPs). The SEDPs are key for setting priorities and funding for the state and provinces.

Addressing the deforestation-agriculture nexus

The ER Program will be the first large-scale REDD+ program in Vietnam. The program will be strategically important in paving the way on combating some of the key drivers of deforestation in Vietnam – in particular, commodity expansion, such as rubber. It specifically addresses the deforestation-agriculture nexus which has driven much of historical forest loss in the region. It builds on broad political commitment as highlighted in a number of recent policies.

- The Prime Minister supports the reduction of conversion of natural forests through Notice No. 191/2016 on measures to restore sustainable forests to respond to climate change 2016 – 2020. This requires actions to be taken to ensure the non-conversion of natural forests for other land use purposes, including degraded natural forests to plantations and a ban on logging from natural forests.

- There is high-level support for REDD+ through Decision 419/2017 on the National REDD+ Action Plan (NRAP) Phase II which includes a list of Policies and Measures. This was approved by the Prime Minister in April 2017 and builds on Prime Minister Decision no. 799/2012 on NRAP on REDD+, period 2011 – 2020.

- There have been policies specifically targeting the impact of infrastructure development on forests. In 2013 the Ministry of Industry and Trade reviewed all pending hydropower projects in the national and provincial hydropower plans. This resulted in the cancelation of 424 projects nationwide.

- Recent policies have also been designed to address rubber expansion into natural forests in the country. The Prime Minister issued Instruction 1685/2011 with the primary goal to "strengthen the directions for implementing forest protection measures, preventing deforestation and resistance against law enforcement due to rubber expansion". This has been re-enforced in a number of subsequent policies, most importantly is Decision 13 in 2017 which is described in more detail in the next section.

- In 2016 the Target Program on SFM 2016-2020 was launched through Resolution No. 73/NQ-CP 26 August 2016 to replace Decision No. 57. This program provides supports for SFM with a total budget of 59,599 billion VND (2.7 billion USD), of which 2,407 billion VND (112 million USD) is allocated to NCC from the central budget.

Supporting poverty reduction

The remaining forested areas in the country closely align with populations of the poorest communities in Vietnam, in particular ethnic minority groups. Addressing poverty/food security and social development forms an integral part of the ER Program and will provide useful lessons in relation to the social dimension of REDD+. Critical to achieving this is improving current forest governance arrangements, which can help deliver forest protection and poverty alleviation. The program will adopt a 'collaborative approach' to ensure a greater role and ownership by local communities. These efforts on poverty reduction and more inclusive forest governance build on current policies and plans in the country.

- Vietnam's forestry sector, has explicitly stated mission of addressing national poverty reduction. In particular, Decree No. 75/2015/ on mechanisms and policies on forest protection and development linking to rapid and sustainable poverty reduction and support to ethnic minorities period 2015 – 2020.

- The country has increasingly sought to decentralize forest management by allocating forest land to households and individuals to improve livelihoods and increase forest cover. Forest Land Allocation continues to be supported by recent policies, including the 2013 Master Plan for re-structuring the forestry sector.

- Specific policies and programs on poverty alleviation target forest dependent communities. For example, the National Target Program on Sustainable Poverty reduction 2016 – 2020 and Decree No. 75/2015 which covers mechanisms and policies on forest protection and development linking to rapid and sustainable poverty reduction and support to ethnic minorities during the period 2015 – 2020.

Innovation financing mechanisms for payments for forest services

Vietnam is the first country in Asia to implement a national payment for forest environmental services (PFES) program and the ER Program will provide lessons on how REDD+ can be integrated into an existing PFES program to deliver a sustainable financing mechanism for improved forest management. PFES payments are supported through a number of recent policies.

- Industry pays for forest protection through payment for forest environmental services, with annual revenues from 50 – 60 million USD paid by hydro power plants and clean water supply companies (Decree 99/2010). This PFES revenue will be increase by 1.5 times as regulated in Decree 147/2016).

- The National Forest Development Strategy 2006–2020 (NFDS) and the National Plan on Forest Protection and Development support payments for ecological services to forest managers. REDD+ is firmly considered as part of the drive to achieve the objectives of the NFDS.

2.3   Political commitment

As described in Section 2.1 above, Vietnam has demonstrated its national commitment to forest protection and development over the past decade through the introduction of far-reaching legislation and policies. This commitment is enshrined in the national constitution, it has the support of the Communist Party and the Prime Minister. It is mainstreamed into national development plans, and is manifested through action plans and decisions of key ministries. This high-level political commitment was evident with the introduction of policies to halt dam development and stop the rampant expansion of rubber to address deforestation and forest degradation.

High level political commitment has been shown by the incoming Prime Minister Nguyen Xuan Phuc. After taking office in 2016, one of his first engagements was to visit the Central Highlands region to show his commitment to addressing the illegal conversion of natural forests. This led to the country-wide Directive 13/CT-TW dated January 12th 2017 on forest management, protection and development. It specifically highlights the need ''*to strengthen mechanisms to manage and closely monitor projects on conversion of forest use purposes, especially for hydropower development projects, mineral exploitation, construction of industrial parks, services and tourism; as well as the need to review and re-assess projects leading to the conversion of forest to rubber plantation*''. As a result of this Directive (as well as previous decisions) there is now much more political commitment and efforts at the national and provincial levels to combat deforestation and forest degradation. Critically this has led to provincial authorities now being more directly responsible for deforestation and forest degradation in their locality. This is an important change and will stop provinces issuing licenses for the conversion of natural forests without clear justifications monitored by the state. Key tasks which need to be undertaken by the provinces as part of Directive 13 include:

- Strengthen communications to bring about changes in awareness, mindset and sense of responsibility of government officials and Party's members, businesses, communities, households and individuals in forest protection and development;

- Improve the effectiveness and efficiency of state management in forest protection and development. Strengthen regulatory agencies; clarify the roles and responsibilities of different central and local government departments; and build a strong force of forest rangers to enforce effective management, protection and development of forest.

- Urgently review, assess and strictly control socioeconomic development planning and projects negatively affecting forest's area and quality, especially natural forest and protection forest;

- Handle and completely resolve disputes and illegal encroachment of forest land; complete the allocation of land and forests and the certification of forest land use right to organizations, individuals, households and communities by 2018; and

- Be proactive in international cooperation and integration in forest management, protection and development; responsibly implement international commitments in line with national interests and international practices.

The Party Committee of MARD requires provinces to put into practice Directive 13 (Action Program 71/NQ-CP dated August 8, 2017 on the implementation of Directive No. 13-CT/2017). This will require a review of current plans; for example, from rubber expansion and/or infrastructure.

Another important milestone in Vietnam's efforts to address deforestation and forest degradation and promote forest rehabilitation, sustainable forest management and conservation is the development of the revised National REDD+ Action Plan 2017-2030. The new Decision No. 419/2017, issued on April 4th 2017 replaces Decision No. 799/2012 by the Prime Minister on approving the NRAP 2011-2020. The updated NRAP contains 11 Work Packages covering Policies and Measures across the forest and non-forest sectors. These Policies and Measures were determined based on the most comprehensive analysis of drivers of deforestation and forest degradation as well as barrier to ''+'' ever carried out in the country. The Provincial REDD+ Action Plans (PRAPs) operationalize the NRAP at the province level. The PRAPs are being updated based on the revised NRAP 2017-2030. The current PRAPs are not expected to change significantly but will need to provide more coverage and activities on non- forest sector interventions in order to align with the updated NRAP. The political commitment of the participating provinces to REDD+, and to the ER Program, is clearly demonstrated through the support of the provincial leadership in enabling the provincial departments and districts to work on the Program by undertaking the development of PRAPs, and setting up Provincial REDD+ Steering Committees, which have representation from multiple sectors.

Vietnam is also showing a strong commitment to tackle illegal logging through its commitment to negotiating a comprehensive bilateral Voluntary Partnership Agreement with the EU. Vietnam has completed negotiations with the EU on implementing the Voluntary Partnership Agreement/Forest Law Enforcement Governance and Trade which commits Vietnam to address the legality of wood and timber exports and chain of custody. In addition, Vietnam has signed MoUs[6] with Lao and Cambodia to combat illegal timber trading.

Critically a new Forest Law was passed by the National Assembly on 16 November 2017 which will have major implications for forestry within the country. The new Law provides for strengthened forest governance and clearer laws on how to deal with deforestation with more emphasis on involving local communities in protection. It requires that forest ownership institutions more closely follow the Civil Code 2013 (the constitution) and forests can now be preferentially allocated to ethnic minorities, households, individuals and communities.

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[6] The MoUs between MARD (Vietnam) and Ministry of Agriculture, Forestry and Fisheries (Cambodia) was signed in June 2012 and between MARD (Vietnam) and Ministry of Agriculture and Forestry (Lao P.D.R) in July 2012. Those MoUs agree to focus on information and experience exchange through regular meetings, training and workshops; monitoring and controlling illegal wood trading, particularly in border areas.

3 ER PROGRAM LOCATION

3.1 Accounting Area of the ER Program

3.1.1 Overview of Vietnam

The political and economic reforms (Doi Moi) launched in Vietnam in 1986 have transformed the country from one of the poorest in the world, with per capita income around US $100, to lower middle income status within a quarter of a century with per capita income of around US$2,180 by the end of 2016. Vietnam's per capita GDP growth since 1990 has been among the fastest in the world, averaging 5.5% a year since 1990, and 6.4% per year in the 2000s. Social outcomes have improved dramatically across the board. Using the US$1.90 2011 purchasing power parity line, the fraction of people living in extreme poverty dropped from more than 50% in the early 1990s to 3% today. Concerns about poverty are now focused on the 15% of the population who are members of ethnic minority groups, but account for more than half the poor. As of 2016, the population of Vietnam is 92.6 million people and the Gross Domestic Product (GDP) is US$ 202 billion (GSO 2017).

3.1.2 The ER-P Accounting Area

The proposed ER-P Accounting Area (Figure 3.1) encompasses the entirety of the North-Central Agro-Ecological Region, an area of land totaling 5.14 Mha (16% of the total land area of Vietnam), of which 80% is hills and mountains. As of 2016 agricultural production land area accounts for 13% of total NCC area. This area is used to cultivate paddy rice, crops, perennial crops, salt production and fishery. The region has a tropical monsoonal climate. The region is administered as six provinces – Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue – and has a population of about 10.5 million people (11.3% of the total population of Vietnam) living in 1,820 communes, as shown in Table 3.1.

Table 3.1: Area, population and growth rates of the Accounting Area

ER Province	Total area (ha)	Share of total area	Population 2016 (habitant)	Share of NCC population	Average annual growth rate %
1. Thanh Hoa	1,111,465	22%	3,528,300	33%	0.33
2. Nghe An	1,648,162	32%	3,105,517	29%	0.38
3. Ha Tinh	599,067	12%	1,266,723	12%	0.12
4. Quang Binh	800,003	16%	877,702	8%	0.39
5. Quang Tri	477,193	9%	623,528	6%	0.44
6. Thua Thien Hue	508,629	10%	1,149,871	11%	0.59
Total NCC	**5,144,520**	100%	**10,551,641**	**100%**	**0.36**

Source: General Statistics Office (GSO) 2017

Figure 3.1: Location map of the ER-P Accounting Area
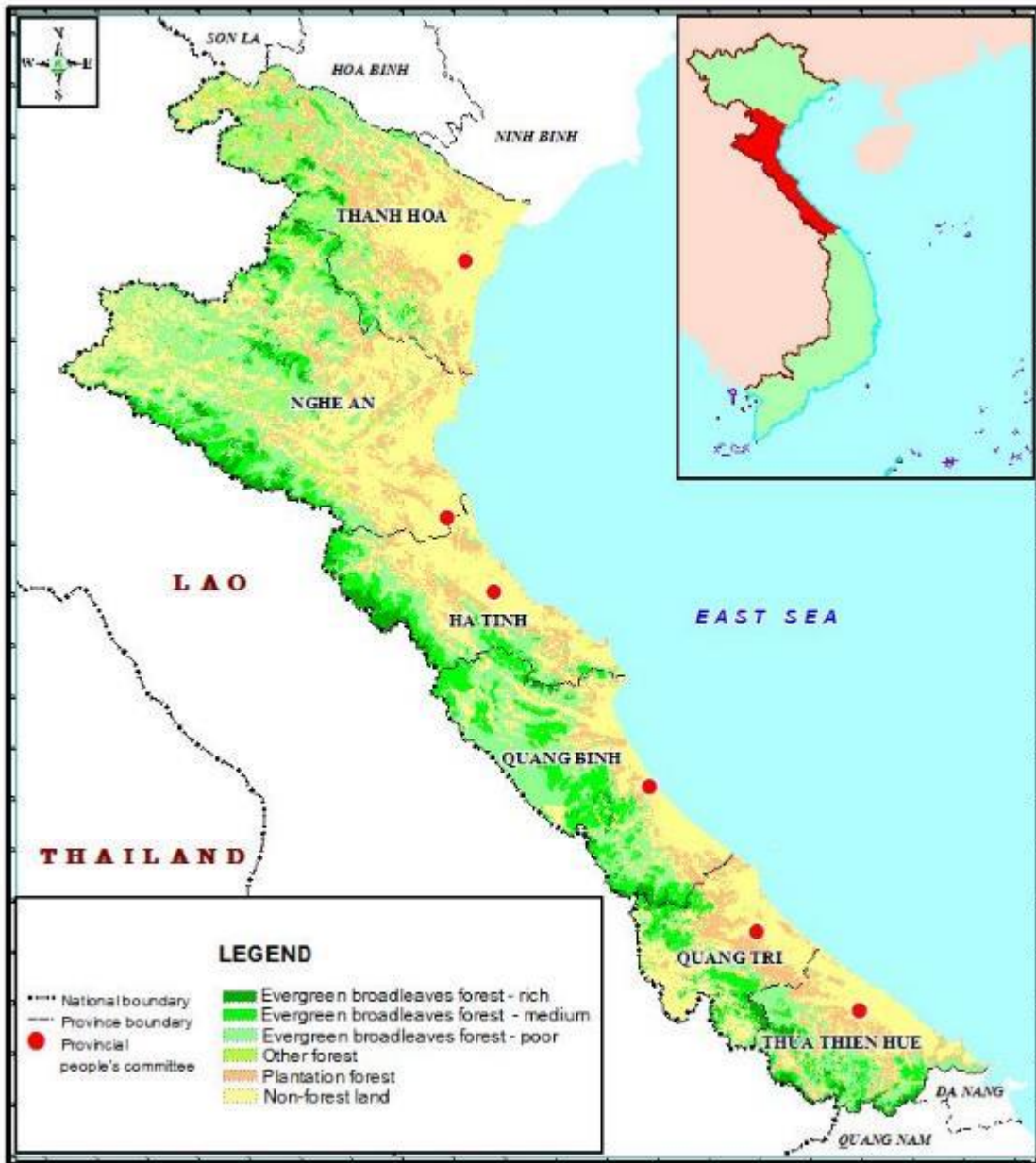
The region is bordered to the north by the North West and Red River Delta Agro-Ecological regions, and by the Southern Coastal Agro-Ecological Region to the South. The NCC region comprises the mountainous hinterland of the Northern Annamites, separating Vietnam from Lao to the West, and a narrow coastal plain along the margins of the East Sea. The ER-P area is mostly settled in the eastern coastal plain and with more sparely populated and forested areas in the mountains of the Northern Annamites.

3.2 Environmental and social conditions in the Accounting Area of the ER Program

3.2.1 Existing vegetation types

Natural forest covers 2.1 Mha, which is 41% of the total accounting area. Most of this is evergreen broadleaf forest (EBF). The largest portion of natural forest is poor EBF (1.3 Mha), followed by EBF of medium quality

(454,691 ha) and rich EBF which covers only 221,080 ha (4% of the accounting area). Other forest makes up 138,755 ha. This includes bamboo forests, mixed wood and bamboo and mangrove forests which cover about 137,936 ha. Plantations cover 781,620 ha, making up 15% of the accounting area. Most plantations are monocultures of *Acacia* (various species) with some pine and eucalypt plantations.

Table 3.2: Area of forest cover and land use in the NCC in 2015 (ha)

Land uses	Area (ha)	% of NCC Area
Natural Forest	*2,171,978*	42%
Evergreen broadleaf forest – rich	167,988	4%
Evergreen broadleaf forest – medium	526,394	9%
Evergreen broadleaf forest – poor	1,339,694	26%
Other Forest	152,936	3%
Plantations	749,627	15%
Non-forested	*2,207,880*	43%
Total	**5,144,520**	**100%**

3.2.2 Climatic conditions

The NCC region has a monsoonal climate and the annual average temperature is about 24-25^{0}C. Average rainfall is about 2,500 mm with two seasons a year: the main rainy season from June to December with tropical depressions and typhoons and 85% of the rain falls from September to November; and the drier season from January to May. Parts of the region can also be subjected to hot dry foehn winds particularly in May and June in Thanh Hoa and Nghe An; and all provinces from Ha Tinh to Thua Thien Hue have high probabilities of tropical depressions or typhoons. Rainfall anomalies also occur, with cases of extreme rainfall (or droughts occurring) and they are expected to double compared to current records. Since 1960, average temperatures have risen by approximately 0.5 to 0.7°C and sea levels have increased by 20 cm around Vietnam (MONRE, 2009, 2012[7]). According to climate change scenarios[8], by 2020 the annual mean temperature is projected to increase by 0.5^{0}C relative to the 1980-1999 level and the average minimum and maximum temperatures will increase by 2.2-3°C and by 2050.

3.2.3 Soils and topography

The soil characteristics of the NCC are divided for mountains, low hills and delta. The main soil groups in the mountains are yellow-red, with humus soil. The main soil group of the low hills is yellow-red soil on sedimentary rocks. In the Delta, the soils are alluvial coastal soil and coastal sand soil. The soils tend to be very fragile and the highly erodible soil combined with the steep topography, sometimes very steep slopes, in very short narrow steep catchments, can lead to rapid spate events. Where forest cover has been reduced, or removed, these events can be very destructive and catchment management can be problematic. The upland areas are prone to erosion and experience frequent landslides even where forest cover has been maintained, where the protective forest cover is removed the erosion can rapidly develop.

3.2.4 Biodiversity

The region contains some of Vietnam's most notable forests with high biodiversity value. The NCC lies within four of WWF's 200 Globally Important Eco-regions, and contains five Endemic Bird Areas (EBA) and 63 Important Bird Areas (IBA) as identified by Birdlife International. The capacity of these forests to provide various environmental services continues to decline. Forest degradation and fragmentation is destroying valuable habitats and putting a large number of already rare vertebrate species at risk of extinction. The landscape of the ER-P includes five internationally recognized conservation corridors (ranked 'high' or 'critical' global conservation priorities (see Figure 3.2), and includes 17 protected areas, 19 important international biodiversity areas, the Western Nghe An UNESCO Man and Biosphere Reserve and the Phong Nha-Ke Bang National Park UNESCO World Heritage Site. The region supports significant populations of 14 globally

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[7]MONRE, 2012: Climate change and sea level rise scenarios for Vietnam

[8] Climate change, sea-level rise scenarios for Vietnam, 2009.

endangered or critically endangered species (Critical Ecosystems Partnership Fund (CEPF) 2012; IUCN 2013).

In addition to the protected areas, the NCC includes: (1) the Annamese Lowlands Endemic Bird Area, one of five in Vietnam, which covers the lowlands and foothills of north-central Vietnam (southern Ninh Binh, Thanh Hoa, Nghe Anh, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue provinces) and part of adjacent central Lao; (2) about 14 Important Bird Area sites out of 59 in Vietnam; and (3) a number of Key Biodiversity Areas.

Figure 3.2: Protected areas and key biodiversity areas of the ER-P region

3.2.5   Population and forest dependency

According to the national census, the NCC region is home to 13 ethnic minority groups[9] which make up some 11.5% of the total population (over 10.29 million in 2013). The largest ethnic minority populations (88% of the total) are found in the two northern provinces of Thanh Hoa and Nghe An[10]. The predominant groups in all six provinces, ordered by population, are Thai (45%), Muong (29%), Bru-Van Kieu (6%), Tho (6%), H'mong (4%), Ta Oi (4%) and Kho Mu (3%). The other groups present in the area (Co Tu and Chut in the South, Dao and O'Du in the North) have a still smaller share of the ethnic minority population. Only the Thai and Muong have populations over 100,000 persons.

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[9] In the course of its investigations, the SESA team found several groups not listed in the Census: Dan Lai, Pa Co and Pa Hy.

[10] A new census of ethnic minority populations was carried out in 2015, but the official results are not yet available. In Nghe An there are, additionally, very small groups such as Phong and Dan Lai that have not been recognised in the 2009 Census. There is a group called Pa Co in the South (Thua Thien Hue and Quang Tri) that also does not have separate recognition and is generally classified under Ta Oi.

Figure 3.3: Map showing the distribution of the ethnic minorities and poor households in REDD+ potential ER-P communes
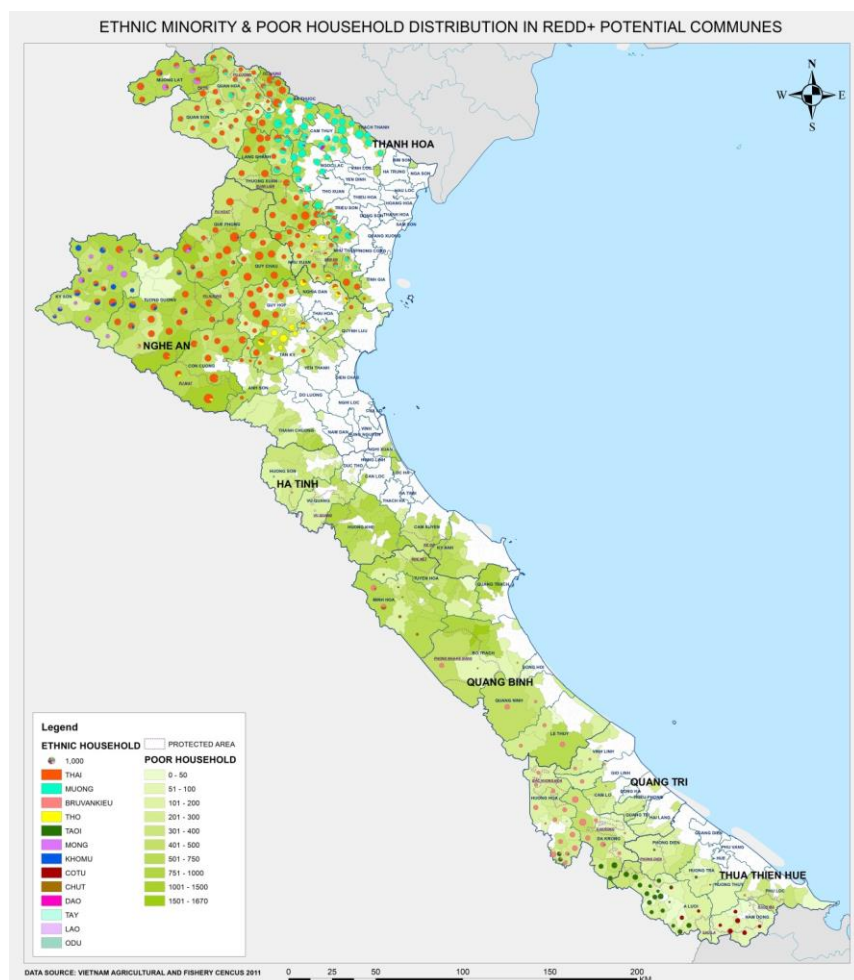
There is a clear relationship between poverty, the presence of ethnic minorities, remoteness, and reliance on forest areas. There is quite a marked difference in distribution of the different ethnic minorities over the ER-P area (Figure 3.2). The Thai, Muong and H'mong are found mainly in the North in Thanh Hoa and Nghe An; a few minorities, mainly Chut and Lao, are found in the central area of the NCC; and the Van Kieu, Ta Oi, O'Du and others are found in the southern part of the NCC. High levels of poverty correlate with generally high ethnic minority populations in the north, and overall with high forest cover (Table 3.3).

In the NCC, the ethnic minority groups are found in the largely mountainous districts and in communes that also have higher percentages of land classified as forest. The partial exception to this is Thanh Hoa Province where, with its large Muong and Thai populations essentially paddy cultivators often occupying the midlands rather than highlands. In the four provinces where there are few ethnic minority people compared to the total provincial population, they tend to be concentrated in the two to three districts per province with the highest forest cover. Despite their overall low to very low populations in the four southern provinces of the NCC (Ha Tinh especially), ethnic minorities still form a majority of the population in several target districts, and are represented to a greater degree in several districts which have higher levels of forest cover compared to the province as a whole.

Table 3.3: Ethnic minority population (habitants) data by group and ER-P Provinces

Ethnic Group	Province						Total
	Thanh Hoa	Nghe An	Ha Tinh	Quang Binh	Quang Tri	TT Hue	
Thai	225,336	295,132	500	0	0	0	**520,968**
Muong	341,359		549				**341,908**
Bru-Van Kieu				14,631	55,079	720	**70,430**
Tho	9,652	59,579				0	**69,231**
Hmong	14,799	28,992				0	**43,791**
Ta Oi					13,961[a]	33,385[b]	**0**
Kho Mu	781	35,670				0	**36,451**
Co Tu						13,812	**13,812**
Dao	5,465					0	**5,465**
Chut				5,095		0	**5,095**
Tay	795					0	**795**
Lao			433			0	**433**
O'Du		340				0	**340**
Other						651[C]	**0**
Total EM Population	**598,187**	**419,713**	**1,482**	**19,726**	**55,079**	**14,532**	**1,108,719**
Total Population	**3,400,595**	**2,912,041**	**1,227,038**	**844,893**	**598,324**	**1,115,523**	**10,098,414**
% EM to Total Population by Province	**17.6**	**14.4**	**0.1**	**2.3**	**9.2**	**1.3**	**11.0**

Notes: Source is GSO Census Data 2009 for all provinces except Thua Thien Hue where the data are from the provincial CEMA, 2015 [a]The Ta-Oi in Quang Tri are almost all Pa Co according to CEMA.[b]Ta-Oi in TT Hue includes Pa Co (21,138); [C]Pa Hy, another group not recognised by the Census 2009. According to CEMA Quang Tri, the ethnic minority population there has gone up to 76,951 Van Kieu and Pa Co people, but the total population of the province was not given.

4 DESCRIPTION OF ACTIONS AND INTERVENTIONS TO BE IMPLEMENTED UNDER THE PROPOSED ER PROGRAM

4.1 Analysis of drivers and underlying causes of deforestation and forest degradation, and existing activities that can lead to conservation or enhancement of forest carbon stocks

4.1.1 Analysis of drivers of deforestations and forest degradation

While the total area of forest in the NCC increased, there has been a marked shift towards poorer forests and to plantations. Spatial analysis shows a net increase in forest area due to afforestation and reforestation[11]. Gross deforestation, between 2000 and 2015, across all 6 provinces was 318,218 ha and this was offset by afforestation and reforestation of 758,224 ha. Thus, the net change in forest area (including both natural forests and plantations) was positive, and the total increase was 440,006 ha. Of the three evergreen broadleaf forest classes, poor forest class increased by 288,382 ha; medium forests decreased up to 2010 and then increased between 2010-2015. Rich forests decreased between 2005 and 2010 and then further by 2015. A significant part of the recorded afforestation and reforestation was from timber plantations which had grown to 749,627 ha by 2015. Forest degradation occurred on 292,469 ha, and was only partially offset by forest enhancement of 151,020 ha, leaving net degradation at 141,449 ha.

Table 4.1: Forest cover (ha) in the NCC in 2005, 2010 and 2015

Land uses	2005	2010	2015
Natural forest	*2,041,721*	*2,133,894*	*2,187,012*
Evergreen broadleaf forest - rich	240,687	214,449	167,988
Evergreen broadleaf forest - medium	498,340	465,277	526,394
Evergreen broadleaf forest - poor	1,153,757	1,315,413	1,339,694
Other Forest	148,937	138,755	152,936
Plantations	*454,912*	*637,654*	*749,627*
Total Forest Cover (ha)	**2,496,633**	**2,771,548**	**2,936,639**

Table 4.2: Deforestation and forest degradation (ha) in the NCC, 2005-2015

Province	Deforestation	Afforestation	Net Change in Forest Area	Degradation	Enhancement	Net Degradation
1. Thanh Hoa	64,601	192,012	127,411	54,877	23,177	31,700
2. Nghe An	97,117	267,003	169,886	76,444	51,469	24,975
3. Ha Tinh	33,706	84,833	51,127	48,273	4,157	44,116
4. Quang Binh	48,256	74,545	26,289	66,991	36,587	30,404
5. Quang Tri	34,617	57,146	22,529	18,956	24,908	-5,952
6. Thua Thien Hue	39,921	82,685	42,764	26,928	10,722	16,206
Total region	**318,218**	**758,224**	**440,006**	**292,469**	**151,020**	**141,449**

The analysis of drivers of deforestation and forest degradation relies on the work carried out for the Provincial REDD+ Action Plans and is supplemented with additional data. The PRAPs used a combination of available government data, stakeholder consultations, and field visits to identify and analyze the main drivers and underlying causes of deforestation and forest degradation in the respective provinces. For the design of the

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[11] The information is provided in the Annex 4 on Activity Data Report

ER-Program, this source was supplemented with additional reports on drivers[12], with data collected from the national and provincial government reports and with outcomes of consultations conducted in the last two years at all levels in the six provinces. It should be noted that additional work on local drivers will be completed within the first year of the program, which will further identify local hotspots and provide inputs to revised management plans to be prepared as part of the Adaptive Collaborative Management Approach to be implemented in the program (see more at Section 14).

The main identified drivers of deforestation and forest degradation in the NCC are:

(i) Planned conversion of mainly poor natural forests to rubber and other agricultural land uses;
(ii) Planned conversion of mostly poor natural forests[13] to tree plantations;
(iii) Unplanned conversion of forests due to encroachment;
(iv) Impacts from hydropower and infrastructure development;
(v) Illegal and legal logging; and
(vi) Other minor causes.

(i) Planned conversion of poor natural forests to agriculture

A significant portion of deforestation in the NCC region is related to the expansion of agricultural production land, mostly for rubber and cassava (see Figure 4.1). Additional data for the analysis of deforestation and degradation in the ER-P can be found in Annex 4 – Activity data report. Agricultural production land is defined as land that is used for perennial, annual, and cereal crops and includes land cultivated by smallholders, as well as large rubber plantations established by private and state companies. Detailed data on agricultural expansion are available from province-level statistical yearbooks. According to provincial statistical books (2017), in the period 2010 to 2016, agricultural production land of the NCC increased from 852,004 ha in 2010 to 987,719 ha in 2016 (on average, an increase of 22,619 ha per year in the NCC). The largest portion of agricultural expansion recorded for 2005-2016 was from rubber plantations which increased on average by 3,491 ha per year. Total rubber area in NCC region increased from 9,842 ha in 2005 to 72,900 ha in 2016. The total cassava area in the NCC increased from around 52,900 ha in 2005 to 64,400 ha in 2016 (an average increase of 1,318 ha per year). Lesser agricultural drivers include crops such as maize that are mainly planted by smallholders; however, there was some notable conversion to large scale agriculture in Thanh Hoa and Nghe An for sugar cane, pineapple and dairy fodder (Nghe An) and maize (Nghe An).

Figure 4.1: Change in total agricultural area of ER-P region (ha)
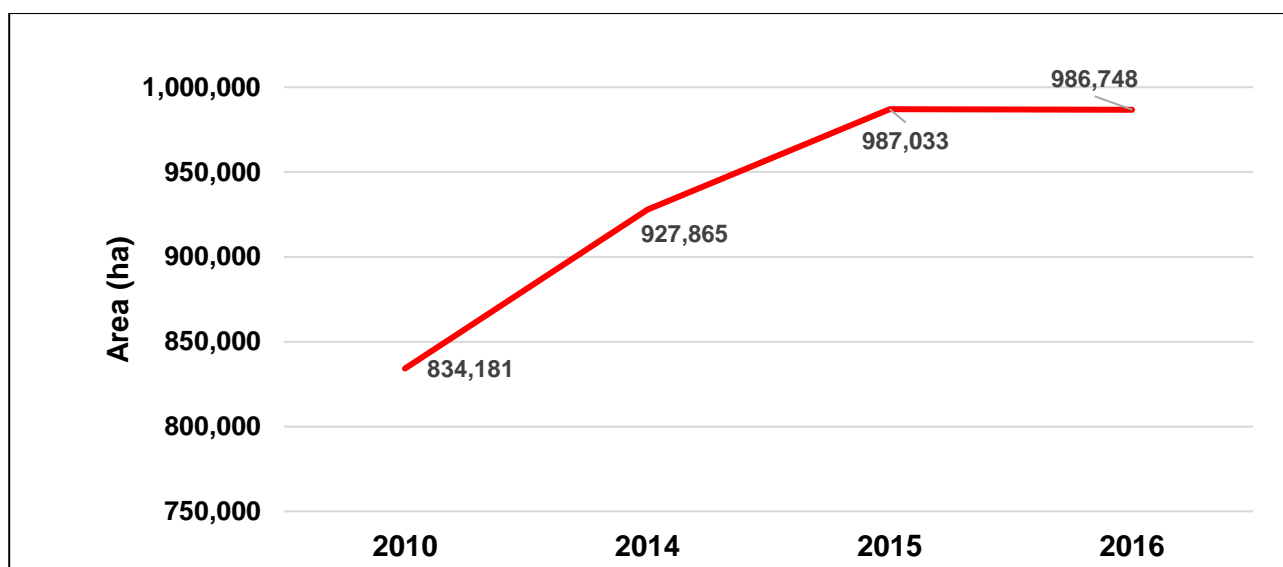
The total area under rubber in the NCC has grown from around 30,000 ha in 2001 to 79,000 ha in 2014. According to the Provincial Statistical Yearbooks, in the period from 2010 to 2014, rubber plantations increased by 3,769 ha per year. The growth of area of rubber in Nghe An, Ha Tinh, and TT Hue had been particularly high. High latex prices prevailed for some time, encouraging expansion. Falling yields from cassava have also contributed to the expansion of rubber in the NCC region. Much of this growth has occurred on land that was previously production forest, that may have been heavily depleted. In Ha Tinh, for example, conversion of forestland into rubber plantations during 2005-2014 was estimated at 4,465 ha[14]. Prices for rubber latex in 2016 have been low, which led to low investment in the crop.

Most of the rubber plantations are supported by government plans and are large in scale (over 100 ha) established by rubber companies (both private and SOEs) that receive land from State Forest Companies. In Ha Tinh, for example, of 10,720 ha of rubber plantations, only 931 ha are smallholder plantations (Ha Tinh PRAP). The conversion of degraded forests to rubber plantations is aligned with official policies, including decisions by the provincial authorities. About 86% of planned rubber plantations between 2012 and 2015 were to be situated on production forest land[15]. However, in response to prevent forest conversion and stabilize overall rubber production, Prime Minister's Decision 1685 and more recently Directive 13/2017 have been introduced. Box 4.1 describes the expected impacts of these policies and the outlook for rubber expansion in the NCC.

Box 4.1: Curbing rubber expansion in Vietnam and the North Central Coastal region

Vietnam promoted the development of rubber on poor and degraded areas about 10 years ago. However, a set of more recent policies sought to curb significantly the expansion of rubber, including in the NCC. Some of the initial expansion of rubber was driven by the Prime Minister's Decision 750/QD-TTg in June 2009 that approved the rubber development master plan to 2015 with vision to 2020. This made it legal to "establish new rubber plantations on unproductive agricultural land and degraded natural forest lands which are suitable to rubber trees". The overall target by 2020 was to maintain the country's total rubber plantations at a stable area of 800,000 ha. The approval of the master plan and accompanying policies opened opportunities for provinces, in particular the Central Highlands region, to convert 'degraded forest' to expand rubber plantations. Most of this was large scale planned conversion established by rubber companies that receive land from SFCs.

Prior to promulgation of the master plan, the Government issued policies which enabled its execution. Specifically, MARD issued Decision 2855/BNN-KHCN dated 17 September, 2008 that declared rubber a multiple-use tree. This Decision enabled provinces to remove bottlenecks in administrative procedures for conversion to rubber plantations; in particular, it gave more power to the provinces to convert natural forests to rubber without the need for central government approval. Circular 127/2008/TT-BNN dated 31 December 2008 provided guidance and requirements for planting rubber trees on degraded forestland.

In the Central Highlands, the conversion of forestland to rubber plantations led to large scale deforestation. There were loop-holes in policies regarding forest conversion to plantations that contributed to policy abuse during implementation. For example, the criteria to classify poor forests was merely based on the tree biomass volume (with diameter >8cm) less than 100m^3/ha, while the decision of converting natural forest with less than 200 ha was initially authorized at the provincial level. As a consequence of rampant deforestation, the Prime Minister issued Instruction 1685/CT-TTg dated 27 September, 2011 with the goal to "strengthen the directions for implementing forest protection measures, preventing deforestation and resistance against law enforcement." This gave back more powers to the central level to monitor and control expansion to rubber.

In implementing Instruction 1685, some provinces – in particular those in the Central Highlands – moved towards stopping the licensing of new projects related to forest conversion. MARD established fact-finding

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[14] UN-REDD report at Ha Tinh workshop, Oct. 2015.
[15] Law on Forest Protection and Development 2004 classifies forests into three types according to management purposes. That are: i) production forests that are designated for timber supply; ii) protection forests that are designated for protection function such as watershed and coastal areas; and iii) Special use forests which are for biodiversity conservation such as national parks, protected area, biosphere etc.

missions to assess the conversion of forests to rubber plantations in some provinces. With Instruction 1685/CT-TTg the focus was initially on the Central Highlands. Other provinces, to a certain extent, continued to allow forest conversion, including the NCC. However, with the greater recognition of the problem in the NCC, more stringent controls on rubber expansion have been implemented in NCC. Nationwide rubber expansion has slowed considerably; between 2012-2013 rubber increased 40,900 ha nationally; in 2013-2014 this increased 20,100 ha; and the rubber area reduced by 2,500 ha between 2014-2016 (GSO 2017). In the NCC a rubber area expansion of 17,218 ha was recorded during 2015-2016 and a decrease in area of 392 ha was recorded for 2015-2016 (Provincial statistical Books 2017). It has become increasingly difficult for provinces to expand rubber production.

This commitment to stop the conversion of natural forests continues to be a high priority for Prime Minister, Nguyen Xuan Phuc who shortly after being instated as Prime Minister visited the Central Highlands and issued an Instruction to further ensure no conversion of the remaining 2.25 million hectares of natural forests to other purposes and no conversion of poor natural forests to industrial plantations. This direction was extended nationwide under Directive 13/CT-TW dated January 12th 2017 on forest management, protection and development. It highlights the need to review and reassess projects on conversion of forest to rubber plantations. Considering that most conversion is due to ''planned conversion'' by provinces under the government policy, it can be closely monitored.

With the introduction of Instruction 1685, Directive 13, Action Plan 256 and Resolution 71 it has become increasingly difficult and will become more difficult for provinces to get permission to convert forest areas for rubber, across the country. Directive 13 requires a review of current national and provincial plans for rubber expansion which will require current plans to be revised. The country has already surpassed its national target on rubber production and its policy is now the stabilization of area under production, as well as to stop conversion of natural forests.

Expansion of cassava is the second largest agricultural driver of deforestation. The total area for cassava production in the NCC increased from 52,900 ha in 2005 to 64,400 ha in 2016 (GSO 2017). Cassava is an important source of income for poor farmers. The main demand for cassava is for starch production and more recently biofuel feedstock. It is widely grown in communes, and in smaller amounts in shifting cultivation areas. Recent expansion of the cassava area was particularly high in Thanh Hoa and Quang Tri - where a new cassava processing factory was established. The other provinces show a more or less steady state of area under cassava production, though in Nghe An there has been a drop in cassava production since peaking in 2011[16]. The current government plans seek to stabilize the area under cassava production through improved production. Cassava could remain as a localized driver of deforestation, though rate of conversion will depend on ongoing government plans, in particular in relation to establishment of new processing factories, commodity price and/or efforts to support intensification. However, all provinces in the NCC have committed not to approve additional cassava processing plants to avoid further increase in cassava production. Therefore, it is anticipated that cassava production is unlikely to be a major driver of forest loss in the future.

There is also small scale conversion of forests from other agricultural crops. Perennial cash crops contributing to planned conversion of forest in the area include limited amounts of coffee, tea and pepper. Significant area of the mangrove belt has been threatened by aquaculture (mainly shrimp farms), which has increased since the 1990s. In the North Central Costal region, mangroves forests have been destroyed and degraded by unsustainable harvesting and by a large number of coastal development projects including tourism and aquaculture. Because of the high economic returns of shrimp farming, thousands of hectares of mangrove forests have indiscriminately been converted to shrimp ponds and the natural water-ways have been barricaded. The forest sector modernization and coastal protection forest project funded through the World Bank loan specifically targets coastal protection, including the coastal areas of the NCC.

(ii) Planned conversion of poor natural forests to tree plantations

The NCC has witnessed rapid development of forest plantations since the 1990s. Tree plantations have played a crucial role in Vietnam´s forest transition. Nationally, there are over 1.1 Mha of acacia plantations for wood

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[16] Provincial Agricultural Yearbook Statistics from the ER-P provinces 2010 to 2016.

production, managed on 5 to10-year rotation cycles. The area of tree plantations in the ER program accounting area had reached 749,627 ha. In Thanh Hoa, the area of tree plantations increased from 87,100 ha in 2001 to 180,300 ha in 2014. In 2014, tree plantations, mainly based on different Acacia species, covered around 637,561 ha (12%) of the NCC region. Acacia plantations have emerged as an important resource for supporting the rural economy and national export revenue. The figures for the expansion of Acacia show a growth of 2% over the period 2001-2016[17]. Acacia has covered much of the midland areas of the ER-P region and continues to expand to the uplands.

A significant area of tree plantations is managed by smallholders. Nationally, nearly 50% of the resource is managed by small growers holding 1-5 ha woodlots. Acacias are easy to grow and manage, even with the limited financial and technical resources available to smallholders. For planned conversion, as per Circular 23/2013/TT-BNN-PTNT, forest owners (households, individuals or village communities) send a conversion request to DARD stating renovation objectives, location, boundary and plot, forest compartment and sub-compartment; forest status; renovation method, etc.

In Thanh Hoa significant area of plantation forests, mainly acacia, have been planted by local households on their abandoned swidden lands or in nearby degraded forests. In many districts, the arrival of a forest plantation company has stimulated interest and investment in smallholder plantations. In some provinces, some changes to land tenure with the State Forest Companies converted into private companies and the forest area held by the companies are being reorganized (e.g. TT Hue); and in some areas part of the land is being allocated to communes for smallholder plantations. Most of the tree plantations in Vietnam are species of acacia, with some native species planted regionally. For example, in upland areas of Nghe An and Thanh Hoa[18], plantations of *Melia sp.* continue due to strong local demand, and in Thanh Hoa, bamboo system still largely dominates in upland areas (but an increase in area under Acacia plantations is apparent).

Major investments in tree plantations have been made by Japanese companies through joint ventures. In addition, several small companies involved in plantation forestry grew during periods of cheap credit up to 2008-09. Binh Dinh, which is a traditional center of trade for timber and wood products from Central Vietnam and Lao PDR.

It is acknowledged that tree plantations reduced pressure on natural forests and contributed to the net increase in forest cover in the NCC. However, tree plantations replaced remnants of natural forests and remaining logged over poor natural forests in some regions. Per the spatial analysis of the ER-P area, the conversion of all types of forests to tree plantation was about 21,920 ha during 2000-2010 and about 41,389ha from 2010 to 2014. In Nghe An more than 10,000 ha of poor natural forests forest were replaced by plantation forest and other land uses during the period of 2009 to 2013 (Nghe An PRAP 2016). The area of natural forest lost due to tree plantations in Ha Tinh is estimated at 9,658 ha from 1995 to 2010 and 10,370 ha from 2010 to 2014 (Ha Tinh PRAP 2016).

Further expansion of tree plantations is predicted across the NCC as demand for wood continues to be high. Monocultures acacia plantations are poor replacements for natural forests in terms of biodiversity. VNFOREST is committed to improving the economic and environmental performance of acacia plantations. Therefore a, key intervention of the ER program is to increase the length of rotation of tree plantations and to increase their diversity. Efforts to ensure that the ER Program does not contribute to the further loss of natural forests are outlined in the chapter 14 on safeguards (and ESMF Section 4.2).

(iii) Unplanned forest conversion due to encroachment

Encroachment by local communities tended to be small scale, but can have a significant cumulative impact on forest cover and forest quality. Encroachment into forest areas often occurs with a long-term view to convert the forest to agriculture or to tree plantations. This issue has been identified as a serious problem for most

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[17] Provincial Agricultural Yearbook Statistics from the ER-P provinces 2010 to 2016.
[18] In Thanh Hoa, poor natural forest was converted into *Dendrocalamus membranaceus* forest (Lang Chanh district), *Melia azedarach* forest (Muong Lat district).

Special Use Forests[19] (including those in the NCC region). A negotiated outcome is often that the community is allowed to harvest the crop(s) already planted and then must withdraw, or if the encroachment is more widespread and long term, part of the SUF or PFMB is eventually allocated for the local community use. Many SUFs, including Dak Rong Nature Reserve in Quang Tri, have constantly had to adjust the boundaries. Forest degradation from encroachment is often difficult to spot, particularly if village communities are located inside the SUF or PFMB, as it can take place some distance inside a forest or on the leeward side of a hill. The issue can also be difficult to resolve as households or even communities will often claim a lack of agreed boundaries.

Some forest loss is also associated with shifting cultivation, but reports from provinces indicate that only small areas of forest in the NCC are affected.

(iv) Hydropower and transport infrastructure

Hydropower Projects (HPPs) are reported in five out of the six ER-P provinces, to have serious localized negative impacts on forest cover. About 14 hydroelectric and multipurpose irrigation and hydroelectric plants were built during the period of 2000-2010. Loss of forests to hydropower projects in the region was estimated[20] to be in the range of 13,600-21,700 ha.

The direct impact on forests from infrastructure development, such as clearing for construction and reservoir establishment, can be severe at the local level. While the actual land and forest converted for hydropower projects is relatively small, the development often occurs in some of the best remaining upland forested areas (i.e. SUFs) and the follow-on impact, including edge and multiplier effects, of opening protected areas can be severe and difficult to control. In addition, indirect impacts linked to encroachment and illegal logging often extend beyond the initial area. The infrastructure development can bring economic activities which are associated with forest degradation and is followed by conversion to other land uses.

In the NCC region, the largest infrastructure impact related to HPPs is in Thanh Hoa Province, where a cascade of four medium sized HPP schemes were constructed along the Ma River. While the current level of deforestation is not large, the long-term impact, and the continued and difficult to control forest degradation, resulting from subsequent economic activity can be expected to have long lasting and widespread impacts in the region, including the two nature reserves, Pu Hu and Pu Luong, which both have high levels of biodiversity. The resettlement of project affected people due to HPPs also results in deforestation and degradation. For example, the Ban Ve hydropower project caused resettlement of more than 2,100 families from Thanh Chuong district to newly established districts of Hanh Lam and Thanh Chuong. This led to the conversion of 5,000 ha of forest within the Thanh Chuong Forest Management Board to provide land for the relocated people.

Following national concerns over the environmental and social impacts during and after dam construction and poor safety, including the sudden release of water, in 2013 the Ministry of Industry and Trade reviewed all pending hydropower projects in the national and provincial hydropower plans[21] This resulted in the cancelation of 424 projects nationwide.[22] This followed two resolutions issued by the Assembly (Resolution 40/2012/QH13 dated 23 Nov 2012 and Resolution 62/2013/QH13 dated 27 Nov 2013) and one resolution issued by GoV (no. 11/NQ-CP dated 18 Feb 2014. While most of the HPP development has been put on hold, it is possible that some of the projects will be reintroduced during the ER-program period. Currently, only the Prime Minister can approve new hydropower projects;[23] however many proposed projects still have PPC approval. As an example, according to the socio-economic development plan of Western Nghe An, up to 2020 seven new hydropower plants will be built in this area. According to the Nghe An PRAP, this is expected to lead to the loss of 5,000-

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[19] VCF Conservation Needs Assessment reports, which include threat analysis and METT (what's METT?) reports and social assessment reports from 2007 to 2013 and most identify encroachment as a serious priority issue.
[20] Based on an estimate of 10-16 ha natural forest cleared per MW for a HEP scheme; ICEM figures quote a 10km zone of influence in Strategic Environmental Assessment in the Hydropower Sub-sector, ICEM, 2007 Vietnam
[21] Decision 1208/QD-TTg of 21 July 2011 on Approval of the National Master Plan for Power Development for the 2011-2020 period with vision to 2030.
[22] The projects that are currently cancelled are mainly small hydro schemes, however, small hydro schemes form an important contribution to the national master plan for power development.
[23] Resolution No. 11/NQ-CP of Government, February 18th 2014 on the Action Program of Government to Implement Resolution No.

6,000 ha of forests by 2020. However, given the above-mentioned resolutions and the recent Directive 13/2017 specifically highlight the need to strengthen mechanisms to manage and to closely monitor projects on conversion of forest for hydropower development projects, it is not likely that permission will be given.

Several major roads have been built in the program area in the reference period. These include the HCMC Highway 14, which went through areas of natural forest including some protected areas and resulted in significant ribbon development taking place.[24] In Nghe An, where the development of road and transport infrastructure is considered a major direct driver of deforestation, future highway development includes a number of four lane express ways including: Thanh Hoa to Vinh (underway 170km), Dong Ha to Lao Bao (55km), and eventually Hanoi to Da Nang (approximately 368km total length). An important relatively new impact has been the construction of new border access roads; while these are only small feeder roads, they tend to be put through some of the best remaining forest close to the border with Lao. Through an improved EIA process and strong enforcement, the impact of these roads can be minimized.

(v) Forest degradation from unsustainable forest management and illegal logging

Logging is a key driver of forest degradation in the NCC. Logging in the past has included both legal exploitation of natural forests by government-licensed, large-scale commercial logging operations and 'informal' logging, usually smaller-scale exploitation that occurs without government permission or licenses and is therefore considered illegal. Since 2014, most commercial logging is banned in Vietnam. Small-scale logging and NTFP harvesting is often for subsistence purposes. Local people rely on timber for construction of wooden houses, for making furniture and for firewood for cooking. NTFPs are used for food, and for additional cash generation. However, there is no clear guidance and on what constitutes sustainable levels of NTFP extraction often leading to unsustainable NTFP extraction.

Up to 2016, there were legal timber harvests from natural forests in the NCC, which often did not follow sustainable forest management practices. In 2014, concerns over forest quality led to the introduction of a policy to ban logging in natural production forests by companies not certified to an international SFM standard. In the ER-P area, currently only part of the Long Dai SFC (the Truong Son division) in Quang Binh is eligible to log natural forest.[25] The total SFM certified area in Vietnam is only 157,317 ha; equivalent to just ca. 2.2% of the 7 million hectares of production forests (Source: FSC 2016). Nearly half of the certified area is *natural* production forest (68,780 ha) operated by just three SFCs, two of these were supported by GIZ. The rest of the area is composed of timber and rubber plantations owned by SFCs (38 certificates) and household groups (1,392 ha in Quang Tri). SFM is generally not applied outside of certified areas. The volume of timber harvest in natural forests reduced quickly, from 64,000 m^3 in 2010 to 7,994 m^3 in 2016 (see Figure 4.2).

Illegal activity is likely to have been a major factor in forest degradation and deforestation. Types of forest crimes in Vietnam include illegal logging, illegal land conversion, and wildlife trade. Recent recorded forest law violation incidents in the NCC range from 3,621 to 6,050 per year for period of 2007 – 2016 (FPD 2017[26]), but it is likely that far more violations go undetected and unrecorded (World Bank 2010). The decline in primary natural forests in the NCC has occurred despite laws protecting them, including tight restrictions on logging in natural forests and illegal selective logging operations in SUFs and PFMBs in the NCC region. These are consistently difficult to identify and halt, and often rely on local Kinh and ethnic minority households to undertake the work in the forest. Illegal hunting and trade of wildlife have depleted wildlife populations in Vietnam's natural forests to the extent that most species of high value to wildlife trade are endangered. The ban on legal harvesting is expected to create conditions for further illegal logging, if protection and law enforcement measures are not suitably strengthened and there continues to be a lack of participation of different stakeholders in forest management.

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[24] The impact of HW14 on Cuc Phuong NP, although initially relatively minor in terms of actual direct forest loss, over time further deforestation and forest degradation has taken place as a direct result of radically improved opportunities for economic activities along the road including additional feeder roads, restaurants, improved access to markets leading to more cultivation, and the arrival of economic migrants etc.

[25] Decision No. 2242/QD-TTg of 11 Dec. 2014.

[26] Information available at http://www.kiemlam.org.vn/Desktop.aspx/List/Hanh-vi-vi-pham-Luat-BV-va-PT-rung/

Figure 4.2: Legal timber production from natural forests in the NCC 2010 to 2016
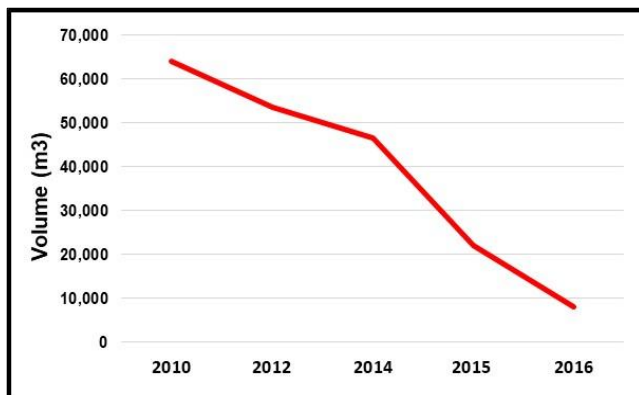
Figure 4.3: Recorded forest law violations in the ER-P region, 2007 to 2016
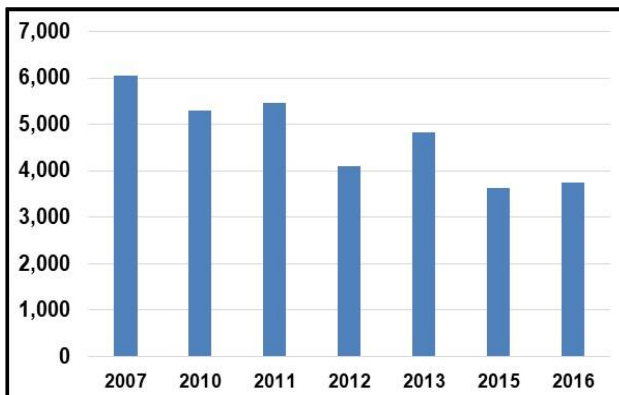
Sources: FPD website (link shown at footnote # 26); VNFOREST 2017

(vi). Other causes of deforestation and forest degradation

The program area is subject to intense heavy rain from tropical depressions and typhoons. Many of the upland areas have very fragile and highly erodible soils on steep slopes, in very short narrow steep catchments, which leads to rapid runoff events. Where forest cover has been reduced, or removed, these events can be very destructive and catchment management can be problematic. The upland areas are prone to erosion and experience frequent landslides even with forest cover and in areas where the forest cover is removed the erosion can rapidly develop. The losses resulting from typhoons are not easy to quantify, but young plantations are particularly vulnerable to typhoons and monsoon events.

Other reported causes of forest degradation include unsustainable harvesting of NTFPs, forest fire, mining, and pests and disease. However, there is little data on these causes and their impact is minor and highly localized compared to the major drivers discussed above.

Ranking of the drivers of deforestation and forest degradation

At the province level, there is broad consistency concerning the main drivers in the NCC. Within the Provincial REDD+ Action Plans[27] (PRAPs), three drivers were consistently in the top three spots for both deforestation and forest degradation: the expansion of plantations (rubber and acacia), the encroachment of agriculture, and the development of hydropower. Illegal logging is perceived as the main driver of forest degradation in Thua Thien Hue and shares the second place with the expansion of agriculture and forest fire in Nghe An.

Table 4.3: Ranking of drivers of deforestation and forest degradation

Main drivers	Deforestation driver ranking					Rank for the NCC	Degradation driver ranking					Rank for the NCC
Province	TH	NA	HT	QB	TTH		TH	NA	HT	QB	TTH	
Expansion of Rubber and Acacia	1	1	1	2	2	**1**	1	1	1	1	2	**1**
Expansion of Agriculture	2	2	2	1	3	**2**	2	2		2	1	**2**
Hydropower (+water supply, irrigation)	3	3	4	3	1	**3**	1	1		3	3	**3**
Road Development		4		3						3		
Illegal Logging	6	7	3	3	4		6	2		4	1	**4**
Forest Fire	7	8		5	5		7	2		5		
Mining	5	6			6		5					
Resettlement	4	5					4					

Source: PRAPs of six NCC provinces. Where more than one driver shares the same rank in a province, they are tied for that rank. The rankings are indicative only and based mainly on qualitative data including stakeholder perceptions.

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[27] A Provincial REDD+ Action Plan (PRAP) is a plan developed in collaboration with key stakeholders at the provincial level with the aim of implementing the National REDD+ Action Programme (NRAP). The proposed PRAP approach is based on a planning method which begins with spatial analysis to provide visual understanding and sufficient data on forest area, forest status and locations. In consultation with stakeholders, provinces identify the direct and indirect drivers of deforestation and forest degradation. The PRAPs were developed with consultation through technical meetings and multi stakeholders' workshops at provincial level. This process is also follow Decision No. 5414/QD-BNN-TCLN dated 25th December 2015 by MARD on approving the guidelines on development of provincial REDD+ action plan.

4.1.2 Underlying causes of deforestation and forest degradation and barriers to reforestation and forest enhancement

The direct drivers/barriers result from a variety of social, economic, political and cultural factors (the underlying causes) that influence resource use decisions at the national and local levels. These factors act in complex ways and require the adoption of a comprehensive interventions to address them. Although there are numerous underlying and interrelated factors, three key areas are discussed in more detail below: conversion of primarily poor natural forest land to higher-value land uses, lack of support for SFM and inadequate implementation of policies to protect natural forests.

Conversion of depleted forest land to higher-value land uses

Much of the gross loss of poor natural forest in the NCC results from the expansion of sectors that are supported by national and provincial economic planning. A significant portion of tree and rubber plantation development is laid out in land use and commodity plans at different levels of government. Both crops make significant contributions to national export revenue and GDP and they provide important development benefits in rural areas in terms of jobs, livelihoods, and multiplier effects. Tree plantations also can provide significant environmental benefits through soil improvement and soil stabilization as well as by reducing pressure on natural forests.

A significant share of the conversion of forestland to other land uses is aligned with provincial land use planning. Land use plans prepared by the provincial Departments of Natural Resources and Environment (DONRE) aim for conversion of forested land to non-forest land and a large shift of barren land to forest land, resulting in a net increase of 223,429 ha in forested land in the period 2011 to 2020. In total 100,434 ha of forested land is planned to be converted into non-forested land and of this, 47,101 ha is planned for non-agriculture land use, and 53,333 ha for agriculture. The largest conversion of forest land is planned in Nghe An and Quang Tri provinces, with 38,302 ha and 30,592 ha, respectively. The planned conversion of barren land to forest is 323,863 ha. Most of this is for afforestation (67.3%) planned in Nghe An. As highlighted above, the plans to convert forest areas for hydropower have been cancelled while current plans for rubber expansion need to be re-assessed under Directive 13 and Resolution 71. As part of the ER Program, provinces will be supported to assess their current plans and adjust them to minimize the conversion of natural forest areas.

Table 4.4: Proposed conversion of forest to other land uses 2011 to 2020 by NCC provinces (ha)

Province	Thanh Hoa	Nghe An	Ha Tinh	Quang Binh	Quang Tri	Thua Thien Hue	Total
A. Conversion of forest land to non-agriculture land in which land would be taken from:	**3,957**	**11,908**	**4,198**	**13,627**	**6,049**	**7,362**	**47,101**
Special use forest	20	58	455	0	70	142	745
Protection forest	11	3,075	767	448	2,167	1,051	7,519
Production forest	3,926	8,775	2,976	13,179	3,812	6,169	38,837
B. Conversion of forest land to agriculture land in which land was taken from:	**799**	**26,394**	**980**	**617**	**24,543**	**0**	**53,333**
Special use forest	0		0		324		324
Protection forest	0	879	0	557	2,878		4,314
Production forest	799	25,515	980	60	21,341		48,695
Total area of converted forest into other land use purposes (A+B)	4,756	38,302	5,178	14,244	30,592	7,362	100,434
C. Conversion of barren land to forest land in which land would be taken from:	**21,200**	**211,754**	**16,114**	**20,766**	**35,029**	**19,000**	**323,863**
Special use forest	20	768	384	675	0	8,847	10,694
Protection forest	0	90,438	4,008	2,900	0	3,006	100,352
Production forest	21,180	120,548	11,722	17,191	35,029	7,147	212,817
Summary of difference (C-(A+B))	**16,444**	**173,452**	**10,936**	**6,522**	**4,437**	**11,638**	**223,429**

Source: Figures extracted from the land use plans prepared by provincial Department of Natural Resources and Environment (DONRE) of the six ER-P provinces.

Lack of support for SFM

Much of the natural forest area in the NCC that is not within SUFs is heavily depleted, reducing the opportunity cost of forest conversion. Decades of overexploitation, lack of sustainable forest management, population pressure, as well as the lasting impact of the war on vegetation cover have significantly decreased forest quality. Of the natural forests, only 5% are categorized as 'rich' (225,000 ha) and 17% as 'medium' in quality (650,000 ha); 73% are 'poor' (3.2Mha). Most forests have provided very limited economic benefits from timber in recent decades and there is a need for active management to rehabilitate these forests and protect them from conversion.

The reduced economic benefits from much of the natural forest area reduces incentives for SFM and forest protection. Most of the production forest area is too depleted for profitable forest management and any remaining 'rich' or 'medium' quality natural forests are generally located in areas that are difficult to access, including steep slopes. The costs related to road construction and transportation under such conditions are high. SFM requirements, including the prevention of environmental damages, worker health and safety, and resolution of conflicts over tenure, would bring additional costs. Thus, most SFCs do not apply SFM in natural forests, and rarely invest in the protection and rehabilitation of degraded natural forests. Instead they have progressively scaled down activities in natural forests and focused on their plantations.

Ineffective protection is also a disincentive for practicing SFM. Any SFM plan would be challenged by the unknown amount of illegal logging in the forests; the illegally harvested timber volume might be well above the annual allowable cut. If the resources of SFCs are not secure, and land and resource conflicts with local communities persist, then SFCs are unlikely to invest in sustainable forest management. The low level of adoption of SFM and certification by SFCs is also due to corporate governance issues. Currently SFCs are required to operate in accordance with enterprise laws, but at the same time they are subject to a strong corset of bureaucratic procedures. SFCs require permission from provincial authorities to implement most operational measures; and there is limited freedom regarding operational decisions about harvesting, replanting, choice of tree species, and reinvestment of timber revenues.

Most SFCs and households also lack technical and managerial capacities for SFM. The technical and managerial capacities for SFM are also limited in most SFCs – partly because the focus has traditionally been on exploitation. Similarly, households manage their small plantations or natural forests (often of poor quality) and have limited capacity and resources to apply SFM techniques. Communities and households also generally lack the expertise and financial resources to implement SFM. Pilot group SFM certification models have been implemented in some places supported by international projects. Under these communities receive finance and technical assistance from the projects including advice on farmer group formation and management for involving households. Furthermore, support will be needed so that SFCs and communities reach the capacity to conform to SFM certification requirements in the NCC.

Inadequate implementation of policies to protect natural forests

Inadequate policy implementation remains an underlying cause. However, it should be stressed that recent policies, for example to respond to large scale forest conversion from rubber and hydropower have helped to address the main drivers of deforestation. However there still remain several issues which need to be addressed as part of the ER program. In particular:

- Weaknesses in land use planning processes;
- Inadequate enforcement of forest rules;
- Insufficient financial and technical support; and
- Insufficient information on forest cover and inadequate forest monitoring.

Development at the local level including land use and planning is not always consistent with national policies. The responsibilities of different sectors in relation to forest protection can be poorly defined and coordination among sectors is often limited. In some cases, the provincial planning decisions issued by the Provincial People's Committees do not follow the provincial land use plans (LUPs) as approved by the national

government.[28] For example, in Ha Tinh the provincial plan for rubber development for 2010-2020 is about four times higher than the total allowable converted forestland in the nationally approved provincial land use plan. In Nghe An, within two years from 2009 to 2011, the Provincial People's Committee issued five decisions on rubber development planning, allowing the expansion of rubber plantation areas (two Decisions in 2009 and three Decisions in 2011).

The legal framework for conversion of natural forests can be inconsistently implemented or 'misinterpreted'. In practice, highly degraded forests that are on production forest land can be converted to other land uses. Criteria for degraded forests that are eligible for conversion are not always clearly defined and conversion is not properly monitored to ensure they follow guidelines. This needs to be carefully examined and monitored to ensure natural forests are not converted. The ER Program safeguard systems are expected to ensure that this does not happen (see chapter 14).

While there are rules that require developers of infrastructure projects to replace forest that has been cleared, these are not always fully implemented. All infrastructure projects including hydropower and mining projects that result in deforestation must replant the same area of forest lost. However, due to a lack of funds and/or available land for reforestation, most developers prefer to compensate the province through compensation payments, and thereby avoid the extra work of implementing potentially challenging reforestation programs. For example, in Nghe An, developers pay VND15 million per ha of forest cleared, and the Nghe An DARD uses this money for the general improvement of the province's forestry sector, but this is not directly tied to an increase in natural forest area.

Inadequate enforcement of forest protection is also due to limited available funding at the site-level. There is insufficient state investment (financial and technical) in the forestry sector for forest protection, biodiversity conservation and forest landscape restoration activities. While Vietnam devotes substantial resources to forest protection and enforcement efforts across the country, several PRAPs report that there are not enough funds allocated from the central government for management of SUFs and protection forests.

Implementation of forest policies has also been hampered by lack of information on forest cover and on forest boundaries. There is significant potential for adopting and integrating modern systems for forest monitoring and surveillance into enforcement planning, such as systematic aerial surveys and use of radar and satellite imagery. According to the Nghe An PRAP, for example, boundaries are sometimes not clearly defined leading to overlapping boundaries and conflicts between forest owners. There is also insufficient coordination in managing and monitoring forests. A survey carried out as part of the Nghe An PRAP, showed poor coordination among stakeholders, especially between SFCs and local communities, households, and individuals to whom forests had been allocated. The proposed Adaptive Collaborative Management Approach (described in section 15 on benefit sharing mechanism) is a direct response to this concern.

4.2 Assessment of the major barriers to REDD+

There are several major barriers to REDD+. Unless these are addressed there is unlikely to be long lasting change. These major barriers are identified as forest tenure and governance, persistent poverty for forest dwelling communities and limited land availability. These are addressed as part of the ER Program design as outlined in Section 4.4. Each is discussed in turn.

Forest tenure and governance

A lack of clear forest tenure is often cited as a major barrier to forest protection. Household and community forest land tenure, and generally land tenure, have long been considered as a critical element for successful forest projects and rural livelihood improvement projects in Vietnam (see Section 4.4 on land and resource tenure). Unclear or nonexistent rights to land and trees are a disincentive for local people to protect natural forests and these are often viewed as 'common property'. Even when households can receive land use

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[28] Decision 1708/QĐ-UBND.NN of 29/4/2009, decision 5990/QĐ-UBND.NN of 11/11/2009, decision 1866/QĐ-UBND of 27/5/2011, decision 4865/QĐ-UBND of 10/11/2011, and decision 5334/QĐ-UBND of 06/12/2011.

certificates, which provide a clear legal access/use right on forest land for forest purposes, in practice there is not always a clear incentive for them to do so. The forest allocated to households is often of poor quality than that managed by state entities and many households lack the technical and financial resources to benefit from the Forest Land Allocation (FLA), making it difficult for them to derive benefits from the land and forest allocated to them. Experience from FLA in Vietnam shows that it is most successful where there has been a more integrated approach that focuses on areas of better quality forest and includes village forest protection and development funds, including village protection patrols with collaborative management approaches. The Forest Sector Development Program (FSDP) followed a mix of FLA and collaborative management approaches with management boards linked to forest use rights in return for local communities taking more responsibility for local forest governance in combination with forest rangers i.e. perception of more local ownership over forest. However, generally at the provincial level, finance has been sporadic for FLA, which has hampered the large-scale introduction of FLA.

The main mechanisms for forest protection - including forest rangers and protection contracts with communities - have arguably not proven fully effective at protecting natural forests. Co-management approaches, as piloted under the FSDP Vietnam Conservation Fund and other projects, have proved to be effective, if designed properly. Therefore, the Adaptive Collaborative Management Approaches forms a major component of the ER Program.

Persistent poverty

The remaining forested areas in the country closely align with populations of the poorest communities in Vietnam. Although national poverty rates in Vietnam have decreased dramatically in recent decades, the poverty rate among ethnic minorities remains high and the gap between them and the Kinh ethnic majority has increased. According to the national census, the NCC region is home to 13 ethnic minority groups which make up some 11.5% of the total population (over 10.29 million in 2013). The largest ethnic minority populations (88% of the total) are found in the two northern provinces of Thanh Hoa and Nghe An. The region of the proposed ER Program has the highest and deepest rates of poverty per capita in the country. Nearly one third (29%) of the 11 million people living in the landscape are living below the national poverty line and the poverty gap has increased 22% since the beginning of the century.

Poor households can face shortages of capital and may lack access to credit, resulting in low levels of investment in forests, including plantation forest. Limited alternative income opportunities and a scarcity of agricultural land makes encroachment into forested areas difficult to address. A major government response has been to support sustainable livelihood programs in the poor regions in order to increase incomes. Some of these supporting policies are described in Table 4.8. The ER Program through the ACMA will support income generating activities for the poorest forest dwelling communities. Experience has shown under the FSDP that this will also provide greater incentive for them to protect the forest.

Limited land availability

In and around the forest areas is there is a growing pressure for land. This is as a result of the growing demand for land from both local business and local communities. Although the expansion of the commercial crops may be in non-forested areas this may have the indirect impact of pushing poorer farmers into forested areas. Therefore, it is critical to understand the relationship between commercial agriculture and subsistence agriculture. This is examined in the section on social safeguards in Chapter 14, which discusses more broadly the possible impact of limiting local communities access to land and the mitigation measures under the ER Program to ensure this does not have a detrimental impact on their livelihoods.

Land pressure due to economic migrants, is a clear issue in some parts of Vietnam, such as the Central Highlands and this has been the case for the past decade. However, the NCC shows that rural communities increasingly show a net outflow of migrants as at least part of the households often with young and better educated people, move elsewhere in search of non-agricultural employment. However, localized economic migration can be a considerable problem in some areas. This takes many forms, including subsequent economic activities at large construction sites, for example, even at the relatively small Truong Son HEP site

in Thanh Hoa province, the project anticipates at least 2000-3,000 migrants into a rural setting with very basic services.

A trend which is happening is the inevitable process of urbanization with the movement of young people in particular out of farming. The likely impacts on forests of the changing labor structure within the economy are not clear. On one hand, it may lead to more landless poor farmers who may be forced to encroach on forested areas. If the excess labor force is employed elsewhere this will overcome this problem. Therefore, youth employment opportunities are needed to absorb workers from the agricultural sector and improve living standards for rural households in order to have positive impacts on forest resources management.

Barriers to maximizing the carbon enhancement benefits from tree planting

Plantation policies are increasingly geared towards longer rotation plantations and to plantations using native species. Combined with efforts to increase plantation growth rates, these policies will increase the carbon enhancement potential of plantations. However, there are several barriers to shift toward longer rotation and increasing the use of native species in plantations. The main challenges and concerns of forest owners are:

- Insufficient technical and managerial capacities for organizing nurseries and high quality seedlings of high value native species and properly managing plantation activities (planting, weeding, thinning, pruning, harvesting);
- Lack of visible proof-of concept of large scale planting and management of native tree species;
- Significant investment need and coping with liquidity gaps to meet the requirements of longer rotation plantations;
- Significant bureaucratic hurdles – SFCs need to gain approval for deviation in their business plan, e.g. they have to ask for approval from provincial governments, PPCs prior to integrating all measures in annual and 5-year plans; and
- Lack of incentives for leaders of SFCs and PFMBs: the leaders are usually appointed for a 5-year term. Consequently, few leaders of forest companies are motivated to initialize this shift, which is arduous and delivers benefits when they are no longer responsible.

While overall the financial returns can be greater, plantation owners are reluctant to shift to longer-term rotations for several reasons. Firstly, as the rotation length increases, so do the perceived risks of damage from pests, diseases and storms. This is especially the case for Acacia hybrids, and growers often shorten the rotation length to five years, to avoid the risk of damage from typhoons. However, it should be noted that a wish to repay debt early and peer pressure also play a role in shortening rotations, as communities and groups will often plan harvesting operations as a group. Secondly, long-term rotations increase the liquidity gap that owners face up to harvest as plantation owners often depend on the income to meet living costs. Currently, the credit lines that are commonly available to planters are not optimal for servicing their financing requirements when investing in long-term rotations. Thirdly, long rotation plantations are more treatment intensive, and require advanced management and better seedling material than the commonly used clones. Planters currently lack experience with forest management beyond short-rotation Acacia planting and clear-cut harvesting.

The adoption of native species for timber plantations also faces several barriers. Acacia grows quicker than most native species, especially on marginal sites. Due to their low nutrient requirements and adaptation to growing on open sites, Acacias grow faster on degraded soils than many native species. Native species, in addition to requiring long rotation periods (at least 20 to 40 years) also require more management inputs. Also, quality seedlings of native timber species are difficult and costly to produce, and are not as widely available as Acacia seedlings. Many growers still have limited experience with planting native species. Experience with large scale reforestation and forest enhancement with native species is still limited in Vietnam, and research is still evolving.

The carbon sequestration potential of plantations, besides depending on rotation length, also depends on the growth rates, and existing Acacia plantations are below their full potential in several areas. Forestlands are

mostly degraded with poor soil conditions and lands with more fertile soils are reserved for agricultural production, resulting in low productivity of plantations. For example, while well-managed plantations can be expected to reach growth rates exceeding 25 m³/ha/year, in Ha Tinh the average plantation growth rate is only 10-12 m³ per ha per year. Low productivities are generally found in plantations managed by households and individuals due to silvicultural inputs including good planting material and/or lack of access to finance.

4.3   Policy developments that contribute to the conservation and enhancement of carbon stocks

As a response to the address the drivers, underlying causes and barriers described above, the government has introduced a raft of policies and programs. Vietnam's policy framework strongly supports improvements in forest management, and policy developments contribute to the conservation and enhancement of forest carbon stocks in the NCC. The ER Program will build upon the following policies, which are described in more detail below.

- Forest restructuring and forest land allocation

- Laws related to land use and integrated planning

- Policies to promote sustainable forest management and forest certification

- Policies to address deforestation and forest degradation

- Development of the PFES scheme

- Support for the transformation of plantations

Forest Restructuring and forest land allocation

The government has been actively restructuring the forest sector to enhance the effectiveness of land use and forest protection. Ongoing efforts to restructure the forestry sector may impact forest management practices during the ER-Program period. A master plan for restructuring the forest sector was approved in July 2013. The Plan includes re-organizing forest designations, strengthening competitiveness, adjusting the economic components of the forest sector, effectively mobilizing investment, and promoting development according to forestry economic and ecological regions. A new Forest Law will have major implications for forestry within the country. The Law was passed by the National Assembly on 16 November 2017. This has made revisions in the following areas: 1) strict management of conversion of natural forests except for security purposes [the Prime Minister will make decision on any case of conversion (in the past, PPC can make this)]; 2) logging in natural forests can only be permitted if forests are certified SFM; 3) focus of forestry as environmental services and limited logging from natural forests; 4) promotion of forestry business; 5) Improve forest tenure to clearly identify forest owners/users; 6) national forestry planning; and 7) control of forest products through VPA/FLEGT and multi sector engagement. The new Law provides for strengthened forest governance and clearer laws on how to deal with deforestation with more emphasis on involving local communities in protection. It supports the Vietnam Timber Legality Assurance System, and includes the issuance of the criteria, processes, procedures and competence on classification of the enterprises engaged in the harvesting, transportation, consumption, processing and checking of the legality and origin of forest products. It also stresses that forest ownership institutions must more closely follow the Civil Code 2013 (the constitution) and forests can now be preferentially allocated to ethnic minorities, households, individuals and communities with manner, customs, culture, beliefs and traditions which are closely attached to forests with more emphasis on sustainable forest management.

The MARD master plan and Decree 30 have created a new opportunity for "renovation, restructuring, and boosting performance effectiveness" that aims to deal with the current constraints of state-run forest-management. Forest land has been allocated to state groups (i.e. state forest companies) and to non-state

groups (i.e. households and communities). Decree 118/2014/ND-CP dated December 17, 2014[29] on restructuring and development of SFCs to improve their performance calls on the large state forestland owners (PFMBs, SUFMBs, SFCs) to review and demarcate the forestland boundaries to identify the remaining forestland boundary of the organizations on maps and on the ground in order to allocate the land most effectively. Most of the country's forests are still managed by state entities such as MBs and SFCs which jointly manage approximately 45% of the total forest area. Nationally, approximately 26% of forest land (3.5 Mha) is managed by about 1.2 million households.

The government has attempted since the 1980s to make SFCs more profitable and sustainable, and new policies in 2014 and 2015 helped to clarify the framework for reform. As part of the policy of economic reform, state-owned enterprises (SOEs), including SFCs, are being converted into more commercially oriented businesses through a process known as equitization.

Vietnam has a long-standing policy of allocating forest lands to households to address declining forest quality, rural poverty, and unsustainable land use practices. In 1993 the Land Law was passed which stipulates the rights on land given to land recipients, which are valid for 50 years on forest land, provided recipients comply with the regulations in using the land (see section on tenure below). The land distributed to households was mostly production forest land, although in practice the land was mostly barren, or with low forest value.[30] An updating of the Law on Forest Protection and Development is scheduled which should improve coordination with the Land Law 2013 and contribute to further improvements to FLA.

In the protection forest area, FLA to local households generally takes the form of forest protection contracts. All special use and protection forest, and most of the natural forest on production forest land is still managed by government entities. Since 1995 SFEs and MBs are allowed to sub-contract forest lands to local households for forest protection and planting. The contracts require SFEs and MBs to provide forest protection or planting fees to households. The contract is usually for one-year and is renewable and the agencies pay forest protection fees to the households in exchange for labor spent on forest protection. Within the NCC, the total area contracted to households is close to 200,000 ha. However, these contracts have arguably not proven fully effective at protecting natural forests and is a major reason for the ACMA approach under the ER Program.

Laws on land use and integrated planning

The provinces will be required to introduce a raft of other new policies which will help cross sectoral development and which will be introduced in the provinces during the lifetime of this Program. These include: guidelines on sustainable forest management planning under Circular 38 No. 38/ 2014/TT-BNN which is aimed at improving participation in community forest planning and will introduce requirements for innovative cross sector planning for sustainable forest management including, plantations, NTFP, agroforestry, afforestation, high conservation value forest, etc. The Circular also supports linking planning to Department of Natural Resources and the Environment (DONRE) land use plans and infrastructure planning.

The Ministry of Planning and Investment and Ministry of Natural Resources and the Environment are supporting the mainstreaming of cross-cutting issues of sustainable development, climate change, and green growth in the formulation of the 5-year SEDPs. The SEDP sets priorities for the state and provinces. This process will also be undertaken in the provinces to set provincial plans. Supporting this process will be critical in directing more support and budget towards green growth and climate change within development priorities for the provinces. Supporting assessments will be undertaken to provide information on cross sectoral development as part of the SEDPs.

Development planning is currently undergoing a major improvement with a new planning law in 2017. Under the revised law, environmental protection is one of the key principles of planning-related activities and all national sectoral plans will be required to take account of environmental protection, biodiversity conservation and climate change adaptation. This will create the basis for integrated planning. The order and procedures of the integration process must be clearly defined, describing in full the work of the sectoral management agencies, including the land administration. This important piece of legislation will be implemented into 2018 and beyond.

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[29] Circular 07/2015/TT-BTNMT dated February 26, 2015 of MONRE on restructuring of SFCs, guides the implementation of Decree 118/2014/ND-CP.
[30] To, 2007

Policies to address deforestation and forest degradation

Recognizing the issues of forest loss and degradation and the need for combating deforestation and forest degradation, strong legal and political commitments to strengthen the conservation of forests and law enforcement implementation have been recently made. These legal documents are the National REDD+ Action Programme and Directive No. 13 (and Resolution 71 to implement Directive No. 13).

The National REDD+ Action Plan (NRAP) 2012-2015 was approved under Prime Minister Decision 799/QD-TTg, dated 27th June 2012. A review[31] of the NRAP highlighted that while some good progress had been made, it also revealed the necessity to revise the direction of the NRAP to better guide REDD+ implementation under Phase II. A key element was to identify and prioritize a preliminary set of Policies and Measures (PaMs), linking them to a detailed analysis of the drivers of deforestation and forest degradation and the barriers to achieving ''+'' [32]. Based on this analysis a new Decision 419/2017 on NRAP Phase II, including the list of PaMs, was approved by the Prime Minister in April 2017. The NRAP Phase II is for the period 2017 to 2030. The Decision identified eleven work packages covering forest and non-forest interventions.

1. Review and adjust master land use planning and land use plans to ensure the target of 16.24 million hectares of forest land in 2020
2. Promote sustainable and deforestation-free agriculture and aquaculture
3. Improve forest governance and livelihoods for people living in and around forests
4. Strengthen law enforcement
5. Evaluate and replicate enhanced forest production through longer rotations and more diversified business models
6. Evaluate and replicate sustainable models for natural forest enhancement, protection and conservation
7. Enhanced economic and financial environment for forests
8. Finalize and upgrade the core REDD+ instruments, in accordance with step-wise principle, and in compliance with UNFCCC's provisions
9. Set up and implement financial management mechanisms for REDD+
10. Strengthen international and regional cooperation to promote REDD+ and mitigate risks of displacement
11. Effectively coordinate, backstop, communicate, build capacities and monitor NRAP implementation

The NRAP contains an accompanying Annex (Annex 1) which provides details on how the 11 work packages will be introduced. More specifically it breaks down each work package into accompanying PaMs. These are assigned a lead agency, as well as coordinating agencies; key outputs expected and the timeline for delivery. Annex 1 also indicates which funds will be used to implement these interventions. As a follow-up to the NRAP, the UN REDD is supporting the government in producing an NRAP ''Investment Plan'' which is expected to be completed by November 2017.

The National Steering Committee on Forest Protection and Development was established according to the Decision No-57/QĐ-TTg dated 9th January 2012 by the Prime Minister on approving the Forest Protection and Development Plan from 2011-2020. Based on the NRAP 2017-2030 the Prime Minister assigned additional tasks on REDD+ supervision to this Steering Committee. The Vietnam REDD+ Office is tasked with the function of connecting and coordinating activities among the parties to implement the NRAP phase II.

The Provincial REDD+ Action Plans (PRAPs) operationalize the NRAP at the province level. A key task of the NRAP, for implementation in the period 2011-2015, was the 'development of action plans to implement REDD+ at the provincial level'. By March 2017, all of the six provinces participating in the ER Program had finalized their PRAPs. The PRAPs will be updated based on the revised NRAP 2017-2030.

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[31] McNally, R.H.G, and Nguyen, C.T, (2016), A Review of Viet Nam's National REDD+ Action Programme and its Implementation, Hanoi, Vietnam

[32] McNally, R.H.G, Vu, T.P, Nguyen, T.C, Pham, X.P, Nguyen, V.D, Support for the revision of Vietnams National REDD+ Action Programme (NRAP) 2016-2020

Directive 13 outlines the commitment from Prime Minister, Nguyen Xuan Phuc to stop the conversion of natural forests. It highlights the key limitations and weakness in forest conservation and forest planning as: 1) deforestation, forest encroachment and illegal exploitation of forest products, especially of natural forests, persist and become increasingly complicated and the area of protection forest is gradually declining over the years; 2) planning, protection and development of forests are not well aligned with the planning of land use and economic and social development. Many economic development projects such as hydroelectricity, mining, and tourism services do not pay adequate attention to forest protection and development, seriously affecting the environment and causing forest degradation, especially to natural forests; 3) the conversion of natural forests and degraded forests into rubber plantation and agricultural production is not strictly controlled; and 4) actions against forest rangers and law enforcement officers have become increasingly fierce and serious. To resolve such limitations and weakness, it recalls responsible and active actions of the local governments and sectors. *Resolution 17* provides detailed requirements and tasks for the provinces to implement the Directive No. 13. Resolution 71 contains an Annex which provides details on the tasks of provinces for the implementation Directive No.13-CT/TW. It lists over 38 tasks and assigns coordinating agency, cooperating agency, outputs and implementing and finishing time. This provides very specific tasks that provinces must report on.

Policies to promote sustainable forest management and forest certification

The Vietnam Forestry Development Strategy 2006-2020, stipulates that by 2020 at least 30% of the production forests should be certified for Sustainable Forest Management (SFM). Although the total area certified is low, certification has increased in the last few years. Government policy and concerns about access to environmentally sensitive markets are encouraging third-party sustainable forest management and chain of custody certification. To reduce business risks and meet market requirements in the EU and the USA, companies in Vietnam's forestry sector have been pursuing, in particular Forest Stewardship Council (FSC), certification for SFM and Chain of Custody (CoC). In September 2016, the area with FSC SFM certificates totaled 173,507 ha, showing a steep increase from only 9,782 ha in 2009. Similarly, the total number of CoC certificates increased from 191 in 2009 to 495 in 2016. Additional measures integrated as part of the ERPD would contribute to further enable the trend towards SFM and certification. Since 2014, most harvesting of natural forests is banned. The only exceptions are areas that have approved forest management plans and international certificates for sustainable management, and salvage harvesting in production forests allocated to households, individuals and village communities.

It is likely that the development of Vietnam's Timber Legality Assurance System (TLAS) will provide further incentives for third-party certification. Vietnam has finalized negotiating a comprehensive bilateral Voluntary Partnership Agreement (VPA) with the EU. The VPA will create a framework for state oversight of logging that will comply with EU timber legality requirements, as stipulated in the TLAS.

There are a number of recent government initiatives that will contribute to increased SFM certification, both nationally and within the ER-P region:
*   *The National SFM Action Plan 2016 - 2020*[33]: The objective of the SFM Plan approved by MARD is that at least an additional 500,000 ha of forests shall be certified by 2020 (comprised of 350,000 ha plantations, and 150,000 ha natural forests); equivalent to about 7% of production forests nationally. The SFM Action Plan lists a number of actions with a focus on capacity development.
*   *The Vietnam SFM and Certification Scheme for 2016-2020*[34]: This MARD Decision creates the basis for the development of a national certification scheme, which is expected to be recognized by PEFC. The Vietnam Academy of Forest Sciences (VAFS) is mandated to develop the scheme. The Decision also proposes capacity development measures for SFM.

Payments for forest environmental services

Vietnam's Payment for Forest Environmental Services (PFES) scheme has been operational since 2010. The PFES policy was issued through Decree No. 99/2010/ND-CP (24th September 2010) and the goals of PFES are to: 1) improve forest quantity and quality, 2) increase the forest sector's contribution to the national economy, 3) reduce the State's financial burden for forest protection and management, and 4) improve social well-being. The policy has created and developed a state led mechanism for services and goods in forestry

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[33] Decision 2810/QD-BNN-TCLN dated 16 July 2015
[34] Decision 83 in 2016, Approving the Scheme of implementation of SFM and forest certification in the period 2016-2020

where sellers are forest owners in basins and buyers are hydropower plants, water supply companies and tourism companies and all of these can pass on their PFES fees to end-users (the public).

Successful piloting of the policy in two provinces paved the way for Decree 99 of 2010 which called for up-scaling implementation of PFES nationwide. Users of forest environmental services make payments which are then channeled to forest owners in return for maintaining and managing forest areas. There are five forest environmental services that are eligible subjects of payments, but so far only payment schemes in the water and tourism sectors have been implemented. The PFES system is implemented by provinces, which have some flexibility in defining how it is carried out. So far, the vast majority of payments have come from hydropower. Payments are collected at the provincial level and distributed according to the forest area in the watershed. The scheme is currently being implemented in a number of provinces including in all provinces in the NCC except Quang Binh. MARD is currently considering amendments to the scheme to more directly encourage sustainable management by linking payments to good management practices and reduce discrepancies in PFES payments, which are based on how much power is generated rather than area of forest that is impacted upon. Average annual revenue collected from users of forest environmental services for period of 2011 - 2015 is about USD 48.5 million. The estimated annual revenue for ER-P areas is about USD 3 million[35]. The PFES revenue will increase by 80% from 2018 due to application of a new payment rate set out in the Decree 147[36].

After six years of PFES policy implementation, 37 out of 41 participating provinces with forest area have established forest funds at the provincial level, in which 28 forest funds work as trust funds, collect payments from buyers and deliver these to forest owners. Major achievements have been made in establishing legal frameworks and institutional arrangements, generating substantial revenue for forest protection and development, poverty alleviation, improving livelihoods of forest owners, and gaining political commitment and interest in supporting PFES at both central and provincial government levels and among local people. In the ER-P, e.g. Nghe An province established a Forest Protection and Development Fund in November 2011 and after three years of operation the total payment received from hydropower plants and water supply companies was nearly VND100 billion (approximately US$4.5million), in which 99.96% was from hydropower plants. The policy has contributed to increased awareness and responsibility of staff at all levels and local people on forest services and values. It is reported that the illegal logging, forest encroachment, and forest degradation in Nghe An have significantly decreased. Due to additional funding from PFES, more local people were recruited to protect forest and improve their living conditions, particularly ethnic minority people.[37] Quang Binh province has only recently established a Forest Protection and Development Fund with the largest revenue from tourism from Phong Nha - Ke Bang National Park.

Policies to promote the transformation of plantations

Activities linked to Vietnam's long-standing policy to reduce the reliance on timber imports and to encourage national value-added processing of timber, are likely to improve conditions for timber plantation establishment. Plantation policies are increasingly geared toward longer rotation plantations and to plantations using native species. Key policies include:
- Decision No. 1565/QD-BNN-TCLN dated on 8 July 2013 on restructuring forestry sector. This focuses on improving productivity and economic value from forests, particularly plantations. It also provides incentives to shift from short-term rotation to long-term rotation for sawn logs supply to meet increasing domestic demand from the wood industry.
- Decision No. 774/QD-BNN-TCLN dated on 18 April 2014 on approving the action plan for enhancing productivity, quality and economic return of commercial plantations. This policy encourages the growing of large-timber plantations for the furniture industry.
- From 2016 onwards, Decision No. 38/2016/QD-TTg of PM, dated on 14 September 2016 on policies on forest protection and development and infrastructure investment and allocation of public tasks to agro-forestry companies. This policy provides cash incentives for growing long rotation plantations and supports 70% of costs related to forest certification.

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[35] MARD, 2016. Assessment of an 8-year operation of forest protection and development fund and 5-year implementation of PFES policy in Vietnam.

[36] Decree 147/2016/ND-CP dated on November 2, 2016 on revising several articles of Decree 99/2010/ND-CP

[37] Nghe An PPC's report summarizing PFES results, September 2014.

More specifically, the Action Plan on Improving the Productivity, Quality, and Value of Planted Production Forests for the period 2014-2020 sets targets for timber plantations with rotations of 8 to 15 years. The plan targets an increase in the proportion of sawlogs produced (versus chipwood) from the current 30 to 40% to 50-60% by 2020, and over 60% from 2020 onwards. The Plan targets raising plantation yields to 15-20 m³/ha/year for new or replanted plantations. For the NCC 58,281 ha of plantations is proposed to be converted from short to longer rotations. In addition, there are targets for 37,817 ha of new long rotation plantations and 76,543 ha of replanted forest. The action plan includes the provision of concessionary finance and a number of other incentives and support for transforming plantations. New credit lines will provide attractive terms with interest rates well below market rates and repayment periods aligned with investments in longer rotations. Other financial incentives include, exemptions from land rents and taxes.

Many SFCs and also Protection Forest Management Boards (PFMBs) which own and manage production forests (as well as other large forest enterprises) increasingly realize that the wood chip production business model is losing its attractiveness due to the rapidly increasing labor prices and also as government support decreases. Decision No. 5115/QD-BNN-TCLN of December 2014 formulates as an objective for the "period of 2016 – 2020: using 40% or lower of wood materials logged from cultivated forest to produce woodchips to further support development of products having higher added value such as interior and exterior wooden furniture or fine art furniture.

4.4 Description and justification of the planned actions and interventions under the ER Program that will lead to emission reductions and/or removals

4.4.1 Strategic importance and approach in North Central Coastal region

While the total area of forest in the NCC has increased, there has been a marked shift towards poorer forests and to plantations. Deforestation was primarily driven by planned and unplanned conversion of forest land, particularly poor quality forest land, to agriculture. The goal of the ER Program is to directly respond to this challenge and work across key land use sectors to address the drivers of deforestation and forest degradation and encourage forest rehabilitation and sustainable forest management. The program will have strategic importance by being the first large scale program supporting integrated forest and land use practices which address the agriculture-deforestation nexus while addressing poverty. This region and the land use dynamics it contains represents forest transition the country is going through in the mountainous regions and therefore provides a blueprint for how the country should transition in mountainous areas in the future.

Figure 4.4: Location map of intervention areas of ER-P
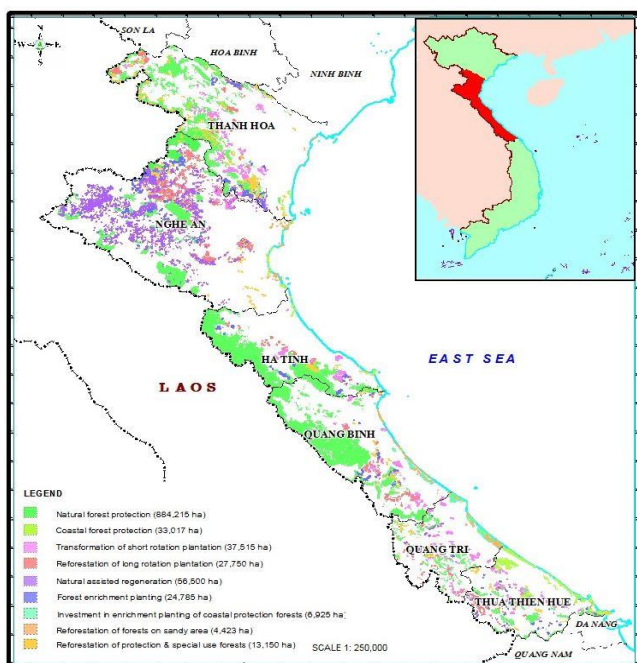
The overall approach is to build on and support implementation of the current ambitious national and sub national policies and initiatives as described in section 4.3 while at the site-level, an Adaptive Collaborative Management Approach (ACMA) will be supported. At the site-level, the ER-Program will be implemented primarily through Special Use Forest Management Boards (SUFMBs)[38] Protection Forest Management Boards (PFMBs)[39] and State Forest Companies (SFCs) and will target smallholders, village, legal entities of local forest dependent households and communities as well as the large forest management entities. This is a realistic approach as the Management Boards and SFCs manage a significant portion of the forest land, and provide a suitable entry point for site-level approaches to address many of the drivers of deforestation. Given some of the weaknesses in working through these entities a collaborative approach – ACMA - will be introduced to ensure a greater role for local communities in management of forest resources. A summary of the ACMA is provided in Box 4.2 and described in more detail in Section 15.

Box 4.2. Adaptive Collaborative Management Approach

The ACMA is a participatory, collaborative approach to sustainable forest management and conservation involving SUFs, PFMBs and SFCs. This approach will be implemented whereby SUFs, SFCs and PFMBs, will work with forest dependent communities, legal community entities and smallholders in the implementation of ER programs in a participatory and sustainable manner. It was successfully implemented in SUFs from 2006-2013 as part of the World Bank Forest Sector Development Project (FSDP) to promote collaborative management approaches in SUFs. This approach will support amongst others, participatory boundary demarcation, formal agreement on land use and on types and sustainable rates for the collection of NTFPs together with focused livelihood improvement.

The experience from the FSDP indicated that the introduction of the ACMA approach results in improved local ownership of forest resources, reduction in illegal logging, delineation of forest boundaries, and effective participation of local communities in the protection of forests. The ACMA can also contribute to

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[38] Special-Use Forests (SUF) are defined as national forests established to protect and conserve forest habitats, the genetic resources of endemic flora and fauna, landscapes and sites with cultural and historical value, as well as also providing resources for research and scientific experiments

[39] Protected areas also exist under Protection Forests; though these have less strict rules on access and use. Protection Forests are designated for environmental protection rather than for biodiversity conservation. Typically, such forests are on steep slopes of key watersheds; and while management restrictions apply, they are not considered to be part of the protected area system, though they may contain important areas of biodiversity.

local land use plans, improved land tenure, strong forest governance, and compliance of forest laws; and community support to reform of natural forest management regulations and practices.

A key feature of the ACMA is that the participatory approach involving communities and forest management entities will improve community access to land and forest resources and to ensure that communities benefit from, and can continue their investments and have incentives to sustainably manage the forest resources under their control. This would be achieved by agreements between the communities and forest management entities.

The ER Program builds on the experience of the World Bank Forest Sector Development Program (FSDP) which included the Vietnam Conservation Fund (VCF). The objective of the FSDP was to achieve sustainable management of plantation forests and the conservation of biodiversity in Special Use Forests (SUFs). The VCF supported planning and management of SUFs and greater levels of community participation and co-management, particularly with ethnic minority communities in remote mountainous areas. Three provinces within the ER-P region (Thanh Hoa, Nghe An and Thua Thien Hue) were part of the FSDP and these processes and activities under the FDSP are still familiar to the Departments of Agricultural and Rural Development (DARDs) in these provinces.

4.4.2   Description and justification of the key activities of the ER Program

The ER program will support a combination of enabling conditions and sector and cross-sector sectoral activities with a focus on the forest and agriculture sectors to achieve emissions reduction. The activities proposed for implementation are grouped under four components elaborated below:

- *Component 1*: Strengthening enabling conditions for emissions reduction
- *Component 2:* Promoting sustainable management of forests and carbon stock enhancement
- *Component 3*: Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people
- *Component 4*: Program management and emission monitoring

Figure 4.5 provides an overall summary of the different components and sub components of the ER Program and how they respond to the drivers of deforestation and forest degradation.

Figure 4.5: The Overall ER Program Design
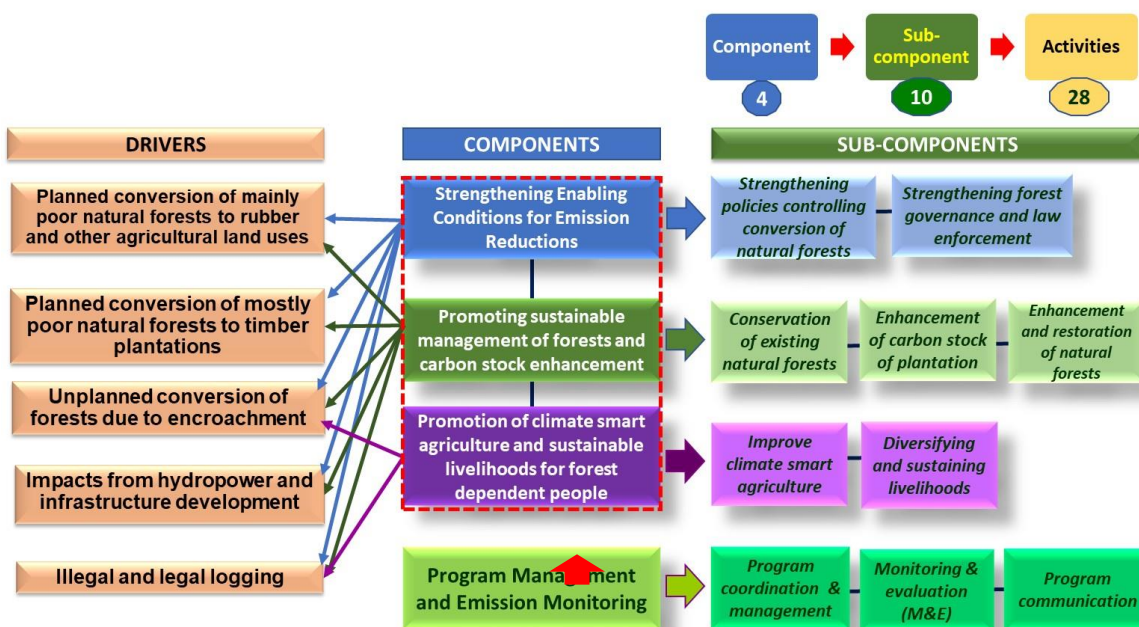
(i) Component 1: Strengthening Enabling Conditions for Emissions Reduction

The first component of 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, as shown in Figure 4.6. The proposed activities support implementation of ambitious and far reaching government policies and plans, described in Section 4.3, which will be implemented in the NCC during the lifetime of the ER Program. Strengthening the enabling conditions is expected to have a transformative impact across the NCC. In fact, it is likely that lessons from the efforts under this work package will be replicated in areas beyond the NCC. A robust quantification of the emissions reductions resulting from strengthening the enabling conditions is difficult but some conservative estimates are presented in Section 13.

Table 4.5 summarizes the sub-components and key activities of Component 1. The details of activities, justification for these activities and expected outcomes for the different activities are elaborated in this section. Indicators, institutional arrangements and financing of the key activities are noted in Table 4.8.

Figure 4.6: The relationship between drivers, underlying causes and key activities for Component 1
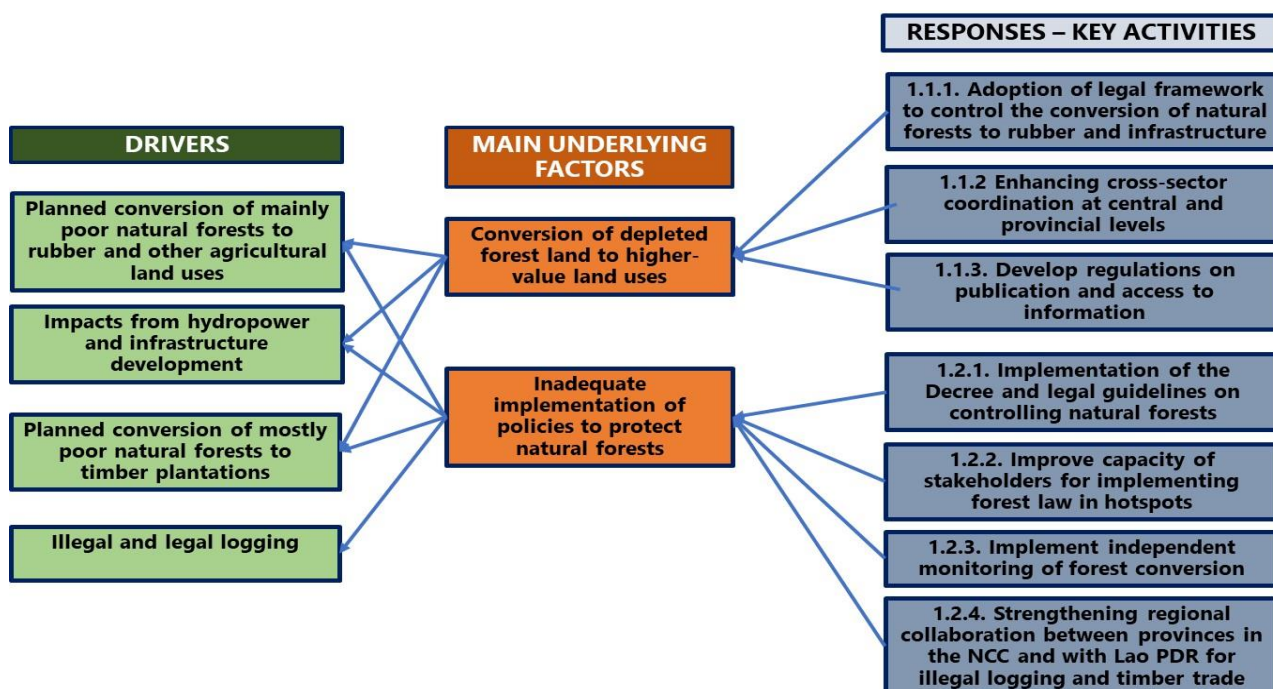
Table 4.5. Sub components and key activities of component 1

Sub Components	Key activities	Scale of intervention
1.1. Strengthening and implementing policies controlling conversion of natural forests	1.1.1. Adoption of legal framework to control the conversion of natural forests to rubber and infrastructure development	All NCC Provinces
	1.1.2. Enhancing cross-sector coordination of the Steering Committees for the National Program on Sustainable Forestry Development/REDD+ at central and provincial levels	National and province coverage (all NCC provinces)
	1.1.3. Develop regulations on publication and access to information on conversion of natural forests and environmental impact assessment reports	National, NCC provinces

1.2. Strengthening forest governance and law enforcement	1.2.1. Dissemination of legal guidelines on controlling conversion of natural forests by local authorities, forest entities, local communities and other stakeholders	All NCC provinces
	1.2.2. Improve capacity of stakeholders to monitor the conversion of natural forests, verification of timber legality and activities to address violations of forest law	All NCC provinces
	1.2.3. Implement independent monitoring of forest conversion by local communities and civil society organizations	*Scale*: National, NCC provinces
	1.2.4. Strengthening regional collaboration among provinces in the NCC and with Lao PDR on effective measures to control illegal logging and manage legal timber trade	NCC provinces; with focus on Quang Binh, Quang Tri, Nghe An and Ha Tinh

Sub Component 1.1: Strengthening policies controlling conversion of natural forests

Expected outcomes:

- Improved legal framework and cross-sector coordination to implement Directive No. 13 to control conversion of natural forests to rubber and infrastructure at the provincial level

Description and justification:

Historically a significant portion of deforestation in the NCC region has been related to the expansion of land used for agriculture, in particular for rubber. Policies have been introduced to address this. The Prime Minister Directive 13 and Resolution 71 (promulgating the Government's Action Program to implement Directive No.13), provides the legislative basis for provinces to deliver on this. Per 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 NCC 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 will strengthen the process to ensure that rubber expansion and hydropower development is reviewed, evaluated and controlled in order to limit expansion into natural forest areas. This will require guidance to provinces and effective stakeholder engagement within and outside the government. Cross sectoral coordination will be further enhanced through strengthening the Steering Committees for National Program on Sustainable Forestry Development/REDD+ at central and provincial levels. To facilitate engagement by stakeholders from outside the government, in order for them to input into the decision-making process requires that they have better access to information; for example of plans for rubber expansion and/or hydropower development. This process will be supported under the ER Program.

Key Activities:

1.1.1 Adoption of legal framework to control the conversion of natural forests to rubber and infrastructure development

Some guidelines for strengthening monitoring and inspection are included within Directive 13/CT-TW and Resolution 71. However, there is still a lack of clear guidance as well as limited capacity of local organizations to implement these policies.

This activity will 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. The expected output is a strengthened policy framework (01 Decree and 01 Circular) to control conversion of natural forests to be endorsed by national and provincial governments for implementation and to be approved by the National Assembly. The process for development of legal guidelines will be participatory, involving a broad range of stakeholders, including local people,

policymakers at the national and local government levels, staff of non-governmental organizations, research institutions and universities, and donor agencies.

This will help provinces will to update information on Resolution 71 to review, evaluate and strictly control socio-economic development projects and planning which affect forest area and quality. Once provincial plans are adjusted this information needs to feed into the provincial Socio-economic Development Plans (SEDPs).

1.1.2 Enhancing cross-sector coordination and monitoring and evaluation functions of the Steering Committees for National Program on Sustainable Forestry Development/REDD+ at central and provincial levels

This activity is designed to strengthen cross sector coordination in order to implement policies controlling the conversion of natural forests. The key cross sector bodies are the Steering Committees for National Program on Sustainable Forestry Development (NTP-SFD) and the Provincial REDD+ Steering Committee (PRSC). The NTP-SFD is a national cross ministerial body and is chaired by the Vice Prime Minister. It provides oversight and monitoring of the implementation of the NRAP/Decision 13 and other cross sectoral policies and programs affecting forest areas. It has played an important role in new policies addressing the threat onto forest areas (for example hydropower). As part of this activity, guidelines will be developed to clarify the roles and functions of the NTP-SFD and stakeholders in implementation of policies to address forest conversion.

The Provincial REDD+ Steering Committee (PRSC) is a cross ministerial body established to implement the Provincial REDD+ Action Plans and to provide oversight and a monitoring of cross sector activities affecting forests. Additional guidelines clarifying the responsibilities of the PRSC will be designed and supported by provinces and monitored by the NTP-SFD. Given the critical importance of the PRSC, support will be provided to build the capacity and outreach of this body.

1.1.3 Develop and implement regulations on publication and access to information on conversion of natural forest and environmental impact assessments

To strengthen policies controlling conversion of natural forests requires greater participation from civil society organizations, professional associations linked to forest owners, farmers and local communities and Ethnic Minority groups to organize and access information to prevent forest law violations. This activity is designed to strengthen the implementation of, and public participation in social and environmental impact assessments for land use planning and development projects. This will be achieved through the revision of Decree 18/2015/ND-CP (regulating environmental protection planning, strategic environmental assessment, environmental impact assessment, and environmental protection plans), which seeks to enhance database and information systems for environmental appraisal and monitoring of projects.

This activity will be implemented from the middle of 2018 when the Law on Information Access officially goes into effect in Vietnam. Per this law (Article 17), information about strategies, plans, products and services negatively affecting the country's environment and natural resources, and environmental monitoring must be publicly disclosed. The law will provide stakeholders access to information to challenge decisions related to infrastructure, mining and agriculture development inside natural forest areas. The ER program will support the implementation of the regulations across the provinces, including support to stakeholders to challenge decisions. The data and information on forest conversion will be integrated into the Management Information System for the Forestry Sector (FORMIS) and other portals at regular intervals.

While there are rules that require developers of infrastructure projects to replace forest that they have cleared, these are not always fully implemented and adequately monitored. For example, in Nghe An, developers pay VND15 million per ha of forest cleared, and the Nghe An DARD uses this money for the general improvement of the forestry sector in the province, but this is not directly tied to an increase in natural forest area. This issue will be addressed through the life of the ER Program so as to achieve progress on reforestation.

Sub Component 1.2: Strengthening forest governance and law enforcement

Expected outcomes:
- Improved protection to SUFs, SUFMBs and PFMBs through collaborative approaches
- Reduced encroachment
- Reduced unplanned conversion

Description and justification:

Official statistics on forest law violations indicate widespread illegal logging in NCC, although it is likely that many violations go undetected and are under-reported. The negative impact of illegal logging is not only the direct damage to the quality of forest but also the process of gradual forest degradation ultimately leading to conversion. The decline in primary natural forests in the NCC has occurred despite laws on forest protection, including restrictions on logging of natural forests and illegal logging known to occur in SUFs and PFMBs in the NCC region. These are difficult to halt, and often require the support of local households that live in the vicinity of forests.

There are renewed opportunities to stop illegal activities, in particular through the implementation of new government decisions to address the illegal expansion of agriculture and hydropower (as outlined in 1.1.1). However, to ensure these legal documents have an impact at the field level they must be translated into practical guidelines for provinces to apply and there needs to be improved dissemination and capacity building for all relevant stakeholders.

Under the Voluntary Partnership Agreement (VPA) with the European Union on the Forest Law Enforcement, Governance and Trade (FLEGT) negotiations between Vietnam and the EU both the timber legality definition and the timber legality assurance system have been finalized. This will strengthen the verification system for legal timber that covers both domestically harvested and imported timber and wood products. The legal standards will underpin a licensing and inspection system of business licenses for sawmills and wood-processing yards.

To strengthening forest governance and law enforcement it is also necessary to improve the capacity of stakeholders for monitoring the conversion of natural forests, legality, verification and inspection to address violations of forest law in hotspots. This includes supporting independent monitoring of forest conversion by local communities and civil society organizations.

Key Activities

1.2.1. Dissemination and implementation of legal guidelines on controlling natural forests to local authorities forest entities, local communities and other stakeholders

For effective implementation of legal guidelines, all legal guidelines will be disseminated to the local authorities, forest entities, local communities and other stakeholders through meetings, workshops, public media and communication campaigns in local languages and simple format for easy understanding and implementation. Dissemination activities will cover all relevant stakeholders such as government agencies, state and local entities, and organizations from the private and nonprofit sectors.

Collaboration mechanisms among local agencies on implementation of the legal guidelines will be strengthened. This activity will be achieved primarily through the Provincial REDD+ Steering Committee (PRSC), which will ensure cross sector collaboration at the provincial level; and at the site level through the ACMA. MBs and SFCs are expected to work with forest dependent communities, legal community entities and smallholders. Committees established through the ACMA will include representatives of the forest management entity, the District People Committee, the Commune Peoples Committee, villagers in the buffer zones of forest management entities, local organizations and community entities. ACMA Committee members will meet at least once monthly to discuss and approve activities.

1.2.2. Improve the capacity of stakeholders to monitor the conversion of natural forests, to verify timber legality and to address forest law violations

Measures to improve the monitoring capacity of forestland conversion, illegal logging and forest law violations and verification of timber legality will be strengthened. This requires collaboration among law enforcement agencies of NCC provinces and at different levels, updates to regulations and empowering Commune Peoples Committee and local communities to address some forest violations. The following activities will be implemented.

- Training to local authorities and law enforcement officers on all aspects of forest law enforcement.

- Using remote sensing and other technologies to monitor the violations of forest law and to identify hotspots of deforestation.
- Strengthening monitoring of projects that involve forest conversion.
- Implementation of verification system for both domestically harvested and imported timber and wood products under the FLEGT.
- Partnerships with NGOs, civil society and other organizations to monitor forest activities.
- Public participation and consultation in the Environmental Impact Assessments (EIA) for forest loss.

1.2.3. Implement independent monitoring of forest conversion by local communities

To improve transparency, the ER program will support bottom-up mobile and electronic methods of field data collection on forest cover monitoring and reporting. Analysis and reporting of forest cover change can be conducted at geographic levels (communes, district, provinces), and functional levels (forest management entities). This system is currently being piloted by JICA across the NCC and provides a greater role for communities in data collection.

An independent team will monitor and verify the compliance of environmental and social safeguards during implementation of the ER-P provinces by providing information on ER-P operations to validate that safeguards have been implemented. The team will include environmental, forestry and social specialists tasked with undertaking desk reviews of the environmental and social documentation and field investigations in the districts, forest management entities, the management plans, ACMAs, to review and document field activities and ensure compliance with the environmental and social safeguards in particular related to conversion of natural forests.

1.2.4. Strengthening regional collaboration among provinces in the NCC and with Lao PDR effective measures to control illegal logging and manage timber trade

Memoranda of Understanding (MoU) have been signed between the Vietnam Forest Protection Department and the Department of Forest Inspection, Lao PDR on the cooperation of forest protection, forest law enforcement, controlling and preventing illegal trade and transport of timber, forest and wildlife products. Annual reports on the actions implemented and results assessed will be published during the program period. Collaborative work with the provinces which have border crossings in the NCC (Quang Binh, Quang Tri and Nghe An) is in progress. In Ha Tinh, UN REDD has been supporting agencies with the implementation and monitoring of the MoUs with Laos Provinces. The ER Program will build on these efforts.

Vietnam and Lao PDR have VPAs with the European Union on the FLEGT. An important issue in Vietnam's VPA negotiations has been Vietnam's ability to determine the legality of its own imports and/or to distinguish them from domestically produced timber. Bilateral negotiations to ensure Lao PDR can meet Vietnam's VPA requirements for imported timber will be supported. This activity will also support customs officials at Vietnam's major importing ports and border points, providing training on how to implement new policies, including timber import and export controls. It will also be necessary to build capacity and support implementation of the VPA with respect to sourcing from provinces in the North Central region. Activities will include conducting training on information and guidance about FLEGT licenses and guidance on the due diligence of legal timber.

(ii) Component 2: Promoting sustainable management of forests and carbon stock enhancement

The forest sector has been undergoing restructuring to enhance the effectiveness of land use and forest protection. A master plan for restructuring the forest sector was approved in July 2013 to strengthen competitiveness of the forest sector to effectively mobilize investment, and to promote its development. A set of new policies and programs have since been introduced, some of which are described in Section 4.3. ER program activities build on these efforts to support government priorities in the NCC for: (i) conservation of existing natural forests; (ii) enhancement of carbon stock of plantations and (iii) the restoration and enhancement of poor natural forests. The key activities for each of these sub-components are highlighted in Table 4.6 and further described below.

As shown in Figure 4.7 interventions for Sub Component 2.1 on the conservation of existing natural forests focus around efforts to address some of the major barriers to REDD+ - namely forest governance and ownership, poverty and limited available land. Solutions require interventions not just in the forestry sector, but also in terms of livelihoods support to the forest dependent communities the program is engaging. For this reason, the diagram below also highlights interventions in Component 3 - promotion of climate smart agriculture and sustainable livelihoods for forest dependent people. These activities will be determined as part of the ACMA. The activities for Component 3 are further described below. We first examine the activities under Component 2 (details of locations for activities of component 2 are presented in Annex 1).

Table 4.6: Sub component and key activities of Component 2

Sub Components	Key Activities	Scale of interventions
2.1. Conservation of existing natural forests	2.1.1 Clarification of land and forest boundaries among the forest entities (FMBs, SFCs) in hotspots areas	60 SFC, PFMB, and SUF MBs across 6 provinces
	2.1.2. Implement collaborative management of natural forests between FMBs, SFCs and communities	60 SFC, PFMB, and SUF MBs across 6 provinces
	2.1.3. Promote implementation of community based forest management	Forest Management Units across 6 provinces, forest areas under CPC
	2.1.4. Implement sustainable management of natural forests by FMBs and SFCs	Priority FMBs and SFCs across the NCC
2.2. Enhancement of carbon stock of plantation	2.2.1. Investment in transformation of short-rotation plantations to long-rotation plantations for sawn timber supply	37,515 ha in all 6 provinces focusing on SFCs and small growers
	2.2.2. Investment in reforestation of long rotation plantations	27,740 ha in all 66 provinces (SFCs and small growers)
2.3 Enhancement and restoration of natural forests	2.3.1. Investments in assisted natural regeneration (no supplemental planting)	Priority SUF and PFMBs across NCC (56,500 ha)
	2.3.2. Investment in enrichment planting for poor natural forests	Mainly SUF and PFMBs across NCC (24,785 ha)
	2.3.3. Investment in reforestation of coastal protection forests (mangrove and sand break forests)	Coastal areas across NCC Enrichment planting of coastal forests (6,925 ha); Reforestation of coastal sandy forests (4,423 ha)
	2.3.4. Investment in reforestation of protection and special use forests in mountainous areas	Specific SUFs and PFMB across the 6 provinces (13,150 ha)

Figure 4.7: The relationship between underlying causes and key activities for Component 2 and Component 3
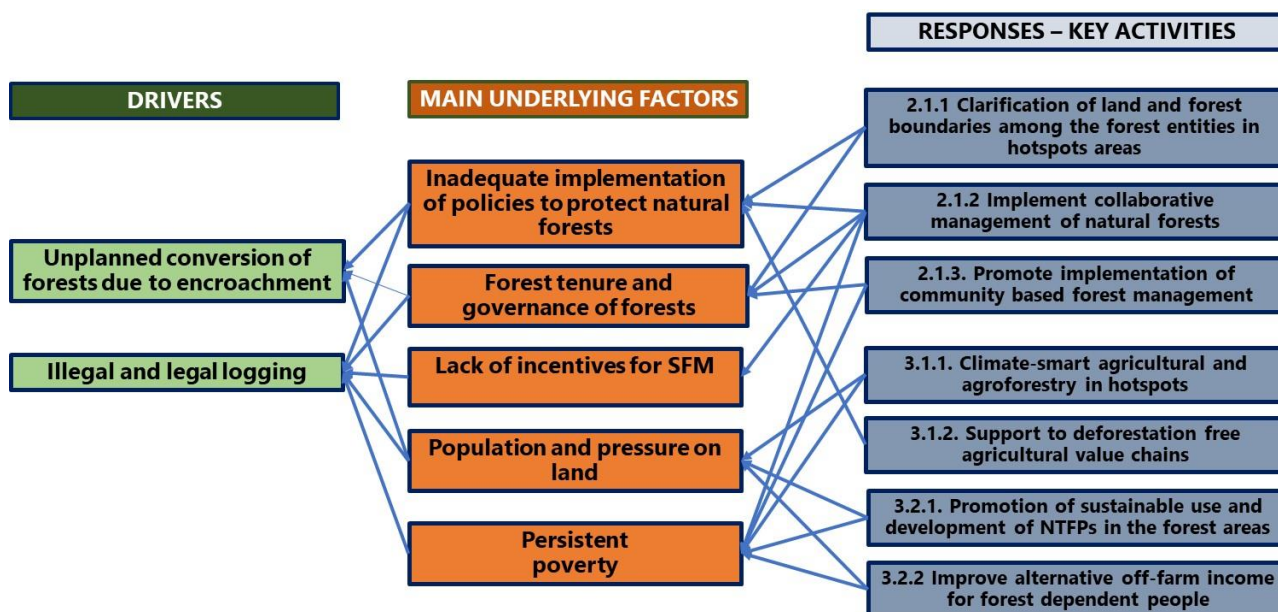
Sub Component 2.1. Conservation of existing natural forests

Expected outcomes:

- Minimized conflicts over the forests among forest management entities and local people
- Reduced deforestation and degradation
- Enhanced use rights over forest resources for local communities
- Improved management of existing natural forests and strengthened collaboration between FMBs and SFCs

Description and justification:

The ER-Program will be implemented primarily through Protection Forest Management Boards (PFMBs), Special Use Forest Management Boards (SUFMBs) and SFCs, and will target smallholders, village, legal entities of local forest dependent households and communities as well as the large forest management entities. Most of the country's forests are still managed by state entities such as PFMBs and SUFMBs and SFCs. Together they manage approximately 45% of the total forest area. Since 1995 SFCs and MBs have been allowed to sub-contract forest lands to local households for forest protection and planting. In the protection forest area, forest land allocation to local households generally takes the form of forest protection contracts. The contracts require SFCs and MBs to provide forest protection or planting fees to households. The contract is usually for one-year and is renewable with the agencies paying forest protection fees to the households in exchange for labor spent on forest protection. Within the NCC, the total area contracted to households is close to 200,000 ha. These payments come from the state budget; in particular Vietnam's PFES scheme which has been operational since 2010, as issued through Decree No. 99/2010/ND-CP.

However, the system of designating forests as protection and/or protection and providing limited use rights for local communities has, in many cases, the impact of creating tensions between the MBs, SUFs and local communities, particularly where the local communities have historically had rights to the land. The current forest governance system of limited access rights for local communities, coupled with the high rates of poverty and limited land available for communities living in and around these FMUs are major barriers to REDD+. Encroachment into forest areas by local populations tends to be small scale and gradual, but over time has a significant cumulative impact on forest cover and forest quality. The country has witnessed a trend of gradual degradation of higher quality forested areas to lower quality and their eventual conversion. It is critical to address this threat of gradual encroachment by the local populations.

Therefore, in order to achieve conservation of existing natural forests it is necessary to improve current forest tenure and governance. Collaborative forest management approaches have also proved to be an effective deterrent to illegal loggers. Given some of the weaknesses in providing direct contracts the program will adopt a 'collaborative approach' in order to ensure a greater role and ownership by local communities. This will build on the lessons and experience of the collaborative approach applied under the FSDP and VCF supported by the World Bank. In addition, and in line with current policy more land will be identified and designated to communities; this land will come from FMBs as well current land under Commune People Committee (CPC).

In order to support improved management of natural forests sector reforms aim to restructure the current SFCs. The majority of SFCs operating in natural forests will be re-organized away from "timber production" to public service production due to the poor quality of their forests (Decree 118/2014). Across the country certification is presently a prerequisite for a small number of SFCs in rich or medium natural forests to operate (estimated 10-15 SFCs; formal appraisal on-going). There is currently a lot of momentum for SFM and certification in Vietnam[40] which the ER Program will build upon.

Key Activities

2.1.1 Clarification of land and forest boundaries among the forest entities (FMBs, SFCs) in hotspots areas

The issue of land boundaries can be difficult to resolve as households or even communities will often claim a lack of agreed boundaries. Under this activity local authorities (commune, district, province) will identify the location of hotspots where conflicts exist. As part of the development of the Benefit Sharing Mechanism (BSM) (see Chapter 15) a resource survey will be undertaken. This will ascertain information such as forest boundaries, access to forests by users and form the basis for a subsequent agreement on forest boundary demarcation. The process will involve forest management entity staff, local authorities and local communities. In such cases, meetings and dialogue between management agencies, forest entities and local people/communities will be established to better understand the drivers for such conflicts and expectations from local communities. Then there is a need to come up with the compromises and clarification of boundaries.

In the case of conflicts, in particular SFCs and related stakeholders, there is an existing legal system and institutions to resolve such conflicts. To effectively address the conflicts between forestry companies and the stakeholders, especially the communities living near the company's forests, redress mechanism through CPCs with support of grass-root reconciliation units has shown to be a suitable mechanism. With the conflicts related to REDD+, the involvement of officers managing forest protection funds are needed to support the CPC to come up with appropriate resolutions. For this mechanism to operate effectively, there will be investments to improve capacity for grass-root reconciliation units and forest management capacity for the commune authorities, along with other basic facilities. Priority efforts to strengthen the grievance redress mechanism are examined further in the safeguards chapter in Section 14.

2.1.2. Implement collaborative management of natural forests between FMBs, SFCs and communities

To achieve conservation of existing natural forests it is necessary to implement a more collaborative management of natural forests in order to ensure a greater role and ownership by local communities. To achieve this ACMA will be adopted through which SUFMBs, PFMBs and SFCs will work with forest dependent communities, legal community entities and smallholders within their areas of influence. For the project area managed by PFMBs, it is expected that around 20% will be implemented by smallholders. The composition of ACMA Entities will be optimized for implementing ER Program activities across land use designations and for implementing benefit sharing plans with local communities. Some of the activities to support local communities include:

- Prioritization of forest management issues, forest governance, participatory forest patrolling;
- Poverty alleviation and livelihoods programs, including Forest Land Allocation (FLA) and the introduction of BSM; these are discussed in more detail in Section 15;
- Promotion of plantation transformation and forest enhancement (see Sub Component 2.2);

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[40] This has different origins: (i) the Vietnamese timber industry requires certified logs/sawn wood for their export markets and pays a price-premium of up to 20%; (ii) only internationally certified forest companies are excluded from the logging ban in natural forests; and (iii) SFM is not only in line but is a vital prerequisite for 'Vietnam's national and international policy objectives. However, experience has shown that support is needed for SFCs to implement SFM and reach certification.

- Support Sustainable Forest Management and certification (including collaboration and coordination between different communities and the FMBs);
- Sustainable agriculture (see Sub Component 3.1);
- Non-timber Forest Products (NTFPs) are produced and harvested (Sub Component 3.2);
- Other activities to directly address the local drivers of deforestation and degradation; and
- Rationalization of boundaries, participatory boundary resolutions.

Under the FSDP introducing such activities led to improved communication and understanding between MBs and communities, more sustainable resource use, better monitoring of threats, greater community ownership and awareness and better information on the needs of local communities.

2.1.3. Promote implementation of community based forest management

The program will identify and support FLA to local communities and/or community entities. The country has increasingly sought to decentralize forest management by allocating forest land to households and individuals to improve livelihoods and increase forest cover. FLA continues to be supported by recent policies[41].

As well as efforts to support FLA in FMBs and SFCs there will be efforts to review and identify land and support the allocation of forest land which is currently under the temporary management of the CPC to forest dependent communities. Priority will be given to individuals, households and community groups, particularly to ethnic minorities, lacking land and productive land. This will be guided by Circular No.38/2007 and Circular No.20/2016 on guiding processes and procedures for allocating, leasing, withdrawing forests for organizations, households, individuals and village communities. Where appropriate households will be supported to form clusters and/or villages to form legal entities such as co-operatives or associations in order to manage the forest areas. Building such institutions provides a way to empower local ethnic minority groups and poorer local people. Lessons will be applied from the successful application of this approach in other provinces such as the CERDA supported project in Thai Nguyen province[42].

2.1.4. Implement sustainable management of natural forests by FMBs and SFCs

Twenty-one SFCs in the NCC with a total 164.788 hectares of natural forest are affected by the Decree No. 118/2014 of the Government on restructuring, developing and improving the agriculture and forestry companies. In identified SFCs support will be provided to introduce sustainable practices. Supporting activities include: developing managerial and technical capacities at the enterprise level (e.g. in reduced impact logging, environmental protection, conflict resolution etc). It should be noted that it is expected that the current policy uncertainties with respect to sustainable management of natural forests are expected to be clarified in the coming years[43]. Activities will not be implemented until such uncertainties are removed.

Sub Component 2.2. Enhancement of carbon stock of plantations

Expected outcomes:
- Reduced forest degradation
- Reduced expansion of plantations on natural forests
- Improved wood productivity and carbon stock
- Improved domestic wood supply
- Sustainable management of plantations
- Increased investment and value addition in domestic wood industry

Description and justification

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[41] Decree 118/2014/ND-CP dated December 17, 2014 on restructuring and development of SFCs to improve their performance calls on the large state forestland owners (PFMBs, SUFMBs, SFCs) to review and demarcate the forestland boundaries and to identify the remaining forestland boundary of the organizations on maps and on the ground in order to allocate the land most effectively.

[42]   https://www.norad.no/en/front/funding/climate-and-forest-initiative-support-scheme/grants-2013-2015/achievements/pilot-models-of-redd-implementation-at-grassroots-level-in-vietnam/

[43] The on-going reorganization of SFCs (Decree 118) and current logging-ban (PM Decision 2242) create current uncertainties for SFCs that hinder them from investing in SFM. The appraisal and decision-making process on the future structure and function of all SFCs is not yet completed (but expected to be soon). Regarding the logging ban, it is not clear if the ban will be extended beyond 2020, nor is it clear if the exemption for certified companies will be upheld beyond 2020. It is expected these policy uncertainties will be resolved in the coming year.

Plantation policies are increasingly geared towards longer rotation plantations and to plantations using native species. Combined with efforts to increase growth rates, these policies will increase the carbon enhancement potential of plantations. Supporting plantations on degraded forest land and/or bare land provides further carbon sequestration benefits while meeting demand for timber.

Policies for increasing the value-added of forest products include opening the forest sector to more private investment through the restructuring of SFCs and the promotion of partnerships between the state and private entities in managing and commercializing forests. Activities linked to Vietnam's long-standing policy to reduce the reliance on timber imports and to encourage national value-added processing of timber are likely to improve conditions for timber plantation establishment.

Plantation expansion has contributed to increase in the country's forest cover, increased incomes of local people, while helping to meet the supply of some wood products. There are, however, many barriers to sustainably managed plantations and accessing higher value markets. The main barriers to sustainable plantation management are poor production practices, limited financing and ineffective governance and support.

There are several reasons for low plantation productivity in Vietnam. These relate primarily to technical (e.g. site suitability assessment, silvi-culture practices, germplasm), capacity (e.g. poor skills, equipment and access to good practices) and market aspects (e.g. quality of products, market demand, processing capacity). As such, forest growers manage their tree plantations on short rotations and seek to minimize the costs of externally purchased inputs, further causing a decline in soil fertility and lower productivity. Lessons from the FSDP highlight the importance of support to improve the productivity and facilitate access to finance to cover the financing gap for longer rotation.

Many SFCs and PFMBs in the ER-P region have expressed an interest in improving their technical capacities for production of large-dimension timber. This is mainly to meet the large and growing demand of the wood processing industry that serves export markets for furniture. As part of the implementation of the PRAP, the Forest Protection Department of Thua Thien Hue submitted a policy (plan for large timber plantation in Thua Thien Hue for the period of 2016-2020) to the Provincial Peoples Committee in which the plantation target for the province until 2020 is set at 13,300 ha.

The focus of activities under this sub component will be on the transformation of short-rotation plantations to long-rotation plantations for sawn timbers supply and investment in reforestation in long rotation plantations. The ER-P will prioritize support to large forest owners on transformation to long rotation plantations, before introducing the models and outgrower schemes to other forest owners

2.2.1. Investment in transformation of short-rotation plantations to long-rotation plantations for sawn timbers supply

Key services supported through the ER-P to facilitate longer rotation plantations include:

- Inputs on nursery accreditation and improved seedling quality
- Support for improved silviculture
- Livelihoods training
- Land survey, mapping, landscape and plantation design
- Land use right certificate (LURC) processing;
- Credit processes for Vietnam Bank for Social Policies (VBSP) loans
- Extension services, technical training, scientific research. Multiple guidance documents have been produced as part of the Forest Development Support Program.
- Ethnic minority development planning;
- Pilots in FSC certification; and
- Collaborative management.

Through these activities, the existing short-rotation Acacia business model can be successively replaced by new silvicultural and forest management approaches focused on producing high-value timber for sawn logs. These activities are expected to help to significantly increase the profitability of SFCs and PFMBs with production forests and provide a future resource base of legally produced timber for the export-oriented furniture industry.

Two different models will be promoted. Firstly, in the case of conversion of existing plantations, conversion would occur when the plantation is aged 4 years. The plantation would yield both chipwood and roundwood. It is assumed that activities start in year 4 and generate immediate revenues, while in year 6 foregone revenues would occur. These will be more than compensated for by higher returns in year 8 and 12 once the second thinning operation and final harvesting occurs. Under the second model, existing pure Acacia plantations in PFMB and SFCs would be converted into mixed native species forest plantation in two successive processes: in year 4, 50% of the Acacia would be harvested and native species planted in their place. Then in year 6, the remaining 50% of Acacia would be harvested and native species planted.

2.2.2. Investments in reforestation in long rotation plantations

Support services to invest in reforestation in longer term plantations are similar to under 2.2.1. A key service will be support to the allocation of land use right certificates (LURCs) to local households for smallholder plantation development. Building on the FSDP operations, it is expected that eligible small holder households would be able to take out loans for forestry plantations with credit from VBSP or a similar program, and repay the credit with revenues from plantation harvest. This would ensure that this component would be largely self-financing and sustainable through a reimbursable funding mechanism.

Different models will be considered for this activity. They include establishing Acacia plantations in PFMBs and SFCs and with some smallholders/communities. Plantations would be harvested at 12 years (as opposed to 6 years as the existing practice). Another model would be a mixed species plantation for SFCs and PFMBs comprising 50% Acacia and 50% native species by stem density. The total rotation length is 20 years although the Acacia would be harvested in year 12 and replanted with native species. The harvest of native species is expected to occur in year 20 in a selective manner. The plantation would yield both chipwood from Acacia and roundwood from all species. This model also will be implemented on bare land.

Sub Component 2.3. Enhancement and restoration of natural forests[44]

Expected outcomes:

- Enhanced forest cover, forest carbon stock and forest management;
- Improved non-carbon benefits (water retention, soil fertility, biodiversity etc)
- Enhanced capacity of forest management entities in forest management
- Enhanced climate resilience in coastal areas
- Improved capacity of forest management entities

Description and justification:

Following the major decline in natural forests by the 1990 – significant efforts were made to restore them. Over the past 20 years, about 2 Mha of natural forests have been rehabilitated through national programs on forest rehabilitation, especially the Five Million Hectares Programme (or Programme 661[45]). However, this programme ended in 2010 reducing the main source of financing for these activities.
A comprehensive legal framework regarding reforestation/rehabilitation exists. National Targets are set under Decision No. 57/QD-TTg of the Prime Minister under the Forest Protection and Development Plan period of 2011-2020[46].

Poor performance of rehabilitation programmes has led to low survival rates. This is viewed as a result of a lack of technical investment such as participatory land-use planning, clear land demarcation in forests and forest land allocation, site mapping and species matching, seedlings quality and post-planting management.

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[44] Restoration and enhancement of natural forests is achieved through assisted natural regeneration (ANR) and enrichment planting. ANR assists degraded and logged over forests return more rapidly to a natural state and species composition and is achieved by assisting under-represented, long-lived tree species to regenerate, particularly species that were selectively harvested in the past, thus increasing the forest carbon storage potential. Enrichment planting allows the introduction of valuable species into degraded forests without the elimination of existing species. This is designed to increase the regrowth of forests in areas with low forest biomass density

[45] Programme 661, supported forest protection, forest rehabilitation, as well as forest plantations, in both protection and production forests.

[46] Targets include: (i) afforestation: 2.6 Mha, including 250,000 ha for new protection forests and SUFs; 1 Mha for new production forests and 1.35 Mha for post-harvesting replantation; (ii) rehabilitation: 750,000 ha (mainly protection and SUF), including 350,000 ha for continuous regeneration and 400,000 ha for new regeneration; (iii) improvement of critically poor natural forests: 350,000 ha.

There is also the need to develop a consistent approach on identifying areas for rehabilitation and a consistent policy for the implementation of forest rehabilitation.

Another barrier to the enhancement and restoration of natural forests includes a lack of incentives for communities to engage beyond the provision of paid labour. Consideration must be given to allow more access and use of the forests to act as an incentive for household engagement beyond the supply of labour. Without this, rehabilitation will depend primarily on state funding which is below necessary levels. Any further rights of use should be clearly defined with responsibilities and developed under co-management agreements. Structures and governance procedures to involve communities and to allow traditional and subsistence uses of PFMB resources within the context of agreed plans, zones, and monitoring are needed.

Key Activities:

2.3.1. Investments in natural assisted regeneration (no additional planting)

Under these activities restoration through protection and assisted natural regeneration (ANR) shall be applied to degraded areas. This will be achieved through ANR supporting seed germination and nurturing tree seedlings and saplings already emerging on degraded sites. It will be designed to bring about an intervention that will enhance the growth of the preferred species, based on the ecological requirements of these species. Forest maintenance will also be applied to young forests by removing unwanted and unhealthy trees/plants. This includes liberation cutting and clearing of lianas, clearing of unhealthy trees and reduction of the vegetation understory which can retard the growth of trees.

Technical handbooks, leaflets on ANR silviculture techniques without additional planting will be developed and distributed to stakeholders. Such handbooks have already been developed by international projects, for example though the ENRICH program, implemented by SNV in Ha Tinh. To effectively implement those technical requirements, investment will be provided to ensure quality seedlings, suitability assessment, expansion of extension support and an effective monitoring system.

Natural regeneration scenarios are modelled which will be implemented mainly by SUF MBs and PFMBs. The first natural generation model assumes protection of medium evergreen broadleaf natural forest from degradation. In this case, there would be no planting. This is projected to result in achieving a rich medium evergreen broadleaf natural forest after 20 years.

2.3.2. Investment in enrichment planting for poor natural forests

It is feasible to rehabilitate protection forests and SUFs and also for production forests in qualified areas through protection and enrichment planting. Through enrichment planting valuable species will be introduced (e.g*. Erythrophleum fordii, Michelia mediocris, Cinnamomum obtusifolium* etc) into degraded forests without the elimination of existing valuable species.

The costs for enrichment planting including planting and 3-year maintenance. Technical handbooks, leaflets on restoration silviculture techniques, growing techniques of high value timber species, will be produced and distributed to stakeholders. Relevant materials which already exist form previous international projects will be used. Follow up support to implement these guidelines will be provided and forest extension services strengthened.

This natural regeneration model assumes protection of poor evergreen broad-leaf natural forest, where protection and enrichment planting would be undertaken and a total of 500 seedlings of native tree species will be planted per ha. This is expected to result in achieving a rich medium evergreen broadleaf natural forest after 20 years. This is most likely to take place in PFMBs and SUFs. ACMA will be applied to resolve any historical conflicts over forest use and to support livelihood improvement for local communities. Direct revenues will be limited in the short-term to NTFPs, while there are also possibilities to tap into PFES payments.

2.3.3. Investment in reforestation of coastal protection forests (sand break forests)

In the NCC region mangroves forest have been destroyed and degraded by unsustainable harvesting as well as by a myriad of coastal development projects including tourism and aquaculture. Activities will protect and conserve the available coastal forests through both natural regeneration and rehabilitation of degraded coastal and sand break forests, particularly those areas previously heavily logged and/or cleared to make way for aquaculture and through replanting and rehabilitating sand break forests.

Technical handbooks and training manuals on areas such as restoration silviculture techniques, growing techniques of native species will be developed and distributed to stakeholders. Much material has already been produced though a number of projects implemented by GIZ[47].

Sand dune forests also play a critical role in coastal areas as a natural barrier against erosion and natural disasters. Dune restoration plantings will mirror the species diversity found in adjacent natural areas. Techniques in dune restoration will be natural, through long term protection of native dune vegetation with no adverse effect to adjacent coastal areas; and/or through replanting with suitable species which can adapt to harsh conditions and improve the fertility of the soil.

Bare coastal land and coastal sand dunes will be restored by investments into planting and labour for maintenance and protection of the forests. This will be implemented mainly by MBs and a combination of collaborative management with smallholders/communities. Direct revenues will be limited in the short-term to NTFPs, with possible PFES payments in the future. These activities will be supported under the World Bank Coastal Forests Program[48] areas in the NCC, which is described in more detail in Section 4.2.3.

2.3.4. Investment in reforestation of protection and special use forest in mountainous areas

According to the target programme on Sustainable Forest Development for the period 2016-2010 (Decision 886/QD-TTg) one of the key tasks is afforestation and reforestation with a target of 75,000 ha of protection and special-use forest with the specific objective of enhancing ecological services including carbon sequestration, catchment and soil protection, biodiversity conservation and by minimizing forest degradation and sustainable forest management.

Silvicultural measures will be based on the specific natural and socio-economic conditions of each forest area and ensure that the planted species are suitable with the site conditions. Activities will ensure that there is the necessary technical experience to ensure successful plantation, high quality seedlings and proper technical forest care. The major reforestation model for protection and special-use forest is mixed native species plantation. The composition of native broadleaf species is not limited to but includes *Tarrietia javanica* (Huynh), *Hopea odorata* (sao den), Mechelia (gioi), *Dipterocarpus alatus* (dau nuoc), *Chukrasia tabularis* (lat hoa;); etc.

(iii) Component 3: Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people

Recognising that long term sustainable development depends on the improved livelihoods of local populations living in and around the forest areas highlights the critical need for diversifying and sustaining livelihoods for forest dependent people, particularly in hotspot areas. As described in Activity 2.1.2 and shown in Figure 4.7 forest conservation is dependent on providing benefits to local communities.

Assessments at the participating PFMBs, SUFs and SFCs identify the most vulnerable and forest dependent actors that need to be targeted to reduce deforestation and forest degradation. Based on that, a collaborative management activity will be developed. A grant mechanism will support diversifying and sustaining livelihoods for forest dependent people of vulnerable and forest dependent communities. These efforts will be complimented with funds from current government programs targeting poorer communes (see Table 4.8) as well as PFES payments. This can contribute to improving the socio-economic conditions of ethnic minorities and other poorer groups while reducing deforestation and forest degradation.

For component 3 the main Sub Components broken down into improving climate smart agriculture (3.1) and diversifying and sustaining livelihoods for forest dependent (3.2). Key activities are shown in Table 4.7 below.

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[47] For example: Adaption to climate change through the promotion of biodiversity in Bac Lieu Province
[48] http://projects.worldbank.org/P157127?lang=en

Table 4.7: Sub component and key activities of Component 3

Sub Components	Key Activities	Scale of intervention
3.1 Improve climate smart agriculture	3.1.1. Implementation of climate-smart agriculture and agroforestry through the ACMA in deforestation and forest degradation hotspots	In key hotspot areas (estimated at ~ 50,000 ha)
	3.1.2. Support to deforestation free agricultural value chains	In key hotspot areas (estimated at ~ 50,000 ha)
3.2. Diversifying and sustaining livelihoods for forest dependent people	3.2.1. Promotion of sustainable use and development of NTFPs in the forest areas	Across NCC provinces (link to ACMA in 60 SFC and management boards)
	3.2.2. Improve alternative off-farm income for forest dependent people	In key hotspot areas (link to ACMA and around 60 SFC and management boards)

Sub component 3.1. Improve climate smart agriculture

Expected outcomes:
- Reduced unplanned degradation and deforestation for agriculture (less need to expand agriculture and encroachment)
- Increased capacities to adopt climate smart agricultural practices and reduce unplanned degradation and forest degradation
- Reduced unplanned degradation and deforestation through higher income levels by smallholder and forest dependent households and better market integration
- Enhanced value chain supply

Description and justification:

Access to land to support food security and sustainable livelihoods is a factor causing forest degradation and deforestation in the NCC region. Therefore, it is necessary to support the development and introduction of more integrated, targeted livelihood activities for meeting the multiple objectives of food security, economic development and forest protection. Critical to this is sustainable agriculture for local livelihoods.

Unplanned forest conversion due to encroachment for agriculture tends can have a significant cumulative impact on forest cover and forest quality over time. A negotiated outcome is often that the community is allowed to harvest the crop(s) already planted and then must withdraw, or if the encroachment is more widespread and long term, part of the SUF or PFMB is eventually excised for the local community. A number of SUFs including Dak Rong Nature Reserve in Quang Tri, have constantly had to adjust and then re-adjust the boundaries. As was demonstrated under the FSDP, co-management and participatory approaches, including support to climate smart agriculture can lead to improved communication and understanding between MBs and communities, more sustainable resource use, better monitoring of threats, greater community ownership and awareness and better information on the needs of local communities

Interventions under the ER-P will focus on supporting improved and sustainable crop production and increased incomes through value chain development. Key crops include cassava, shrimp, rubber, tea etc. Any support provided will be part of the agreed Benefit Sharing Mechanism (see Chapter 15) and will be provided in combination of commitment from communities for forest protection.

For some agricultural commodities, in particular those with large export markets they have the greatest likelihood of causing large scale expansion and deforestation it is necessary to closely monitor production. In the NCC rubber and shrimp aquaculture are both sold on international markets, and will be specifically targeted to ensure they are 'deforestation free'. In most cases, sustainable production (certification) will suffice.

Key Activities:

3.1.1. Incentivize climate-smart agricultural and agroforestry through the ACMA in deforestation and forest degradation hotspots (based on activity 2.1.2)

There are numerous examples of climate smart agricultural (CSA) practices across the NCC provinces. For example, the Vietnam Forests and Deltas program has been supporting various efforts in Nghe An and Thanh Hoa provinces; including climate smart rice, beekeeping in the mangrove forests, sustainable maize production and improved livestock management. Successful pilots will be scaled up in the appropriate places and targeted communities.

Support will be provided to better integrate smallholder farmers into markets to which they are hitherto excluded, or, at best, only participate under unfavorable conditions. This will be achieved by (i) building and enhancing linkages between the 'middle' of the value chain (processors, traders, exporters and farmers' organizations) and the market; (ii) strengthening the relationship between the same 'middle' of the value chain and smallholder farmers and, (iii) strengthening the supply capacity (ability to produce increased volumes of goods or services with particular attributes). Such support will allow farmers better access to information, enhanced bargaining power, improved connection to supply chains and access to markets. This will empower farmers and enable them to gain greater benefits along the supply chains.

Training and extension will be provided for selected agricultural value chains on more sustainable and intensive (higher yield) production practices, focusing on cassava and food crops. Support will also be provided for livestock/fodder production to reduce free grazing. Efforts are being supported under a number of government development programs, targeting poorer communes (e.g. Decree No. 75; Decision 1722; Decision 24 etc). Further support will be provided through ACMA small grants for focused livelihood activities.

3.1.2. Support to deforestation free agricultural value chains

The focus of activities to support deforestation free agriculture and aquaculture will be in hotspots where agriculture is causing forest conversion. Based on land use change assessments 'hotspots' where deforestation-free supply needs to be sourced have been identified. For the NCC the focus will be on areas of rubber production and to a lesser extent shrimp.

Key activities will include: public-private dialogues between the provinces, producers and companies to source deforestation free/sustainable agriculture. On shrimp, lessons will be taken from the Mangroves and Markets project which is supporting certified mangrove-shrimp production in Ca Mau province. The companies involved in sourcing certified mangrove-shrimp will look at sustainable sourcing form this area. Companies such as Minh Phu are increasingly seeking sustainably produced production to diversify their market based and to respond to market demand from Japan and Europe. Support will be provided for such activities as part of the World Bank Coastal Forests Program.

There will also be efforts to introduce basic rubber standards for sustainable production. Best management practice guidelines will be produced and used by local institutes and extension agencies as well as international projects. The guidelines will focus on improved production practices to increase yields, while also minimizing environmental impacts. Although there is currently no market incentive for certified rubber production in Vietnam, efforts will be made to better understand and engage companies towards sustainable sourcing; for example, there is a growing interest from tyre companies in the region. Even without the market incentive the government, through its various directives, is putting pressure on producers to ensure it is deforestation free.

Sub Component: 3.2. Diversifying and sustaining livelihoods for forest dependent people

Expected outcomes:
- Reduced deforestation and forest degradation by unplanned encroachment
- Improved income of smallholder and forest dependent households
- Enhanced capacity for local people to cultivate NTFPS

Description and justification:

Therefore, it is necessary to support the development and introduction of more integrated, targeted livelihood activities for meeting the multiple objectives of food security, economic development and forest protection.

The ER-P will provide key services to smallholders to improve their livelihoods through projects that are compatible with forest protection and biodiversity conservation. This includes, for example, the promotion of the sustainable use and development of NTFPs in the forest areas and improving alternative off-farm income

for forest dependent people. Vietnam has high potential for non-timber forest product (NTFP) development. Exploitation and processing of NTFPs is critical for the local economy, mainly in rural and mountainous areas contributing significantly to poverty reduction.

A trend which is happening is the inevitable process of urbanisation with the movement of young people in particular out of farming. There has been a policy shift towards modernisation of the agricultural sector supporting farm consolidation, based on assumptions of economies of scale[49]. The likely impacts on forests of the changing market and labour structure within the economy are not clear. On one hand, it will lead to more landless, poor farmers who may be forced to encroach on forested areas. If the excess labour force is employed elsewhere this will overcome this problem. Therefore, policy adjustments are needed to absorb more redundant workers from the agricultural sector and improve living standards for rural households. This must include skills training for unemployed rural workers in new vocations and in urban areas away from the villages.

Key Activities:

3.2.1. Promotion of sustainable use and development of NTFPs in the forest areas

Most NTFP product processing facilities are small in scale, with simple technology and equipment with low product quality. NTFP cultivation can bring environmental, economic and social benefits. For example, the GEF small grants program supported the planting of Hyssop and incense making. The planting of hyssop on hillsides has resulted in environmental improvements as well as significant increases in income for the local ethnic groups.[50]

The demand for NTFPs is increasing not only in local markets, but also in international markets. Therefore, the further development of NTFP potential in the forest areas can be a further source of income, benefiting forest dwelling communities. Activities will entail identifying potential species having good market value and conducting research on their ecology and sustainable harvest levels; analyzing trends and challenges in marketing and management; conducting value chain analyses, and capacity building around sustainable management of NTFPs. Much research has already been carried out under various international projects which the program will plan to scale up.

To promote effective management of NTFPs, NTFP Management Plans will be developed and implemented and pilot models of best practices in restoration of degraded secondary forests will be established. This will require increased participation of local communities in forest management. The management strategies for sustainable use and development of NTFPs include:

3.2.2. Improve alternative off-farm jobs and income for forest dependent people

In order to support off farm employment opportunities there will be targeted skills and employment programmes in the right places, in the right businesses. There will help build knowledge of the local economies (including nearby urban or peri urban areas), in order to select businesses and industries that provide growth prospects for forest dependent people, often the young, with a specific focus on sectors that are inclusive to young women. Specific opportunities will be identified in partnership with local stakeholders, based on opportunities in the target regions, particularly in nearby (peri) urban areas.

Young, unemployed will be matched with labour market opportunities, for instance through internships and vocational on-the-job training. The aim will be to work with businesses and leverage their expertise and resources into training and employment. Engagement with local companies to create on-the job training that provides participants with technical skills with concrete perspectives for (self-) employment will be provided. Linkages and support to access financial services will also be provided for target groups, allowing them to access credit for enterprise development.

Table 4.8 provides an overall summary of the different key activities, indicators, implementation agencies and financing sources for implementing components 1, 2 and 3 of the ER program interventions.

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[49] It is reflected in the 2013 Land Law that allows for increased ceilings on individual use of land, allowing micro-accumulation at village level by better-off farmers and, by implication, dispossession of smaller farmers.

Table 4.7: Indicators, implementation agencies and financing sources for components 1, 2 and 3 of ER Program interventions

Key Activities	Indicators	Key Agency to implement	Financing
Component 1: Strengthening Enabling Conditions for Emission Reductions			
Sub Component 1.1: Strengthening and implementing policies controlling conversion of natural forests			
1.1.1. Adoption of legal framework to control the conversion of natural forests to rubber and infrastructure development	• 1 Decree (legal guideline) for implementing resolution 71 on controlling conversion of natural forests to other land use purposes • 6 NCC provincial reports on implementation of Resolution 71 • 6 NCC meetings/workshops on implementation of issued the Decree on controlling conversion of natural forests • Updates to 6 NCC provincial social-economic development plans updated	*Lead Agency:* VNFOREST *Collaborators*: Provincial People Committee, research organizations, forest entities, NGOs, CSOs	Government Budget Year 2018
1.1.2. Enhancing cross-sector coordination of the Steering Committees for the National Program on Sustainable Forestry Development/REDD+ at central and provincial levels	• Cross-sector coordination mechanisms established and operating at central and provincial level to control conversion of natural forests • Biannual meetings of the Provincial REED+ Steering Reports on monitoring and assessment of conversion of natural forests (and other cross sectoral issues)	*Lead Agency*: VNFOREST *Collaborators*: PPC; Committees for NTP-SFD, PRSC	Government budget for 2018; Government budget 2019-2021 Advance payment Carbon Fund
1.1.3. Develop and implement regulations on publication and access to information on conversion of natural forests and environmental impact assessment reports	• Regulation on publication and access to information on conversion of natural forests and EIA of forest conversion • Open database with information on conversion of forests. • Increase number of forest owners, NGOs, SCOs etc. accessing this information • Integration of data and information on forest conversion into FORMIS and other portals at regular intervals	*Lead Agency:* VNFOREST *Collaborators:* MONRE; PPC, NGOs, CSOs	Government budget for 2018; Government budget 2019-2021; Advance payments Carbon Fund
Sub Component 1.2 Strengthening forest governance and law enforcement			
1.2.1. Implementation of the Decree and legal guidelines on controlling natural forests by local authorities, forest entities, local communities and other stakeholders	• At least 60% of local communities with access to legal guidelines for controlling conversion of natural forests • Collaboration mechanism among local agencies on implementation of legal guidelines formulated and is operational	*Lead Agency*: Provincial DARD *Collaborator;* NGOs; CSOs; local communities	2018: Government Budget; 2019-2021: CF Advance payment; Target program for SFM 2016-2020 (Decision 886.QĐ.TTg, 16.6.17)
1.2.2. Improve capacity of stakeholders for monitoring the conversion of natural forests,	• Monitoring of hotspots is operational • Meetings/workshops on measures to	*Lead Agency:* Provincial DARD	2018: Government Budget; 2019-2021; CF advance payment; 2021-2014: CF performance based payment; Directive

Key Activities	Indicators	Key Agency to implement	Financing
timber legality verification and address violations of forest law in hotspots	• Monitoring reports of local authorities on law enforcement results at the identified hotspots • Inspection and validation reports • Spatial data on forest conversion collected and reported	*Collaborator* NGOs; CSOs; local communities;	13: (integrated into province authority management budgets)
1.2.3. Implement independent monitoring of forest conversion by local communities and civil society organizations	• Independent monitoring system on the violations of forest law covers the number of cases of encroachment, conversion of natural forests, timber legality and trade formulated and implemented	*Lead Agency:* VNFOREST *Collaborators*: NGOs/CSOs, Local communities; Forest Management Entities	2019-2024: CF advance and performance based payments
1.2.4. Strengthening regional collaboration among provinces in the NCC and with Lao PDR on effective measures to control illegal logging and manage legal timber trade	• Endorsement of a common approach and plan to address displacement risk of illegal logging and trade in NCC provinces • Monitoring of timber legality and chain of custody operational for timber trade between Vietnam and Lao PDR • Percent of cases of illegal timber trade between Vietnam and Lao PDR prosecuted and convicted. • Percent change in customs revenue from improved FLEGT implementation	*Lead Agency:* VNFOREST *Collaborators*: PPC; Custom Dept., Forest Ranger, line departments of Lao P.D.R	Provincial authority budgets and MARD budget
Component 2: Sustainable Management of Forests and Enhancement of Carbon Stock			
Sub Component 2.1. Conservation of existing natural forests			
2.1.1 Clarification of land and forest boundaries among the forest entities (FMBs, SFCs) in hotspots areas	• Forest boundary conflicts identified and boundary conflicts resolved by FMBs and SFCs with local communities • Forest boundaries of Forest Management Entities clarified on maps and recognized in the field. • Financing sources	*Lead Agency:* PPC *Collaborators:* DARD, DONRE; FMEs and local communities	2019-2021: CF advance payment; FLA: Circular No.38/2007/TT-BNN and Circular No.20/2016/TT-BNNPTNT, dated on 27 June 2016 on guiding processes and procedures for allocating, leasing, withdrawing forests for organizations, households, individuals and village communities; Circular 7/ 2011
2.1.2. Implement collaborative management of natural forests between FMBs, SFCs and communities	• At least 70% local communities engaged in collaborative forest management in FMBs and SFCs; • Agreed mechanisms for benefit sharing and use right over the forests between FMBs, SFCs and local communities.	Lead Agency: DARD Collaborators: FMBs, SFCs and local communities and households; environmental services users	Target program for SFM 2016-2020 (Decision 886.QĐ.TTg, 16.6.17); 30a program; PFES, (99/2010/ND-CP and update decree 147/2016/ND-CP); Decision 2242; Decision No. 07/2012/QĐ-TTg dated on Feb 08, 2012 of the PM on a number of policies to strengthen forest protection (Support commune budgets to ensure regular

Key Activities	Indicators	Key Agency to implement	Financing
			expenditure for forest protection activities).
2.1.3. Promote implementation of community based forest management	• 884,215 ha of forests are allocated and effectively managed by community and/or groups of households • Plans for community based forest management implemented • At least 5 technical guidelines	*Lead Agency*: District People Committees (DPCs) *Collaborators*: District Forest Protection Division, Commune People Committees, Communities, CSOs and Households.	Target program for SFM 2016-2020 (Decision 886.QĐ.TTg, 16.6.17); Decision No. 24/2012/QĐ-TTg dated 01/6/2012 of the Prime Minister on investment policy for special-use forest development in the period 2011 – 2020 (support for community development in the buffer zones of special-use forests); Decree 75
2.1.4. Implement sustainable management of natural forests by FMBs and SFCs	• 60 business plans for SFCs and PFMBs implemented and revenue mobilized from sustainable forest management • 884,215 ha (evergreen natural forest) and 33,017 coastal forests covered under sustainable natural forest management practices	*Lead Agency*: DARD *Collaborators:* FMBs, SFCs, local communities, wood industry	2018 FCPF Readiness Grant (3 per province --> 18); support once for sustainable forest certification for enterprises, communities, households, groups of households: (Decision No. 38/2016 / QD-TTg dated 14/9/2016); 886.QĐ.TTg, 16.6.17, See activity on certification capacity building --> 4b)
Sub Component 2.2. Enhancement of carbon stock of plantation			
2.2.1. Investment in transformation of short-rotation plantations to long-rotation plantations for sawn timbers supply	• At least 1 incentive policy issued and implemented • At least 1 technical guideline issued and implemented • At least 37,515 ha of existing acacia plantations transformed for sawn timber supply; • At least 50% of households with access to loans and other forms of credit implementing plantations	Lead Agency: VNFOREST Collaborators: Forest Management Entities; wood industry enterprises; Vietnam Bank for Social Policy	Agricultural and forestry extension; VBSP revolving fund for plantation forestry (currently applicable to three provinces only) Decision 886.QĐ.TTg, 16.6.17, see activity on certification capacity building --> 4b); support once for sustainable forest certification for enterprises, communities, households, groups of households: (Decision No. 38/2016 / QD-TTg dated 14/9/2016)
2.2.2. Investments in reforestation in long rotation plantations	• At least 50% ha of plantations with improved provenances and planting stock • At least 25,000ha of long rotation plantations established for sawn timber supply • 27,750 ha of plantation certified for sustainable forest management • List of proposed germplasms for long-term plantation development • At least 50 trainings organized to promote long rotation plantations investments	*Lead Agency:* VNFOREST *Collaborators:* Forest Management Entities; wood industry enterprises; Vietnam Bank for Social Policy	Target program for SFM 2016-2020 (Decision 886.QĐ.TTg, 16.6.17) (SFC, PFMBs) --> Decree 75, Decision 38; VBSP revolving fund for plantation forestry (currently applicable to three provinces only)
Sub Component 2.3 Restoration and enhancement of natural forests			

Key Activities	Indicators	Key Agency to implement	Financing
2.3.1. Investments in assisted natural regeneration (no supplemental planting)	• At least 56,500 ha of forests regenerated by natural regeneration; • At least 50 trainings organized to promote assisted natural regeneration	*Lead Agency:* DARD *Collaborators:* FBMs, SFCs, communities; local people	Decree No. 119/2016/ND-CP dated August 23, 2016 of the Government on policies on sustainable management, protection and development of coastal forests to cope with climate change; WB loan on forest sector modernization and coastal protection forest project; Target program for SFM 2016-2020 (Decision 886.QĐ.TTg, 16.6.17) (SFC, PFMBs)
2.3.2. Investment in enrichment planting for poor natural forests	• At least 24,785 ha of forests enriched • At least 2 technical guidelines issued and implemented • At least 50 trainings organized in promote enrichment planting in natural forests	*Lead Agency*: DARD Collaborators: FBMs, SFCs, communities; local people	Target program for SFM 2016-2020 (Decision 886/QĐ-TTg (SFC, PFMBs) (Decision No. 38/2016 / QD-TTg on Support Program to Respond to Climate Change (SP-RCC); Decision 2242; KfW projects
2.3.3. Investment in reforestation of coastal protection forests (mangrove and sand break forests)	• At least 6,925 ha of coastal protection forests enriched and 4,423 ha reforested • Planting density and survival (number of plants per ha) in reforested areas • Number of tree species used in enrichment planting to improve biodiversity	*Lead Agency:* DARD *Collaborators:* FBMs, SFCs, communities; local people	Policies on sustainable management, protection and development of coastal forests to cope with climate change Decree No. 119/2016/ND-CP. See also Decision 120 (project); World Bank loan on forest sector modernization and coastal protection forest project; SP-RCC
2.3.4. Investment in reforestation of protection and special use forest in mountainous areas	• At least 13,150 ha of protection and special use forests reforested • Improved planting density and survival (number of plants per ha) in reforested areas • Increase in number of tree species used in enrichment planting to improve biodiversity	*Lead Agency:* DARD *Collaborators*: FBMs, SFCs, communities; local people	Target program for SFM 2016-2020 (Decision 886/QĐ-TTg) (SFC, PFMBs), (Decision No. 38/2016 / QD-TTg; Decision No. 24/2012/QĐ-TTg on investment policy for special-use forest development in the period 2011 – 2020 (Support for community development in the buffer zones of special-use forests; Decree 75; and SP-RCC.
Component 3: Promotion of Climate Smart Agriculture and Sustainable Livelihoods of Forest Dependent People			
Sub Component 3.1 Improve climate smart agriculture			
3.1.1. Implementation of incentivizes to promote climate-smart agricultural and agroforestry through the ACMA in deforestation and forest degradation hotspots (based on activity 2.1.2)	• Funding allocated to extension agencies to promote climate smart interventions. • Monitoring and reporting of climate smart interventions implemented by agricultural extension agencies • Revolving fund set up and operated and disbursements made	*Lead Agency:* Extension Agencies; *Collaborators:* Agricultural cooperative; communities; households	National target program on sustainable poverty reduction 2016 - 2020 (Decision no. 1722/QĐ-TTg of PM; VBSP loan programs for (Extremely disadvantaged ethnic minority households); VBSP loans, Guidance No. 2925/NHCS-TDNN n lending for

Key Activities	Indicators	Key Agency to implement	Financing
	• Types of climate smart agricultural practices implemented by households • At least 50% of households applied better agricultural practices (be assessed under M & E)		socio-economic development in ethnic minority and mountainous areas following Decision No. 2085/QĐ-TTg issued by Prime Minister; VBSP "poor household lending (Document No. 316/NHCS-KH. For ACMA: National target program on sustainable poverty reduction (Decision No.1722/QĐ-TTg), VBSP loans for ethnic minorities and poor people
3.1.2. Support to deforestation free agricultural value chains	• At least 5 deforestation free productions models introduced; • At least 50,000 ha of agricultural area with deforestation free production • Revenue per ha from improved and deforestation free value chains	*Lead Agency:* DARD *Collaborators:* Extension agencies; agricultural cooperative; private sectors; communities; households	2019-2021: CF advance payment, 2021 – 2025: CF performance based payments; private sector investment
Sub Component 3.2. Diversifying and sustaining livelihoods for forest dependent people			
3.2.1. Promotion of sustainable use and development of NTFPs in the forest areas	• List of NTFPs species supported under management plan for sustainable use • At least 500 ha of forests managed for NTFPs development • Amount of NTFP revenue realized per ha of forests managed for NTFP	*Lead Agency*: DARD *Collaborators*: Medicinal enterprises; CSOs; extension agencies; local communities and households	2019-2021: CF Advance payment; Decree No. 75/2015/ND-CP to support for plantation in production forest and NTFP development; Decision 886; international projects
3.2.2. Improvement of off-farm income and alternative livelihoods of forest dependent people	• Identification and demonstration of off-farm production models • At least 10% poverty rate reduced (to be assessed under M & E) • Improved off-farm income per average household	*Lead Agency*: DARD *Collaborators*: Department of Industry and Trade; Department of Labour, War Invalids and Social Affairs; private sector; CSOs; extension agencies; local communities and households	2019-2021: CF Advance payment; National target program on sustainable poverty reduction 2016 - 2020 (Decision no. 1722/QĐ-TTg; VBSP loans, Guidance No. 2925/NHCS-TDNN lending for socio-economic development in ethnic minority and mountainous areas For ACMA: National target program on sustainable poverty reduction (Decision No.1722/QĐ-TTg), VBSP loans for ethnic minorities and poor people; Decree No. 75/2015/ND-CP on support for plantation in production forest and NTFP development

(iv) Component 4: Program Management and Emissions Monitoring

The overall project management and emissions monitoring can be divided into three sub components, as show in the Table 4.9 below.

Table 4.8: Summary of project monitoring and emissions monitoring

Impact	Key Activities	How to implement; Lead Agency	Key Indicators	Financing source
Sub component 4.1: Program coordination and management				
Effective Management and implementation ER program.	1.1 Management and coordination of ER- program implementation across levels	Institutional setup; coordination mechanism; program implementation manual; trainings; meetings Lead: MARD Collaborators: PPCs	Management structure of ER Program at national and provincial; Institutional arrangements and reporting operational at national, provincial and local levels	Gov. funding --> Management of Program SFM 2016-2020 (Decision 886) CF fund
	1.2. Provision of operating costs for ER program implementation	Financial management guidelines; training; meetings; Lead: MOF Collaborators: MARD, PPCs	Implementation of financial management guidelines Implementation of Financial due diligence Internal and external audits Quarterly, semi-annual and annual financial reports	CF fund
Sub component 4.2: Monitoring and evaluation (M&E) incl. monitoring of safeguards and improving forest information				
Objectively implemented M & E for ER program Tracked emissions and removals of the ER program Improved national MRV system	2.1 Implementation of M & E for ER program implementation	Development of effective M & E system, including safeguards; trainings; data collection; reporting Lead: MARD Collaborators: PPCs, DARD	M&E guidelines Reports	2019-2021: CF advance payment 2022 – 2024: CF results based finance
	2.2 Measurement, Reporting and Verification (MRV)	Development of implementation plan for MRV; trainings; data collection and reporting Lead: MARD Collaborators: PPCs, DARD	MRV plan implemented at national provincial levels MRV responsibilities of national and provincial agencies clarified MRV data and information is periodically reported and updated in FORMIS MRV of ER program linked with the national GHG inventory Database and reporting systems are operational Annual monitoring reports are prepared	2019-2021: CF advance payment 2022 – 2024: CF results based finance
Sub component 4.3: Program communication				
Timely published information on ER program to stakeholders; Documented and shared lessons learnt and results of the ER program	3.1 Information dissemination on ER program	Workshops, meetings; public media Lead: MARD Collaborators: PPCs, media agencies;	Regular update of ER Program implementation on MARD website Dissemination of electronic and paper reports	2018: Government Budget 2019-2021: CF advance payment 2022 – 2024: CF results based finance

(v) Financial sources

The program will use a combination of funding approaches to maximize its impact on the participating MBs and SFCs. A more detailed break-down of ER Program budget and financing plan is provided in Section 6.2. The work with the MBs and SFC follows a grant-based approach, combined with access to PFES funds and loans through the Vietnam Bank for Social Policies (VBSP), in particular for plantation development. Channeling funding through the MBs and SFCs, will streamline the packaging and processing of the provincial budgets and will facilitate the implementation over a large and diverse area affecting different stakeholders. Directly involving the MBs in detailed work-plan budget planning, will greatly increase their ownership and accountability over program activities. The approach also allows flexibility and facilitates specific solutions to specific management issues with different communities. It is also anticipated that program funding will help MBs and SFCs to leverage public and private finance respectively. The flexibility of funding in the process is a significant advantage as it can include front end funding and be supplemented by progressive top ups as funds are released from the CF.

Many of the payments come from the state and provincial budgets; in particular Vietnam's PFES scheme which has been operational since 2010 as issued through Decree No. 99/2010. As further discussed in the chapter on BSM, some grant support will also be provided to local communities as part of the ACMA process.

Support is also provided through government programs to improve the livelihoods of poor farmers and ethnic minority groups in and around forest areas. Key policies and support programs are shown in the Table 4.10 below. These figures are for national support, though most of these funding sources cover the NCC given its high levels of poverty. International financing sources from ODA are outlined in the next section and further described in Section 6.2.

Table 4.9: 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 9 September 2015	This covers mechanisms and policies on forest protection and development linking to rapid and sustainable poverty reduction and support to ethnic minorities during the period 2015 – 2020.
Decision 24/2012/QD-TTg 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.
Decree 05/2011/NĐ-CP of the Government, dated on 14 January 2011	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 12 March 2013 on approving the ethnic	Key support program to improve gender equity and women development for ethnic minority groups.

minorities affair strategy towards 2020.	
Program 135 supports the development of production, livelihood diversification and scaling up of poverty reduction for communes with particular difficulties	Focuses on areas near 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. Planned support is over US$200million.
Decree 99/2010/ND-CP of the Government dated 24 September 2010 on 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 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 Dec 24 2012 by PM.	This regulates policies on legal assistance for the poor and ethnic minority people in poor communes for the period 2013-2020

(vi) Other planned and ongoing programs in the NCC with links to the ER Program

Several ODA projects are expected to directly and indirectly contribute to the implementation of the ER-P. Those projects are as follows:

- WB loan for the Forest Sector Modernization and Coastal Resilience Enhancement (FMCR) project. This project contributes to protection, enhancement, plantation activities and livelihood improvement along the coastal areas of the NCC

- UNDP project "Improving the resilience of vulnerable coastal communities to climate change related impacts in Vietnam,". This project will partly implement its activities in the ER-P accounting focusing on providing technical and financial support to enhancement and regeneration of mangrove forests in Thanh Hoa provinces.

- The USAID-funded Vietnam Forests and Deltas Program (VFD, 2012 to 2018), through its work in Thanh Hoa and Nghe An, is closely aligned with the activities of the ER Program. In Thanh Hoa and Nghe An provinces the VFD supports land-use practices that protect forest resources and enhance environmental services. This involves reducing GHG emissions through improved forest management, a strengthened financial base for forest protection, and increased promotion of climate resilient livelihoods as the basis for a sustainable landscapes approach. Activities include support for SFM, development of low emission livelihood models, and support for improving the quality of life for people living in the forests and forest edges. Further, the VFD provides support for sustainable forest management plans at the district and provincial levels. The VFD also supports FSC certification, sustainable community based forest management models, participatory forest land allocation, technical support for forest change monitoring, and longer rotation timber plantations.

- Other projects specifically supporting SFM in the ER Program region. The projects mentioned above have substantial SFM components, and will be supporting the ER Program's SFM targets. Additional projects that are mainly oriented to SFM include the following:

- Program on Conservation and Sustainable Use of Forest Biodiversity and Ecosystem Services in Vietnam. Includes training of SFM service providers and policy advice to VNFOREST. ("Forest-Biodiversity Project," Donor: BMZ, Germany. Implementation: MARD/GIZ);

- Promoting sustainable forest management in central Vietnam (Donor: IKEA; Implementation: WWF); and

- Promotion of sustainable management of natural production forests by forest companies in Vietnam. Includes the establishment of a SFM Competence Center in Quang Binh Province (Financing: BMEL, Germany).

- Planned USAID project supporting low emission land use practices, biodiversity conservation and increase of resilience of vulnerability communities;

- Planned ODA project of KfW on promotion of forest certification;

4.5 Assessment of land and resource tenure in the Accounting Area

The information in this section is based on a number of sources, including the following: the FCPF Assessment of Land Tenure and Land Resources carried out by MARD in 2016; land tenure assessments carried out as part of the PRAPs in five out of the six provinces; information on land use issues collected through the SESA; and information gathered directly from local communities and other stakeholders as part of project preparation.

4.5.1 The range of land and resource tenure rights and categories of rights- holders present in the Accounting Area

The total area of land designated for forestry purposes in the NCC is 3.1 Mha. Based on the primary management functions, these forests are classified into protection, special-use and production forests:

- **Protection forests** (991,980 ha) are used to protect water resources, catchment protection, land, prevent erosion and desertification, mitigate natural disasters, regulate climate, and contribute to environmental. Protection forests include: watershed; wind-, sand- and wave-break; sea encroachment and environmental protection forest subcategories.

- **Special-use forests** (608,070 ha) are used mainly to preserve nature (as a national park, nature reserve or a species habitat conservation area), representative ecosystems, plant and animal gene pools; for research purposes; to protect historical, cultural relics and landscapes; and to provide resort and tourism services, they also often have a dual purpose of acting as a watershed protection forest.

- **Production forests** (1,544,135 ha) are used mainly for production of timber, NTFPs, in addition to combined environmental protection purposes. Production forests include: natural, plantation and seed forests.

Table 4.10: Forestland categories in the NCC

Categories	Total Area	Thanh Hoa	Nghe An	Ha Tĩnh	Quang Binh	Quang Tri	Thua Thien Hue
Production forest land	1,544,135	317,294	492,948	164,013	309,253	125,672	134,954
Protection forest land	991,980	183,379	301,263	113,300	198,044	94,874	101,120
Special-use forest land	608,070	84,920	169,479	74,577	123,576	66,383	89,135
Forestland	**3,144,185**	**585,592**	**963,691**	**351,891**	**630,872**	**286,930**	**325,209**

Forestland is allocated to various user groups. The main relevant user groups to whom forest land has been allocated are: PFMBs, SUFMBs, SFCs mainly in production forests, individuals and households, communities, and CPCs. Other potential users include other organizations such as cooperatives, centers, research stations, and armed forces. Almost all protection and special use forest land is allocated to PFMBs and SUFMBs respectively, with some protection forestland also allocated to households and individuals and communities. Production forest land is allocated to SFCs and to households and individuals. Land that has not been allocated remains under the jurisdiction of Commune People's Committees.

Data collected for the PRAPs and for the Assessment of Land Tenure and Land Resources (refer to accompanying report) show the allocation of forest land for the NCC. Approximately 30% of the forest land area of the NCC is allocated to households and individuals. Most of this is in production forest land with some in protection forest land. Communities are allocated approximately 2% of the forest land. There are about 47 PFMBs, 17 SUFMBs and 16 SFCs in the NCC and they manage approximately 56% of the total forest land. These have the option of sub-contracting land to households and individuals through forest protection contracts, and there are 38,297 recorded forest protection contracts in the NCC covering 198,485 ha. Unallocated forest land that remains under the jurisdiction of the CPCs makes up approximately 12% of the area.

Table 4.11: Allocation of forest land in the NCC

Province	Forest land	Organizations	Households, Individuals	Communities	CPCs
1. Thanh Hoa	684,021	182,347	360,274	14,220	85,920
2. Nghe An	904,643	563,247	284,875	115	54,459
3. Ha Tinh	364,664	274,660	32,194	-	57,810
4. Quang Binh	645,694	399,721	122,543	9,739	109,493
5. Quang Tri	262,881	195,676	51,272	1,785	13,467
6. Thua Thien Hue	335,173	215,576	53,745	26,659	39,193
Total	3,197,076	1,831,227	904,903	52,518	360,342
% of total forest land		57%	28%	2%	11%

Traditional usufruct rights, are not normally recorded, i.e. there is no formal recognition of the rights or title given. However, the Commune has a stock of land or "fund" and some land may be set aside for communal uses, such as communal forest (for NTFPs or firewood collection) or grazing land, and this communal use may be agreed, and recognized by the Commune administration, thereby allows some traditional forest use practices. Some traditional practices are also handled through the issuance of individual household Forest Protection Contracts, which allow the holder limited rights of use of a forest area, normally an area of protection forest, for collection of firewood, some NTFPs and a small payment to the householder in return for protecting the forest.

Shifting cultivation is variable in extent over the region, but is largely limited to the upland and mountainous western parts of the region. Little or no swidden is recorded in the central part of the landscape (Thanh Hoa, Ha Tinh and Quang Binh provinces), but up to 12,800 ha is recorded in the north (Nghe An province) and 14,500 ha in the south (Quang Tri and Thua Thien-Hue provinces) of the landscape (FPD 2011). Shifting cultivation is driven by traditional cultural practices of ethnic minority communities, in the absence of viable alternatives, although under various government poverty reduction programs and even activities by trading intermediaries increasingly there are alternatives that hitherto households involved in shifting cultivation are now considering viable.

4.5.2 Assessment of land and resource tenure in the accounting area

In Vietnam, all land is constitutionally the property of the state, but exclusive use rights are given to individuals under a contractual arrangement with the state. Article 4 of Vietnam's 2013 Land Law states inter alia: Land belongs to the entire people with the State acting as the owner's representative and uniformly managing land. The State shall hand over land use rights to land users in accordance with the Law. The State provides for the rights to be registered and they become an indefeasible state-backed title. These use rights are transferable with few limitations, and the contract is sufficiently long-term (for example, renewable 50 years), so for most of the contract's duration, there is very little difference between possession of use rights and full property rights.

Land Use Right Certificates (LURCs) can be issued on production and protection forest land. Land-use right certificates (LURC) signify formal state recognition of a user's rights, and are necessary for secured tenure, formal land transactions, access to formal credit and legal protection of land-use rights. LURCs can be issued for land allocated for production forests so long as it does not exceed 25 hectares to organizations, households or individuals. Forestry LURCs cover 78% (2,464,368 ha) of the NCC's total forest land, and include LURCs allocated to state forest entities, as well as to households and individuals.

Protection forest land allocated to organizations, households, individuals, or communities does not have the same legal status as land with a LURC (Article 136). For protection forests, if there is no existing protection management entity (a PFMB) or none is planned, organizations, households or individuals can be allocated such land for purposes permitted under the 2004 Law on Forest Protection and Development, but this land must be used for forest protection and development activities and cannot be used to secure a mortgage or other financial instruments. The same provision applies under Article 137 in relation to special-use forest.

Forest management boards and SFCs can enter into forest protection contracts with households and individuals, but these contracts are limited (not long term, but renewable) and do not allow a change in land use. In the protection forest area, forest land allocation to local households generally takes the form of forest protection contracts. All special use and protection forest, and most of the natural forest on production forest land is managed by government entities, and these are allowed to "sub-contract" specific areas forest lands to local households for forest protection and planting. The contracts require SFCs and MBs to provide forest protection (or sometimes planting fees) to households. The contract is now usually for one-year renewable periods and the agencies pay forest protection fees to the households in exchange for labor spent on forest protection.

In principle, the Land Law and the Law on Forest Protection and Development unify current related provisions; however, there is a discrepancy between two laws regarding the allocation of production forest land with natural forests. As the Land Law was newly enacted in 2013 to replace the Land Law of 2003, and the Law on Forest Protection and Development was enacted in 2004, there are some differences related to forest management and forestland stated in the two laws. For example, the Land Law 2013 does not allow production forestland, which is natural forest, to be allocated to households, individuals and communities. Through Article 135, the Land Law 2013 limits the potential recipients of natural forests on production forest land, to "management organizations to manage, protect and develop the forests".

Where forest land is accessed by local communities, communal ownership can provide concrete rights and help protect forest, but there is a gap between the Civil Code and Forestry Law in relation to communal ownership. Communal rights may represent the best arrangement for situations in which the opportunities to invest in the quality of the land are limited and the community is small, but because land is sufficiently scarce it pays to exclude outsiders from using it. This is one of the underlying pillars of FLA and CFM: outsiders are readily detected, and the entire community has an incentive to enforce their exclusion. Some districts have allocated protection forest land to communities and communes for forest protection and development. However, the Civil Code does not consider communities as legal entities for the purpose of land allocation. This means that, unlike households and individuals, they are not eligible for receiving LURCs, i.e. they cannot transfer, convert, lease, inherit and joint venture by forest and forestland use right. However, a community can apply for a LURC on production forest land by forming a cooperative or an association.

Community forest managed forestland can be allocated through District Decisions. Where a community is located in or is dependent on areas of production forest, and the forest is surplus to the requirements of the SFC, then an option is to assign this, generally for 50 years, through a District land use Decision, to a community that can include more than one village. The process involved in establishing the CFM areas, and recognizing traditional use has been promoted by several projects and is based around many whole community village-based meetings on current forest and NTFP use and meetings and agreements on boundaries between neighboring villages.

Historically there was customary land tenure among ethnic minority groups in the NCC. Forest resources other than land, including forest products and water sources, were communally owned and could be used by all community members. Outsiders were able to use these resources, but only with the permission of the village head. The village head and community "legal" guardians were responsible for controlling, protecting and resolving all land-related conflicts and representing their communities in ritual sacrifices to the "supernatural beings" whenever customary law is violated. Some old members of some ethnic minority groups, especially the Bru-Van Kieu, Ta Oi-Pa Co and Co Tu, have a good memory of customary land tenure, but recognize that this type of land tenure has disappeared. Current day farmers in all NCC ethnic minority groups prefer household or individual land tenure arrangements because the LURC provides them with a semblance of formal title and can contribute towards financial security in the form of helping to secure loans etc. and lending organization will normally try and to avoid a foreclosure on ethnic minority households. This has become more important as non-monetarized forms of reciprocity have become less prevalent.

The Land Law does not recognize customary land use. Article 26 states inter alia: The State does not recognize the reclaim of land which has been allocated to others (to also mean individuals, households, groups or villages) in accordance with the State's regulations in the process of implementing the land policy of the former State of the Democratic Republic of Vietnam, the former Provisional Revolutionary Government of the Republic of South Vietnam and the State of the Socialist Republic of Vietnam. Hence all laws that existed in Vietnam prior to the unification of Vietnam in 1976 following the end of the American War and the establishment of the

Socialist Republic of Vietnam were rendered null and void after that date. It needs to be noted that the Government of Vietnam has the unequivocal sovereign right to decide land and resource tenure regimes in Vietnam.

As the Land Law 2013 does not recognize multiple ownership based on customary practices, the Civil Code cannot be used in the ER-P to legalize customary practices without a change in the Land Law 2013. The 2015 Civil Code that will come into effect in 2017 in Article 211 mentions that it is possible for multiple ownership within communities, whether based on kinship, ethnicity, tribal or religious affiliation in accordance with customary practices insofar as these multiple owners contribute to the customary practices. Furthermore, it is stated that the members of these communities are able to jointly manage, use and dispose of such property in accordance with customary practice. However, Article 258 on the basis for the establishment of usufruct rights states they must be established as prescribed by law, and Articles 101 and 241 clearly state that such rights are governed by the Land Law 2013.

Customary practices in the past included recognition within villages as to what forest land could be utilized by individual households and forest land that was available for the use of all the community. Boundaries between different villagers were established and agreements reached as to whether villagers from one village could also access forest resources in another village. Sanctions were in place to penalize villagers who did not respect land use practices in the village. There was generally a clear definition of who an "outsider" was and how their access would be restricted or prohibited. In relation to NTFPs it was often decided when they could be collected or hunted on a seasonal basis and a distinction was made between NTFPs that could be exchange for other goods and services and NTFPs that would be consumed by the collectors. These customary practices extended to watershed management and what type of collaborative arrangements were necessary with other villages in the watershed. Finally, these practices identified the location of sacred forests (where trees could not be fallen or NTFPs collected or hunted) and burial forests (where similar provisions to sacred forests existed). Access to sacred and burial forests was restricted to villagers residing in the same village.

In general, while there is legally restricted access to and use of protected area forest resources, forest dependent households are not normally denied access on a de facto basis. While much of the forest land is still managed by PFMBs, SUFs and SFCs, and legally they can restrict access to this forest land, the reality on the ground is that in forest-dependent communities, where there has been limited forest land allocated, individual households can have access to parts of these forests, for example people may have informal access to the Administrative or Ecological Rehabilitation Zones but not to the Strict Protection Zone of a SUF. This access includes for harvesting of NTFPs and tree felling for household construction purposes. Some individual households or "outsiders from other communes and districts" can "over-exploit" this informal access by the over-harvesting of NTFPs for commercial purposes and quasi-commercial logging albeit on a small scale. The Government of Vietnam recognizes that NTFPs are an important source of additional food security for forest dependent households that can also be converted into an exchange value for the acquisition of necessary goods and services. The Government also recognizes that high-value hardwoods realize significantly greater returns for the level of effort required than other upland livelihood activities but it will not condone this form of "illegal logging". Forest Protection Department staff are required to strenuously enforce forest protection regulations vis-à-vis "illegal logging" but to be more lenient with households that harvest NTFPs. Hence the lack of tenure per se, does not mean lack of access.

4.5.3 Areas within the Accounting Area that are subject to significant conflicts or disputes related to contested or competing claims or rights

The settlement of land disputes, complaints, denunciations on land must comply with the provisions of the Land Law and other relevant legal provisions. The State encourages the disputing parties to reconcile themselves or have the land disputes settled through a reconciliation process at the grassroots level. In case land disputes cannot be reconciled by the involved parties themselves, the parties send a document to the commune-level People's Committee for reconciliation. If the concerned parties disagree with the settlement decision, they are entitled to claim to the province-level Chairman of People's Committee (district level) or to the Minister of Natural Resources and Environment (provincial level) or to initiate a lawsuit at the People's Court in accordance with provisions of the legislation on administrative litigation. The authorized persons settling the land dispute as prescribed in clause 3 of this Article is obligated to issue the decision. The legally effective decision on dispute settlements must be strictly observed by the concerned parties. If the parties fail to comply, the decision shall be enforced.

Since 2004 there have been a documented 39,004 land disputes so stakeholders are very familiar and actively using this process. The bulk of these disputes are in relation to non-forest land.

Assessments of land issues through the PRAPs, and the Assessment of Land Tenure and Land Resources of the NCC have identified a number of potential sources of conflict, including land-related risks that the ER Program will need to address. By far the most common form of land-related conflict in the NCC involves disputes related to access to forest land managed by state forestry organizations. In some areas within the NCC, there are historical and on-going disputes related to access to forest and agricultural related encroachment or land boundary disputes. For example, most SUFMBs that undertook a detailed Conservation Needs Assessment in the central region (2007-2013) as part of the Vietnam Conservation Fund reported illegal logging and illegal encroachment for agricultural purposes. In most cases the access/encroachment issues are generally resolved locally with a compromise and in many cases the SUFMBs have excised areas of heavily encroached on land from the Nature Reserve or National Park as the biodiversity and conservation values are compromised. Experience (particularly from the Vietnam Conservation Fund) with the SUFMBs has shown that if collaborative management approaches are adopted, with participatory boundary demarcation, formal agreements on land use and on types and sustainable rates of collection of NTFPs together with focused livelihood improvements the incidents of issues over forest access and land encroachment is much reduced.

With respect to actual cases involving forest management units and local communities, a study was carried out by Indofur examining conflicts in a number of SFCs in the NCC. This study concluded that the companies had made efforts to prevent and resolve conflicts through redress mechanisms, cooperating with local authorities and communities and transferring back forest areas to local communities. It went on to conclude that: ''to resolve the conflicts between the company and related stakeholders, the existing legal system of Vietnam has already created a legal framework and institutions that are quite sufficient with diversity and flexibility. It is, therefore, not necessary to create a new mechanism to resolve the conflicts of forestry companies. However, the existing redress mechanisms have some shortcomings. To effectively address the conflicts between forestry companies and the stakeholders, especially the communities living near the company's forests, redress mechanism through Commune People's Committee with support of the grass-root reconciliation unit, would be a suitable mechanism. It is a mechanism to ensure the criteria for equitability, transparency, accessibility legitimacy, flexibility, efficiency and sustainability. With the conflicts related to REDD+, the involvement of officers managing forest protection funds are needed to support the Commune People's Committee to come up with appropriate resolutions. For this mechanism to operate effectively, there should be appropriate investments to improve capacity for grass-root reconciliation units and forest management capacity for the commune authorities, along with other basic facilities''. The conclusion from their report have been used to prioritize activities to strengthen the current Grievance Redress Mechanism.

Competition over resources and conflicts may be linked to localized migrations due to infrastructure development. Problems arise where there are continued local land pressures, i.e. there is not enough adequate land for crop production and there is an increase in the local populations. While the overall trend in the NCC is a migration from rural to urban areas, in some cases road development can attract new settlements. HPP development, on the other hand, has led to the displacement of people to other areas where they may come into conflict with local populations.

Inadequate compensation for resettlement or forest loss is another potential source of dispute, and communities may be particularly disadvantaged where they have no formal rights to their land. Infrastructure, and in particular hydropower, development often requires the acquisition of agricultural and forest lands and the resettlement of villagers. In some cases, affected people are disappointed with the compensation and resettlement schemes. Where land is informally held, it can be particularly difficult for local people to receive adequate compensation. For example, a village in Phong Dien District was reclaimed by the state and granted to a sand-mining company. The compensation for the loss of Acacia trees planted by the villager was estimated to be less than 40% of the full compensation that the villagers would have received if they'd had legal rights to

the forest.[51] The program will support a review of past compensation projects to ensure such cases do no occur in the future.

Law enforcement activities and restrictions on forest resource use may negatively impact communities, especially the poor and forest-dependent households. Forest resources, such as timber, NTFPs, and wild animals are an important source for domestic consumption for people with high forest dependence. They are also an important source of cash where alternative income opportunities are limited. For this reason, benefit sharing approaches, alternative livelihood development, PFES, and participatory forest management approaches are critical for addressing risks to local communities (and forest) and help mitigate the livelihood problems they face. This issue is further examined in Section 14 on Safeguards as well as how the Program will integrate safeguard mechanisms to ensure local communities are not negatively impacted.

It is proposed through the Adaptive Collaborative Management Approach (ACMA) that stakeholders will look more closely at land use and land tenure issues to determine how (a) existing conflicts between forest owners and forest users who are not owners can be resolved; (b) current activities to accelerate forest land allocation to individual households and community groups can be realized; (c) re-examination of existing LURCs to ensure individual joint-owners (primarily women) are included in re-issued LURCs; and, (d) a concerted attempt to facilitate learning outcomes whereby statutory and customary rights can be reconciled or at least synergies can be achieved between the two.

4.6   Analysis of laws, statutes and other regulatory frameworks

Vietnam has a complex legal framework based on a hierarchy of codified laws, resolutions, ordinances, decrees, decisions and circulars made at different levels starting with the National Assembly. There is a high degree of complexity in the system in that many legal decisions are made at different levels. For example, for many decisions made at national level, a provincial decision also needs to be made that echoes the national level decision before it is implemented. Therefore, the PPCs guide the implementation of national programs according to the circumstances of their own provinces. An issue, for example, such as the classification of forests into production, protection or special use is a matter for the provinces to finalize with their own provincial decrees or decisions in harmony with the higher level decisions and implementation circulars.

At times, when spheres of responsibility overlap, then Ministerial decisions may also overlap or even contradict each other in part. In the forestry sector and land use this is also true, especially where MARD and MONRE are concerned, however, there is the possibility to issue joint ministerial circulars that avoid overlaps and possible contradictions already in place.

Whenever assessing the policy, legal and regulatory frameworks, it is necessary to consider some important background legal and administrative information that has important implications for REDD+, its implementation and the local communities' potential to benefit from it:

- Communities/ villages are not legal administrative entities in Vietnam so are without decision-making powers, although the Forest Law 2004 (Articles 29 and 30) does recognise them as potential forest land owners along with individuals, households, organizations and the Army (this recognition of 'community land', however, only exists to a very limited extent under the Land Law 2013 and there is no formal community title);

- Without administrative entity status, communities/ villages are not allowed to enforce their own forest regulations with administrative punishments such as fines – this process remains with government officers such as FPD, police and communes;

- The Land Law 2013 does not allow the allocation of natural forest land to anything but a formal legal entity (to ensure more accountability and responsibility) an established forest protection and management

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[51] However, it should be noted in infrastructure projects financed either partially or wholly by the providers including the WB (e.g. Trung Son HPP in Thanh Hoa Province) involuntary resettlement impacts are compensated based on the policies of the provider of the ODA. Where such projects have been financed by providers of ODA every effort has been made to ensure that affected people are adequately compensated and actions are monitored to ensure these households are no worse off as a result of such projects and ideally better off.

organization (but these can include commune and village associations and commune or community cooperatives with forest protection as an important objective);

- A Cooperative and an Association are legal entities, and it is possible for the village community to establish itself as a cooperative or as an association, but this is not easy to set up and the process can by-pass or be independent of the village (or community) and so can raise some exclusion or elite capture issues;

- CFM and SFM

  o There is no precise legal recognition for Community Forest Management (CFM) in Vietnam, with the exception of certain ODA projects (e.g. the series of KfW projects) and several decisions allowing its piloting in a limited number of locations to date areas of particularly good forest have been targeted.

  o However, there is recognition of sustainable forest management in: "Guidelines on sustainable forest management planning"[52] Circular 38 No. 38/ 2014/TT-BNN allows for different stakeholders (householders, organizations and includes entities described above) to participate.

- Regulations governing forest management, including timber harvesting, transport and sales, are complex and with relative high cost implications for local communities which they will often try to avoid, unless part of an ODA project. For example, a CFM project would require a series of 5-year forest management plans and timber can only be legally harvested for commercial purposes following the detailed plan and currently there are strict limits on timber harvesting for legal sale i.e. for natural forests there is a moratorium on timber harvest unless it is certified forest and in some areas, there is a total ban;

- Land use planning and forest planning:
  o There are Circulars (from MONRE and MARD) and the Land Law 2013 encourage and require a degree of consultation and participatory land use planning (PLUP) but this remains quite a top down process for the wider community (Article 43 of the Land Law requires collection of views on land use plans and land use planning) unless an ODA helps with the processes and meet part of the costs;

  o Participation in community forest planning is clear through MARD "Guidelines on sustainable forest management planning" Circular 38 No. 38/ 2014 / TT-BNN, but there are clear difficulties in the availability of resources for implementation of the participatory planning approach that the Circular requires except, more or less, where ODA projects are implemented.

- There is a general moratorium on natural forest commercial timber harvesting except where the SFC has a proper management plan and is FSC certified; and

- If people lose their land use rights because the State requires the land (e.g. road project), people are entitled to compensation, but if people lose access rights such as to areas for NTFP collection, there is normally no legal provision for compensation.

Table 4.12: Summary of policy law and regulation Issues

Law/Policy	What is at issue?	Relevance to ER Program and REDD+
Decision 178 of 2001	This decision sets the tone for future legislation on individual and household ability to benefit from different types of forest land.	178 has more or less superseded and has proved to be impractical to implement.
	In essence, the more the State has invested in reforestation on forest production land, the lower the benefit accruing to the forest owner.	If REDD+ activities result in State-sponsored inputs into production forest land, it has the possibility to curtail local communities' benefits.
	Lack of consistency over the competence to approve harvesting for domestic consumption by households between the Decision 186/2006/QĐ-TTg (forest management regulations) and Decision No. 178/2001/QĐ-TTg (entitlement policies).	

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[52] Circular 38 No. 38/ 2014 / TT-BNN 3rd December 2014 "Guidelines on sustainable forest management planning" with annexes.

Law/Policy	What is at issue?	Relevance to ER Program and REDD+
Forest Protection and Development Law 2004	Articles 29 and 30 of the Forest Protection and Development Law recognise "village population communities" as eligible to be allocated forest land, but with fewer rights than other assignees (i.e., cannot transfer or mortgage). The extent of FLA to communities has been quite limited in the ER-P area, but has been done in Quang Tri and TT Hue. The value of the title is somewhat hindered (fettered) and raises a number of issues including extinguishment of rights and inclusion. Because the "community" is not a judicial entity, it is not recognised under the Land Law 2013[53].	An official FLA title to a community remains problematic due to legal requirements as set out in the Constitution, Civil Code and Land Law which recognize citizens/individual use rights (as opposed to collective rights or customary land rights), the community is required to become a legal entity e.g. a Cooperative or an Association
	The Forest Protection and Development Law distinguishes between natural and planted production forest and affects households' ability to benefit from the two types. Households' main chance to benefit from production forest is when they have planted their own seedlings and then harvest without interventions or subsidies from the State.	This will limit householders' opportunity to benefit from REDD+, as they will continue to try to get benefit from harvesting their own plantations as they see fit (often more short term rotations).
Civil Code, 2005 (to be updated by the 2015 Code in 2017)	Does not recognise villages or communities as judicial persons who may enter a contract (but PFES still paid in some provinces to communities). This means that PFES (or REDD+) contracts cannot be made with communities unless they have formed a cooperative or association. The risk here is that major benefits from REDD+ go to existing organizations such as SFCs, PFMBs and SUF MBs.	Communities, or groups of communities of similar ethnic groups, would be ideal partners for a number of PFES/ REDD+; The BSM needs to take this into account.
Ordinance on the Exercise of Democracy in Communes, Wards and Townships, 2007	This ordinance encourages the provision of information to, and gaining feedback from, local people on socio-economic development. The Ordinance has not always been enthusiastically implemented, and does not include subjects directly related to forest management.	Ordinance allows/ encourages a participatory approach so can be seen a as supporting PLR for FPIC
Land Law 2013	"The State shall allocate land with production forest which is natural forest to the forest management organizations for management, protection and development" -natural forest land allocation is therefore difficult to households, as per Article 135; affects ER-P area because no provinces have completed FLA process (of adequate quality, even if quantity).	Potential for negative impact for EM communities surrounded by natural forest.
	Explicitly states under Article 27, Paragraph 2, that it is the State's responsibility to develop "policies to facilitate for ethnic minorities who are directly involved in agricultural production in the countryside to have land for agricultural production."	Potentially of positive impact in increasing tenure security in the ER-P areas if Article 27 can be actively implemented with some form of participatory process.

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[53] The previous version of the Land Law (2003) had a few clauses in which a community of citizens may have the right to be allocated land, although there was no specific mention of forest land allocation to a community.

Law/Policy	What is at issue?	Relevance to ER Program and REDD+
Law on Environmental Protection 2014	Article 21, Paragraph 2 states that "Project owners are obliged to consult with regulatory agencies, organizations and communities that are directly affected by the project." The Law, however, does not outline any procedures as to the nature of consultations.	On the one hand, this law supports consultations in the field of environment, but it is in a limited context (of projects defined as requiring an EIA/ESIA), does not refer to FPIC, nor make reference to ethnic groups with a special or deep connection with land and resources.
Decision 30a and Program 135	There are 12 Program 30a Districts in the ER-P provinces (7 in Thanh Hoa), and potentially over 300 Program135 communes. These decisions make additional budgets possible for designated poor districts, and includes budgeting for forest protection contracts.	Positive for REDD+ outcomes: one of the few means by which budgets should be available in advance of performance-based payments in districts that are otherwise under-resourced.
Decision 75	Increases the financial limits for both forest protection and forest development. However, at least Thanh Hoa Province – statistically, the poorest in the ER-P area, has only made very small forest protection and/or PFES payments to date (far less than VND 200,000 per ha). Decision 75 only applies in Category III communes.	Positive for REDD+ outcomes: if increased payments, including for afforestation and enrichment planting, can be made, then people may gain more interest in developing their production FL (high subsidies available under Decision 75).
Law on Royalties 2009	High Royalties rates for wood from natural forest and other natural resources local people get little or no support no preferential rate for credit (or other tax) and strict control transportation – issue in KfW 6	The policy does not encourage companies and especially households in natural forest and development of forest protection and is encourage illegal logging and transport and tax evasion

Notes: There is no attempt here to be complete; it is only to give an indication of a few of the major issues of REDD+ relevance that arise from the PLR framework.

4.7   Expected lifetime of the proposed ER Program

It is expected that the Emission Reduction Program Agreement (ERPA) with the Carbon Fund will run from 2019 to 2025. As the Program is linked to national policies and will be integrated into the overall NRAP plan to implement REDD+, the activities will extend beyond the ERPA period. The economic model assumes a 20-year program period which corresponds to the long-term perspective of successive NFDS with which the program is aligned.

5   STAKEHOLDER CONSULTATION, AND PARTICIPATION

5.1   Description of stakeholder consultation process

Stakeholders from the household level to the national and international level have been consulted. For the past three years, there have been consultations of an iterative nature, with the consultation process getting fully underway between late 2015 -2017. Participation methods have included village-level meetings of households, focus group discussions, workshops, participatory forest transects, natural resource assessments, interviews of key informants, and a quantitative survey of over 3,000 households. In addition, there have been face-to-face meetings and the exchange of reports relevant to REDD+ based on activities and studies. 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 at present. In this way, a picture of challenges and opportunity-costs of potential REDD+ activities in the localities was formed. Qualitative data acquired through these processes has been used in the design of the overall program approach, the PRAPs, (which involved separate sets of consultations to those recorded above) and of the BSMs.

At the commune and village community levels, the SESA/FCPF team used focus group discussions to consult local communities, especially focusing on ethnic minorities, and their leaders. Communities were selected based on existing socio-economic data and forest inventories, nearness and expected reliance on forests. Household consultations followed an iterative process, with forest-dependent households chosen based on a selected sampling approach (based on the design of the quantitative socio-economic Probability Proportional to Size (PPS) survey).

The SESA team tried to ensure that discussions were open and representative. Consultations targeted highly forest-dependent households and communities, with the emphasis being on ethnic minority households but not to the exclusion of non-ethnic minority households. Efforts were made to ensure that women, younger people, the aged and vulnerable households (especially the poor and physically handicapped) were included in these consultations. Focus group discussions were often held in informal settings with everyone sitting together as equals in order to reduce the incidence of village leaders and external officials dominating the proceedings.

A statistically robust quantitative socio-economic Probability Proportional to Size (PPS) survey covering 3,060 households was administered in 102 communes across the NCC by an independent consultant (see Figure 5.1; Table 5.1, 5.2).

Information gathered from CSOs, research centers, and NGOs was used to complement the information from local stakeholders. The SESA team interacted with regionally and nationally established CSOs[54] in Hue, Vinh and Hanoi, and with university research centres in Hue and Vinh. Information gathered from CSOs and research institutes provided broadened perspectives, and allowed the team to benefit from previous experiences with consultations at the village level and from previous research. There has also been interaction with several international[55] NGOs who have been involved in issues related to REDD+ including forest land tenure.

Consultations were held with government entities at various levels, with mass organizations, SUF MBs, PFMBs and with State Forest Companies. At the commune level, the Commune People's Committees were consulted together with mass organizations including the Vietnam Women's Union, the Farmers Association, the 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 Department of Agricultural and Rural

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[54] Note that the term "Civil Society Organisation" does not exist within the legal framework of Vietnam. What would normally be considered CSOs in other countries have to register as Associations in Vietnam to have formal recognition. See for example Decree 45/2010/ND-CP on the Organization, Operation and Management of Associations.

[55] Including discussions with SNV, SRD safeguards on FLEGT, Oxfam and Care (Climate Change technical working group Chair) on land issues (The Land Alliance (Landa), established in June 2013, is one of six coalitions participating in Oxfam's Coalition Support Program) and climate change, and forest land tenure with CIRUM which is just starting a small EU project to protect and promote the ethnic minority people's rights in accessing forest and farming land.

Development, Department of Natural Resources and Environment and other relevant departments and other organizations. At the Provincial Level the same provincial departments have been consulted, as have State Forest Companies as have representatives of the Provincial People's Committee. Meetings were also held with the different forest management boards. At the national level MARD has consulted with a range of relevant government ministries including MONRE, MPI, Ministry of Labour, Invalids and Social Affairs (MOLISA) and MOF. (Similarly, with consultations on PRAPs these have been wide held with communities and communes Districts in deforestation "hot spots" and potential areas of investment and with the different MBs and are still on going.)

Figure 5.1: Map showing the quantitative survey commune sites
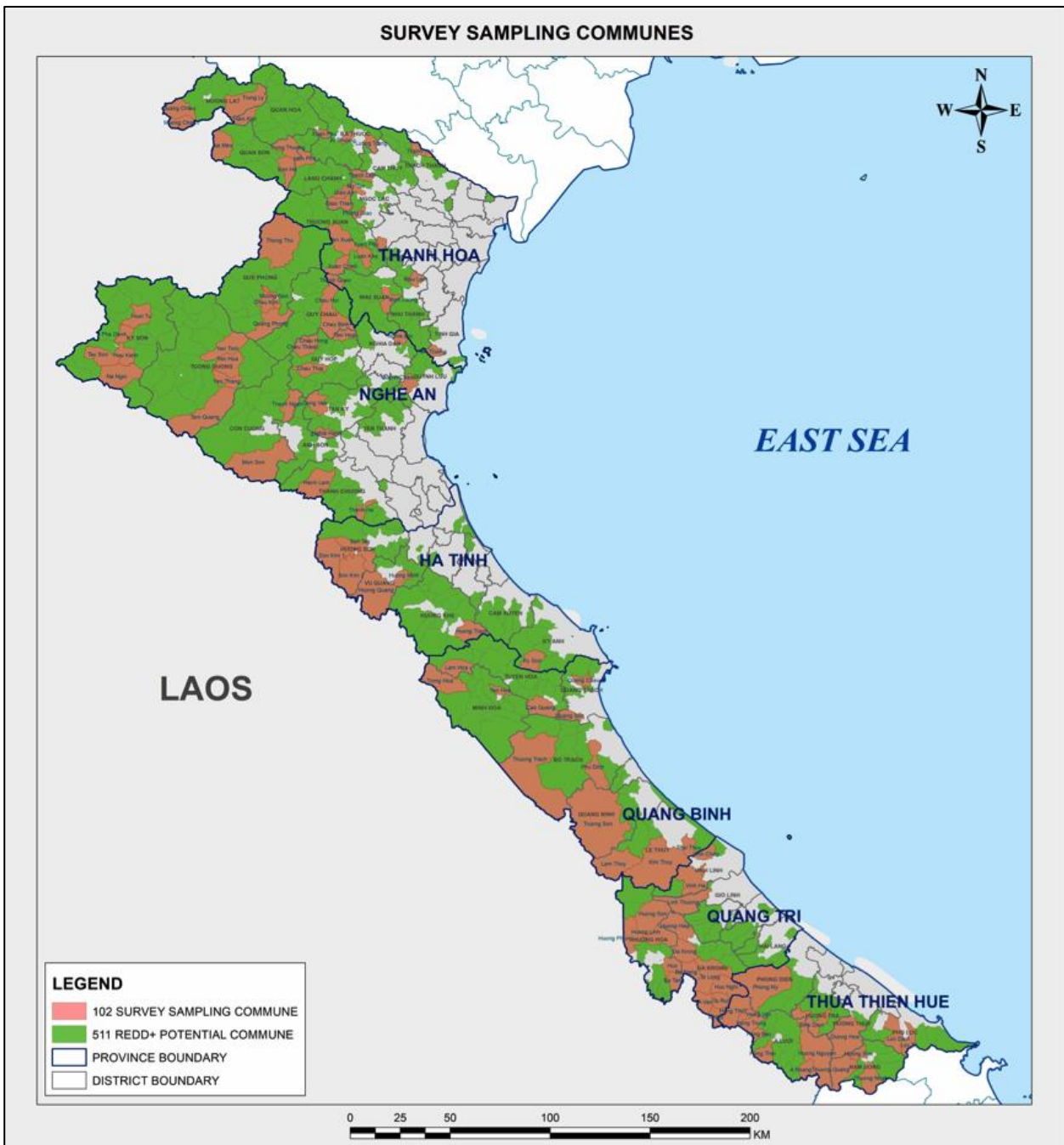
Table 5.1: Summary of consultation visits in the ER-P region

ID	Proposed ER provinces	District	Commune	Ethnic groups consulted at village level
1	Thanh Hoa	Quan Hoa*	Thanh Xuan	Thai
		Lang Chanh*	Tan Phuc	Muong
2	Nghe An	Con Cuong	Chau Khe	Dan Lai
			Lac Gia	Dan Lai,Thai
			Luc Da	Thai, Tho, Dan Lai
		Tuong Duong*	Tam Hop	Hmong
			Luong Minh	Khmu, Thai
		Tan Ky	Dong Van	Thai, Tho, Tay
3	Ha Tinh	Huong Khe	Huong Lien	Chut
4	Quang Binh	Quang Ninh	Truong Son	Van Kieu
		Le Thuy	Lam Thuy	Van Kieu
5	Quang Tri	Dak Rong*	Ta Rut; Huc Nghi; A Ngo	Pa Co, Ka Tu
		Hai Lang	Hai Ba Hai Duong	Van Kieu, Kinh
		Huong Hoa	Huong Son, Huong Linh	Van Kieu
		Vinh Linh	Vinh Ha	Kinh, Van Kieu
6	Thua Thien Hue	Phong Dien	Phong My	Pa Co, Ka Tu, Pa Hy Kinh

Note: *Districts marked with an asterisk are classified as poor target districts under the government's poverty Program 30a.

Table 5.2: Large Forest Management Boards and SFCs consulted (by Province)

Province	Name of PFMB	Name of SUFMB	Name of SFC
Quang Tri	Dak Rong – Huong Hoa; Thach Han	Bac Huong Hoa NR; Dak Rong NR	Ben Hai; Trieu Hai
Nghe An	Con Cuong; Tuong Duong	Pu Mat NP	Con Cuong
Thanh Hoa	Lang Chanh	Pu Hu NR	
Thua Thien Hue	A Luoi; Nam Dong; Song Bo, Huong Thuy; Bac Hai Van	Phong Dien NR; Management Board of Sao La Conservation zone	Phong Dien Forestry Enterprise; Tien Phong Forestry Company
	Huong Phu Commune Community Forest Management Board		
Quang Binh			Long Dai, Trung Son; Khe Giua

International organizations with a stake in REDD+ have also been consulted, and continue to be consulted, on the ER Program. These include, UNREDD II, FAO, multilateral providers of ODA for some aspects of REDD+ including KfW, bilateral providers notably GIZ, JICA and USAID, and international NGOs, notably WWF and SNV.

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 qualitative research, with the exception of the SESA which used a quantitative approach. Based on consultation and participation records, it is estimated that consultations have involved the following stakeholders:

- 24 rural communities and approximately 500 individual householders. The vast majority of them (95%) were members of ethnic minority groups (with poverty rates in excess of 70%) and more than half (295) were women.
- 12 CPCs (with 75 members, including 22 women) and District People's Committees (DPCs) (with 120 members, including 20 women), and six PPCs (with 25 members, including 6 women) were consulted at the sub-national level.
- At the national level, including international participants, in excess of 100 people (including 25 women) were consulted.
- 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+ activities.

An indicative list of the stakeholders who attended the meetings is provided in Annex 3. Table below provides summary of consultation and socio-economic survey activities in the ER-P area.

Table 5.3: Number of consultation meetings and socio-economic survey for ER-PD development

No.	Activities	No. of workshops/ communes/villages/HHs	Total participants (persons)	Female participants (%)
1	Consultation workshops at central level	2	147	47
2	Consultation workshops at regional level	7	541	97
3	Consultation meetings at provincial level	18	78	10
4	Consultation meetings at district level	8	44	2
5	Consultation meetings at commune level	12	91	20
6	Consultation meetings at grass-root level	29	499	216
7	Other consultation meetings (NGOs, protection forest MB, National Park….)	17	63	10
8	Number of communes in socio-economic survey	120		
9	Number of villages in socio-economic survey	204		
10	Number of households in socio-economic survey	3060		400 female head

In addition to the above, there have been separate sets of consultations related to the PRAPs and to other programs. The preparation of the PRAPs involved consultation processes within the provinces that covered key stakeholders at the different levels. Also, extensive and extended consultations have been undertaken by the two partner programs of the VFD and UN-REDD phases 1 and 2. The VFD Program work on drivers of deforestation and forest degradation has been extensive in Thanh Hoa and Nghe An, and this has included work with the main forest stakeholders. The UNREDD Programs have worked extensively with multiple stakeholders while developing the PRAPs and their site level approach.

While consultations have informed the overall design of the ER Program, the program itself is built around adaptive collaborative management (the ACMA), which is participatory in nature. Field-based activities will be developed and implemented using participatory approaches. REDD+ Needs Assessments and Social Screening Reports will be developed at the forest management level (PFMBs SUFMBs, and SFCs) and will involve consultations with local communities. These consultations will cover proposed interventions, SFM, biodiversity/ conservation issues related to access to natural resources, socio-economic and environmental impacts, and options for mitigation including livelihood support to reduce dependency and encroachment impacts on forests. Communities would be expected to participate in preparation of the management plans of the PFMBs, SUFMBs and SFCs, and it is envisaged that the PFMBs and SUFMBs and community leaders would agree to formal partnerships based on collaborative shared protection responsibilities and benefits over the natural forest. Local villages will facilitate participatory consultations to secure free, prior and informed consultation from village-level stakeholders and agreement will be sought on issues such as forest boundary demarcation, access to forests and use of forest resources by users. Elections in each village community will

be facilitated to ensure the two most popularly elected village members (to ensure the participation of at least one-woman representative per village as well) represents the village at meetings of the ACMA Entity. The ER Program will finance a Participation Specialist for supporting participatory processes for ACMA and benefit sharing plans.

5.2 Summary of the comments received and how these views have been taken into account in the design and implementation of the ER Program

Issues raised during the consultation process related to illegal logging, forest values, livelihoods, tenure, forest protection and management, planning and others relevant to REDD+ are summarized in Table 5.3 and 5.4.

Table 5.4: Specific issues raised during consultations with communes and village communities

Consultation	Issues raised	Notes
General commune and district consultation for the SESA and PRAPs	19 issues raised including: illegal logging (top/ often); impacts of infrastructure mainly HPP some minor roads (top/often) ; forest fires; livelihoods related issues (top/often); mining (mainly gold) natural disasters; lack of cultivation land; would like to be able to invest in plantation forest (plantation benefits) but the lack technology (next often); forest protection and management issues; fragmentation of forest (biodiversity issues); encroachment issues (next often); forest patrolling; land tenure issues (next often); over exploitation of NTFPs; demand for timber; general forest degradation issues; law enforcement and lack of knowledge and awareness (next often); lack of access to credit; poor LUP	Issues included in the PRAP activities and BSM approach. The issues and solutions at site-level will be further identified through RNAs and SSRs and ER-P interventions, including SFM, livelihoods will be designed through ACMAs.
Opinion Survey (n=3,060 households) See Map 5.1 for the location of the survey communes	25% of respondent stated that the prevalence of illegal loggers has increased	The ACMA should improve forest governance, ownership and control over forest resources
	64% of respondents stated that illegal logging has been put in check (reduced)	
	64% of respondents stated that income generated from forestry and forest related sources has become less reliable	ER-P activities aim to increase income from forestry and also to support alternative livelihoods
	27% of respondents stated that there has been increased competition from outsiders in the collection of forest products	The ACMA should improve control over forest resources
	41% stated that allowances received for forest management work are too small	The ER-P aims to support alternative livelihoods
	74% stated that the area of production forestland assigned to households is insufficient	FLA is a component of the ER-P
	98% of respondents stated that forests were very important to them.	This is recognized through the ACMA
	54% believe that households/ communities are the most capable in managing forests (highest score)	The ER-P is expected to give significant management responsibility to HH/communities through ACMA
SUF PFMB	Encroachment/ collection of NTFPs	The ACMA should improve control over forest resources

Table 5.5: Summary of provincial planning issues raised (through central level and provincial workshops which included SUFMBs, Districts, and discussions with the REDD+ Steering Committees)

Summary of issues	Notes
Impacts of natural disasters, storms/ flooding	Issues included in the PRAPs. Interventions in mangroves and coastal forests will help to address some disaster risk. Locally important risks can be addressed through the ACMA.
Lack of production land shifting cultivation, land tenure issues (FLA and re-allocation issues), livelihood issues (poverty alleviation)	These will be addressed at the site-level through the ACMA. The ER-P includes FLA activities, and livelihood support.
Infrastructure development: road construction, hydropower construction, lack of offsetting afforestation (although a government policy); inconsistent donor policy on EMP and similar	Issues included in the PRAPs and need to be raised in the PLRs, and ministries.
Illegal logging	Addressed in the PRAP activities
Over exploitation of forest/ NTFPs	Addressed in the PRAP activities. Can be addressed through ACMA at the site level.

6   OPERATIONAL AND FINANCIAL PLANNING

6.1   Institutional and implementation arrangements

The institutions for forestry and agriculture sector management are arranged from the central down to provincial and district level. At the central level, MARD takes overall responsibility for state management of agriculture, forestry, fishery, livestock and rural development. VNFOREST under MARD is responsible agency to respond to forest management while Department of Crop Production of MARD is responsible for Agriculture sector. At the provincial level, Department for Agriculture and Rural Development (DARD) is an agency to take responsibility for management of agriculture, forestry, fishery etc. At the district level, forest management and agriculture production are led and directed by the District Forest Protection Station and Division of Agriculture and Rural development respectively.

With regards to forest management and governance, the Law on Forest Protection and Development 2004 clearly defines the structures and institutional roles from central to local level under Article 17, 18, 19, 20, 21. Forest management is regulated by a legal framework defined by Decree 23/2006/NĐ-CP, which structures forest management into four decentralized levels involving.

- *Central level*: The government retains the authority for overall central/state management of forest protection and development nationally, with MARD accountable to the government. In January 2010, MARD established the Vietnam Forestry Administration (VNFOREST), tasked with advising and supporting the minister in managing the country's forests (Decision 04/2010/QDTTg). MONRE is another key agency, responsible for the implementation of land and forest policies. MONRE is in charge of land administration while MARD is in charge of forest management.

- *Provincial level:* The Provincial People's Committees (PPCs) undertakes state management of forest development and protection in their localities. PPC chairpersons are accountable to the Prime Minister in relation to the management of all state forest resources and forest areas in their localities (provinces and cities). Provincial units of MARD, DARDs contain a forestry section to assist the PPCs in carrying out their duties. There are also Provincial Advisory bodies to provide guidance and advice to the PPC and DARD.

- *District level*: District People's Committees (DPCs) undertake state management of forest development and protection in their localities/ district areas. DPC chairpersons are accountable to the PPCs for cases of forest damage or loss in their localities. DPCs appoint Divisions of Agriculture to carry out their tasks. Each division is allowed to employ one or two forest staff members responsible for monitoring forestry activities.

- *Commune level*: Commune People's Committees (CPCs) undertake state management of forest development and protection in their localities/communes. CPC chairpersons are responsible to the DPCs for any mismanagement of forest causing damage or loss of forest cover. Communes appoint special forest staff to carry out their tasks. Although the Forest Protection and Development Law stipulates that communes in areas with forest cover must recruit forest staff, budget constraints may hamper this. Below the commune is the informal system led by the heads of the villages. Heads of villages are important intermediaries between national laws and any existing customary law.

Despite the establishment of a clear governance structure at the central and provincial levels, at the commune level and below, the governance of forests may be neglected. Commune authorities, responsible for field-level activities, often lack the necessary competence to oversee large areas of forest and carry out proper monitoring. This is a major reason for the general approach of the ER Program to strengthen forest governance at the local level through co-management with greater involvement of local communities.

Although there is strong vertical integration within the forest sector in Vietnam there are however, examples where provincial management has not followed national decisions, for example in the case of provinces wanting to prioritize economic development and rubber expansion over forest protection. In order to further strengthen vertical integration in the forest sector Directive 13 from the Prime Minister in 2017 has highlighted the need to ''strengthen the effective coordination between central and local levels among ministries/sectors

to drastically and effectively carry out the examination, inspection, supervision and timely and strictly legal acts of violation of laws''. This and previous Decisions place more control over forests back to the central authorities and more responsibility for any conversion with the sub national authorities. This will further strengthen vertical integration.

The institutional arrangements of the ER-P are described in Table 6.1 and summarized in Figure 6.1.

Figure 6.1: Organizational structure for implementation of the ER-P
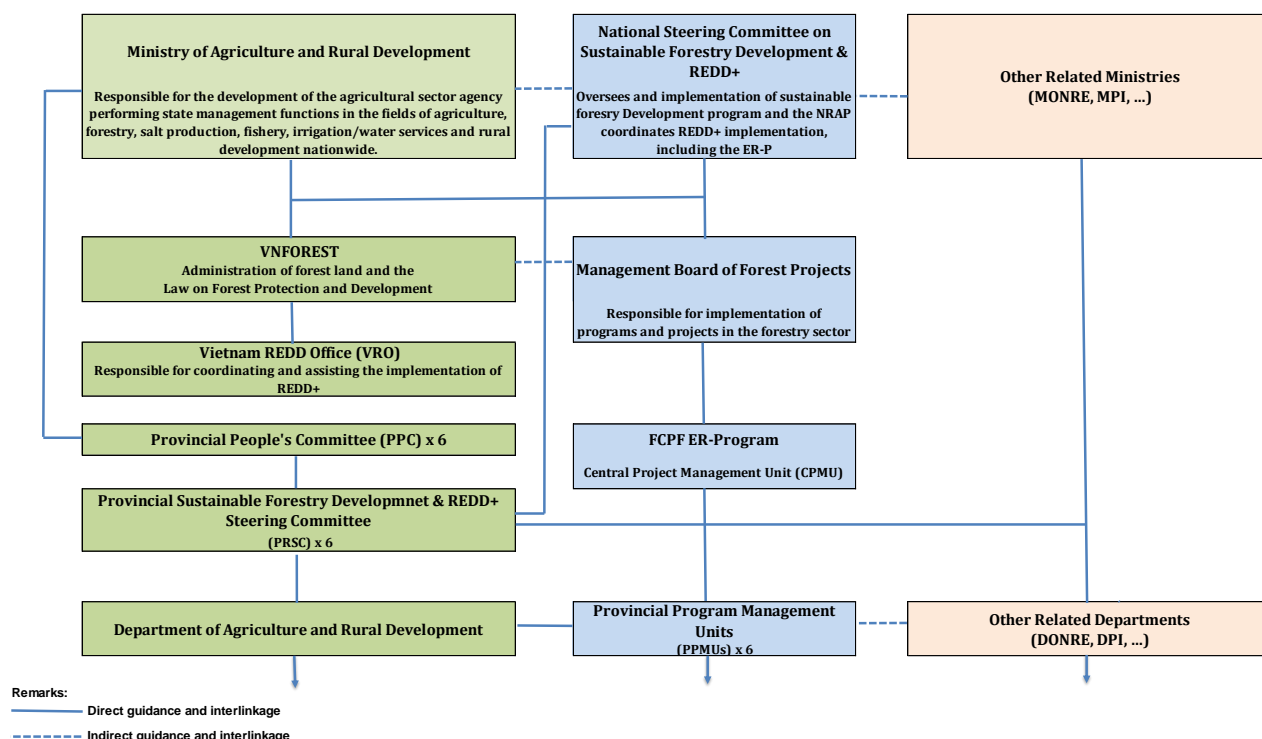
Table 6.1: Main responsibilities of ministries and management entities

Ministry or management entity	Main responsibilities with the ER Program
The Ministry for Agriculture and Rural Development (MARD)	MARD is responsible for rural development and the promotion of agriculture, fisheries, forestry and irrigation in Vietnam. MARD is the program owner, with the management and responsibility for use of ODA funds, preferential loans, programing of counterpart funds (according to Decree 16/2016/ND-CP). As part of this Program MARD is accountable to the Government of Vietnam to ensure the following: (i) issuing Decisions to organize the program implementation; (ii) approving master plans for Program implementation; synthesizing and approval of the annual work programs and implementation plans; (iii) issuing guidelines for the procedures for procurement in accordance with the current law on procurement; (iv) organization of monitoring and evaluation of the program implementation to ensure that the Program is conducted in line with the progress, quality and objectives set out; (v) be responsible for the management and use of ODA funds and preferential loans under its management; and (vi) fulfil its tasks and rights in accordance with the current law, implementation of international conventions; ODA agreements and preferential loan.
Vietnam Forestry Administration (VNFOREST)	VNFOREST is tasked with advising and supporting the minister in managing the country's forests. Responsibilities include forest governance responsibilities for implementation of regulations issued by the Government; monitor natural forest

Ministry or management entity	Main responsibilities with the ER Program
	resources and forest inventory; guide integrated production of agriculture, forestry, socio-economic development; improve forestry and forestry product exploitation; guide and govern forestry handing over, rent, reclaim, change use of forestry; perform governance responsibilities for forestry rangers; take the leading role in preventing deforestation and degradation; perform governance responsibilities for prevention of forest fires and other disasters; and deploy preventive and restorative measures.

VNFOREST is the focal agency for REDD+ and is responsible for coordinating all efforts and activities among government agencies, private organizations, NGOs, CSOs and international development partners in REDD+ implementation. VNFOREST reports to the National Steering Committee on the progress of REDD+ activities.

VNFOREST coordinates and works with MONRE to prepare national reports on Climate Change (national communication to the UNFCCC) and directly assists MARD in the development of policies related to the authorization of ER-P and the transfer of carbon emission reduction rights.

VNFOREST supports the Management Board of Forestry Projects to update the annual database, coordinating the ER-P forest monitoring system of the provinces to ensure that it is consistent with the ER-P requirements and the national forest monitoring system. |
| Ministry of Natural Resources and Environment (MONRE) | MONRE has the primary responsibility for the oversight and facilitation of environmental quality standards, land administration and sustainable natural resources use and conservation, including land use planning and is responsible for preparing the 10-year strategy and 5-year action plans for natural resources and environment protection. MONRE has the principality forcing responsibility for managing the response to climate change[56] and is the national focal point to the UNFCCC.

Within the Program MONRE (DONRE) will support the process of forest land allocation and land use planning. |
| The Ministry of Planning and investment (MPI) | MPI is responsible for mainstreaming sustainable development and climate change into Vietnam's strategies and development plans.

MPI and MONRE are supporting the mainstreaming of sustainable development and climate change responses in the formulation of the 5-year SEDP and budget estimates (post-2015 climate change and green growth financing response). The SEDP places "response to climate change, natural resources management, and environmental protection" as a prioritized objective and requires that consideration of sustainable development, climate change, and green growth be integrated into the preparation, appraisal, and approval of investment programs that are funded by the state budget'. It will direct all sectors and provinces to develop their development plans and make budget allocations to operationalize these priorities. This will be a key process which will be supported throughout the life of the Program. |
| National Steering Committee on Sustainable Forest Development and REDD+ (NCSFR) | This National Steering Committee on Sustainable Forest Development and REDD+ replaces the National Steering Committee on Forest Protection and Development Plan 2011 – 2020. A key responsibility of NCSFR, chaired by the Vice Prime Minister, is to facilitate cross-sectoral coordination among the ministries, agencies and localities in implementing effectively sustainable forestry development program (decision 886) and 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 |

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[56] Within the mandates of MONRE, Department of Meteorology, Hydrology and Climate Change (DMHCC) is assigned to co-ordinate climate change-related activities while Department of Legal Affairs (DLA) advises on the legal aspects of climate change including legislation development. Environmental management responsibility in Vietnam is spread over many ministries and implementation responsibility is often devolved to provincial and district levels

Ministry or management entity	Main responsibilities with the ER Program
	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 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 Province REDD+ Steering Committees (PRSCs) will inform the National Steering Committee.
Management Board for Forestry Projects (MBFP)	The Management Board of Forestry Projects was set up to ensure program management and implementation in accordance with Decisions of MARD. It has the following responsibilities: manage and utilizes ODA funds and preferential loans, program counterpart funds; submit to MARD the overall plan and annual plans; implements procurement in accordance with the current regulations on procurement; negotiates, signs, monitors the implementation of the contracts and addresses the problems arising in accordance with the authorization; miscarries out monitoring and evaluation of the program in accordance with the legal requirements and regulations; guides the Central Program Management Unit (CPU) to prepare final reports, outputs and program liquidation reports in accordance with the legal regulations.
Vietnam REDD Office (VRO) and Sub Technical Working Groups	The VRO is located in VNFOREST and was established in 2011 to coordinate and manage the design of the tools and processes to implement the National REDD+ Program of Vietnam. The VRO is responsible for strategic development and daily management of the NRAP. The VRO is also responsible to help in coordinating and promoting REDD+ activities at the central and provincial level and in providing support for the implementation of the program. This includes supporting Sub-Technical Working Group[57] (STWGs), which provide guidance on a number of REDD+ issues in Vietnam. Currently there are five STWGs.
Central Program management unit (CPMU)	The CPMU for the program has the following tasks including: (i) assisting the Program Owner to prepare the overall planning and annual detail work plans; (ii) assisting in preparation and implementation of the Program; (iii) assisting in procurement and contract management; (iv) assisting and in managing disbursement and financial and asset management; (v) setting up and in managing the monitoring and evaluation (M&E) of the program and monitoring and reporting on implementation status; (iv) in preparing completion reports and the final report and liquidation reports forth program; (v) other tasks as agreed within the Program. The CPMU works as a focal point to support the Steering Committee and the Management Board of Forestry Projects in managing and organizing the implementation of the program to comply with the objectives and regulations in the program document, laws, regulations and donor policies.

Coordination across agencies at the national level

• Since the issuance of target program on sustainable forestry development program and NRAP, a Steering Committee on Sustainable Forestry Development and REDD+ (NSFDR) is set up based on a Steering Committee of Forest Protection Plan. The NSFDR is chaired by Vice Prime Minister and members are leaders of relevant ministries such as MARD, MONRE, MOF, MPI, MOI etc. This steering committee provides direct coordination and guidance to line ministries that are responsible for sectors related to the ER-P implementation. In addition, it also provides guidance, coordinates and directs MBFPs, CPMU by

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[57] The STWGs include six working groups: Safeguards, REDD+ implementation, REDD+ financing and governance, Private sector involvement, MRV, Benefit Sharing/ Distribution Systems.

monitoring the management and organization of implementation of the program as a whole to achieve the objectives, progress, quality and efficiency as set out in the current regulations on the program management and implementation.

- Both the NSCFPD and the CPMU at central level will deal with cross-cutting issues at the national (and sub national) level, and facilitate the coordination between the different ministries, departments, general departments under MARD, MONRE and MPI to enhance the synergy and the unified direction across the central level to the grassroots level. CPMU, under the direct guidance of NSCFPD and MBFPs, carries out the tasks as assigned and will coordinate with VRO.

Implementation at the subnational level

At the sub-national level, there are a number institutions that will be engaged in the overall implementation of the ER Program; most critically:

The Provincial People Committee

The PPCs are the managers of the components and activities that are implemented in the provinces. They have responsibilities and rights as follows (in accordance with Decree 16/2016/ND-CP): approve decisions on the organization of the management and implementation of staff structures; approve annual provincial workplans; in guiding procurement in accordance with the current laws, international ODA requirements; and organizing, monitoring and evaluation of the components conducted by the provinces. The PPC is ultimately responsible to ensure that the ER- Program, the NRAP and Directive 13 (and Action Plan 256) are implemented in the Provinces. The PPCs have established the Provincial REDD+ Steering Committees to advise them.

The Provincial REDD+ Steering Committee

All ER-Ps provinces have a Provincial REDD+ Steering Committee (PRSC). They provide direction and advice on implementation of the PRAPs. A particularly important role of this group is to support cross sector coordination. The PRSC is a multi-sectoral committee with representatives drawn from most provincial departments (including DARD, DONRE, FPD, DPI, DOF etc.). The PRSC will be closely involved to support these cross cutting interventions. PRSCs provides guidance, and coordinate and direct DARDs and PPMUs to implement the program activities in a manner complying with the targets, progress, quality and efficiency as set out in the Program Documents, Agreements and relevant Laws. The PRSC also supports the PPCs to provide general advice, to review annual working plans and to ensure the coordination and linkage with the relevant agencies.

Departments of Agricultural and Rural Development and Provincial Project Management Units (PPMUs)

The provincial DARDs are the leading provincial agency, coordinating all activities of the programs, projects, organizations, and individuals in the provinces. They are responsible for: (1) organizing counterpart funds (for the components and activities carried out by the provinces); (2) organizing the management and implementation of staff structure in accordance with the decisions of the PPCs; (3) effectively managing and using ODA funds, counterpart funds; (4) preparing and submitting to the PPC the annual program implementation plans; (5) conducting the procurement in accordance with the current laws on procurement; negotiating, signing and monitoring the implementation of the contracts and addressing any problems arising in accordance with their authority; and (6) guiding the CPMU to prepare final reports, outputs and liquidation reports in accordance with the laws.

DARD will establish Provincial Program Management Units (PPMU) which are the management units for supporting program implementation and are responsible to the PPCs, DARD and CPMU in managing and organizing the program in three provinces. PPMUs are under the guidance of CPMU's who provide expertise, inspection, monitoring and evaluation for all the components and activities in the provinces in the manner complying with the targets, progress, quality and efficiency as set out in the Program Documents, Agreements and relevant Laws. DARD assigns tasks for the PPMUs. To improve efficiency currently, the PPMUs are integrated with the FCPF project PPMUs (in the cases of Quang Binh, Quang Tri and Thua Thien Hue), the Vietnam Forests and Delta project PPMUs (in cases of Thanh Hoa and Nghe An, the VFD Program is due to close in 2018, but the ER-P PPMU would continue), and UN-REDD Program phase 2 PPMU in the case of Ha Tinh.

DARD/PPMUs will work closely with different ministries and departments in order to implement the ER Program, particularly when addressing cross cutting issues. These include:

- *The Department of Planning and Investment* (DPI) is the focal agency for the SEDPs. DPI leads and coordinates with DOF and DARD to allocate province budget and other funding resources to forest protection and development and socio-economic development in relation to the PRAPs. It will be involved in integrating the PRAP implementation with other relevant programs and projects, especially the SEDP, in the province. Also working with DPI and DONRE, the program will support improved cross sectoral land use planning by undertaking deeper analysis of land use dynamics in order to recommend optimal ways to meet targets across sectors.

  Department of Natural Resources and the Environment (DONRE) is the provincial focal agency for land use, and land allocation (including the issuance of LURC red books). DONRE leads and coordinates with DARD to advise the PPC on directing People's Committees at the district level to check and finalize procedures for land and forest allocation and issuance of land use certificates in accordance with Plan 430/QD-UBND dated 02 March 2010 by the PPC and its subsequent plans. The Program will be working closely with DONRE on land allocation from forest land within Forest Management Boards and/or Commune Peoples Committee. Joint-Circular no. 07/2011/TTLT-BNNPTNT-BTNMT provides guidance for coordination between MARD and MONRE to perform tasks on the allocation and lease of forests. The new Law on Forest Protection and Development is scheduled to be updated which will provide the opportunity to improve coordination with the Land Law and contribute to further improvements to the process of FLA.

- DONRE also supports the process of Environment Impact Assessment of development projects. An important piece of developing cross sectoral legislation is the Law on Access to Information, approved by the National Congress in 2016 which will go into effect on 1st July 2018. Chapter II of this law concerns regulations addressing information transparency/disclosure, including a description of what types of information that the state must widely disclose This legislation will ensure that groups are able to access information and challenge decisions, for example in terms of infrastructure, mining and agriculture development inside forest areas. Working with DONRE there will be efforts to put this Law into operation and provide support to local communities to benefit from this Law. *Police and Ministry of Justice:* The Forest Protection Department is responsible for cooperation and collaboration with government organizations, the army and forest owners to implement forest protection in their administrative areas. At both commune and district level cooperation with communities is supported in relation to training and guidance on planning forest protection and forest fire prevention, as well as information exchange and evaluation (Decree 119/2006/ND-CP and Decree 74/2010/ND-CP). Decision No. 39/2009/QD-TTg issued the regulation on coordination between forest rangers and militia forces in the protection of forests while Circular 29/2007 provides for coordination across Ministries (MARD, Police, Ministry of Justice and the Supreme People's Court) for forest violations. It is recognized that although the cross sectoral policies exist there is the need for more resource to support these cross sectoral institutions. They will be further supported in particular provinces.

  Department of Finance (DOF) monitors the spending for PRAP implementation and program implementation and coordinates with DARD to formulate financial management mechanisms and policies for PRAP implementation; formulate guidelines for management and use of REDD+ funds at all levels; and monitor stakeholders to ensure their compliance to guidelines for management of REDD+ funds. The Provincial REDD+ Steering Committee (PRSC), will play a central role in monitoring these cross sectoral interventions. As highlighted in Section 4 and linked to the NRAP; this committee will be required to monitor cross cutting activities. Initial indicators of progress have been identified and will be further developed. The Steering Committee will report to the PPMU, PPC and will also feed up results to the National Steering Committee on Forest Protection and Development Plan. Given the importance of this Steering Committee funds will be set aside to strengthen it throughout the life of the Program.

Site level management and implementation

Critical to success of the ER Program will be the institutional arrangements at the site level. This must be both multi-sectoral and inclusive of the different stakeholders affected. At the site level, activities will be mainly

implemented through the MBs and SFCs. It should be noted that SUFs, PFMBs and SFCs require permission from provincial authorities to implement many operation-related measures; they only have a limited degree of freedom regarding operational decisions.

At the site level the ER-P will adopt an Adaptive Collaborative Management Approach (ACMA) (See Section 15 on Benefit Sharing Arrangement) through which MBs and SFCs will work with forest dependent communities, legal community entities and smallholders. Institutional arrangements are designed for implementing ER Program activities across land use designations and for implementing benefit sharing plans. They will build on the existing management structures of the forest management entities by facilitating collaboration between managers and users of forests. Committees established will include representatives of: the forest management entity, the DPC, the CPC, the villagers in the buffer zones of the forest management entity and newly established community entities. To ensure cross sectoral collaboration involvement of the DPC will be critical, as the forest management entities themselves do not have legal jurisdiction over most agricultural land. Also, only the DPC, which acts on behalf of MONRE, is legally empowered to issue LURCs to forest land to individuals, households and communities. Mass organizations, especially the Vietnam Women's Union and the Fatherland Front together with an Ethnic Affairs Officer (if one is appointed), will be represented. ACMA Committee members will meet at least once monthly to discuss and approve ER-P related activities. Establishing such institutional and implementation arrangements will be critical to ensuring broad stakeholder engagement and cross sectoral implementation. Further details of the institutional structure of the ACMA are provided in Section 15.2.

6.2   ER-Program budget and financing plan

Several forestry, agriculture and poverty reduction programs that are in implementation or proposed for implementation by the Government of Vietnam commit to provide financing to the interventions of the ER Program. Financing support from these programs is instrumental in enhancing the scale and ambition of the ER Program interventions. The following government programs are expected to contribute to the ER program financing. These are summarized below with respect to their relevance to finance the ER Program:

- **Target program for sustainable forest development (2016 – 2020 and 2021-2025)** (Decision No. 886/QD-TTg dated June 16, 2017). The program targets the implementation of the national forest development strategy. The budget of this program for the ER-P accounting area covering 6 NCC provinces is estimated at more than **USD 1 billion** between 2018 - 2025. The target program also integrates a support program for poverty reduction (Resolution No. 30a/2008/NQ-CP, December 27th 2008) in 61 poor districts of which 12 are in the ER Program area. This program seeks to provide incentives and support to agricultural production, forest protection, and income and employment generation, as well as forest management in partnership with local communities.

- **Policy on Payment for forest environmental services (PFES).** The policy on PFES (Decree No. 99/2010/ND-CP dated 24th September, 2010 and its revision (Decree No 147/2016/ND-CP, 02/11/2016) forms the basis for collection of more than USD 10 million annual revenue from hydropower and water supply companies in the ER Program provinces for distribution among households and communities involved in forest protection.

- **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/QĐ-TTg of PM dated 2 September 2016) commits a significant portion of funding to the ER-Program provinces. The program seeks to improve livelihoods and enhance the living standards of the poor, and increase the per capita income of poor households nationwide by 1.5 times and the per capita income of poorest households in backward and ethnic minority regions by two times by the end of 2020. The program implementation is expected to improve the livelihoods of poor communities that reside in the vicinity of forests.

- **Programs of the Vietnam Bank for Social Policies (VBSP)** for forestry and agricultural sector provide financing for implementation of sustainable forestry and climate-smart agriculture, especially for poor and ethnic minorities households, and include;

  o   VBSP loan programs for extremely disadvantaged ethnic minority households

- o VBSP lending for socio-economic development in ethnic minority and mountainous areas following the Prime Ministers Decision No. 2085/QĐ-TTg.
- o VBSP lending to poor households (Document No. 316/NHCS-KH dated May 02, 2003)

- **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: 22nd January 2015). The project targets the protection of coastal forests and establishment of new coastal plantations. The protection, restoration and reforestation of coastal forests is also a priority under the World Bank financed **Forest sector modernization and coastal resilience enhancement project** (2017-2022). It will be implemented in 8 provinces, including all six provinces that are covered under the ER-Program.

- In addition, several **REDD+ related interventions** that are in implementation in the six NCC provinces through **ODA financed initiatives** will support the ER program interventions and financing. These include FCPF REDD+ readiness preparation, JICA financed protection forest restoration and sustainable management project (JICA 2), USAID financed Vietnam Forests and Deltas Program[58]; and KfW financed Forest Restoration and Sustainable Management in Central and Northern regions of Vietnam currently in preparation support the ER program interventions.

Financing from these programs together with the national and provincial budget and bilateral and multilateral funding form the basis for the financing of the ER Program. The following sections provide the details of the ER program financing plan covering the costs (uses of funds) and the key sources of financing for the ER-P implementation. Subsequently a financial and economic analysis is presented.

6.2.1   ER Program Budget (uses of funds)

The program interventions elaborated in the section 4.2 of the ER-PD are used to conduct cost assessment of ER Program budget. For this purpose, the government budget and cost norms as well as ODA project costs that relate to the ER Program interventions are considered. The timeframe of the financing plan is 2018-2025, which is compliant with the Vietnamese 5-year development planning cycles (2016 - 2020 and 2021 - 2025). Until 2020, the Government of Vietnam committed budget to the programs, while the financing from 2021-2025 is based on a projection. The planning and budgeting for the new 5-year development planning period (2021 – 2025) will start in 2019/2020.

The total program costs over the period 2018-2025 period are estimated at **USD 312.8 million,** which are summarized below and presented in Table 6.2.

(i) Component 1: Strengthening enabling conditions for emission reductions (USD 6.84 million)

This component supports investments in enabling environment to reduce emissions and enhancing removals by sinks. The estimated cost is **USD 6.84 million** (2.2 % of total program costs) and will include activities related to strengthen policies; to adopt legal framework to control conversion of natural forest; to support cross-sector coordination in the implementation of the ER-P; and to improve public access to information related to conversion of natural forests. Also, this component will support strengthening forest governance and law enforcement, including the development of stakeholder capacity to monitor and report on violations of forest law, implementation of an independent forest monitoring system and strengthening regional collaboration with Lao PDR to reduce the risk of displacement of emissions.

(ii) Component 2: Promoting sustainable management of forests and carbon stock enhancement (USD 240.4 million)

This is the core component of the ER Program and is estimated at 240.4 million (about 77% of the total ER Program budget) for the total program implementation period. This component is divided into three sub-components.

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[58] The project will operate in Thua Thien Hue province with a total budget of USD 4.54 million between 2018 - 2020. Key interventions are related to increase application of low emission land use practices, strengthening biodiversity conservation, and increasing resilience of vulnerable communities in the province

- **Sub-component 2.1: Conservation of existing natural forests (USD 113.2 million)** will support the development and operation of the adaptive collaborative management of natural forests involving forest management entities and communities. It is expected that about 884,215 ha of existing natural evergreen forest and 33,017 ha of coastal/sandy forests will be protected from deforestation and forest degradation.

- **Sub-component 2.2: Enhancement of carbon stock of plantations (USD 70.5 million)** is devoted to the enhancement of carbon stock through improved productivity and long rotation forest plantations. This will include the transformation of 37,515 ha from short to long-term rotation of plantations and planting of 27,750 ha of long-rotation plantations. This sub-component also includes technical support and capacity development for forest certification and plantation management.

- **Sub-component 2.3: Enhancement and restoration of natural forests (USD 56.6 million)** will focus on regeneration and restoration of natural forests. About 91,915 ha of evergreen natural forests will be regenerated or reforested with native tree species, and about 11,348 ha coastal sandy inland forests will be regenerated and restored.

(iii) Component 3: Promotion of climate-smart agriculture and sustainable livelihoods for forest dependent people (USD 60.9 million)

The interventions under this component will focus on the adoption of improved agricultural practices and diversification livelihoods of forest dependent people. These two sub-components will address the key agricultural drivers of deforestation and forest degradation and support the adoption of climate-smart and deforestation free agricultural practices in mountainous and coastal areas of the ER-P provinces. It includes the promotion of climate-smart agricultural practices on about 60,300 ha of agricultural land through improved extension services and training of households in proximity to the deforestation and forest degradation hotspots and strengthening cooperatives that engage in deforestation free commodity value chains. The estimated cost is USD 43.4 million. The remaining USD 17.5 million will be devoted to livelihood development activities in the coastal areas as part of the WB supported Forest Sector Modernization and Coastal Resilience Enhancement Project.

(iv) Component 4: Program coordination and management (USD 4.7 million)

This estimated cost of the component is **USD 4.7 million.** It is required to coordinate and manage the ER-program at the national and provincial levels. Also, it will coordinate the activities for measurement, monitoring and reporting the emissions reductions, compliance of safeguard policies and oversight of the benefit sharing mechanism of the ER-P.

Table 6.2: Summary of the total ER-Program costs (expected uses of funds)

Year		Year 2018	Year 2019	Year 2020	Year 2021	Year 2022	Year 2023	Year 2024	Year 2025	Total (8 years)
1. Strengthening enabling conditions for emission reductions	**USD**	870,000	960,000	960,000	810,000	810,000	810,000	810,000	810,000	**6,840,000**
1.1. Strengthening policies controlling conversion of natural forests	USD	240,000	330,000	330,000	330,000	330,000	330,000	330,000	330,000	**2,550,000**
1.2. Strengthening forest governance and law enforcement	USD	630,000	630,000	630,000	480,000	480,000	480,000	480,000	480,000	**4,290,000**
2. Promoting sustainable management of forests and carbon stock enhancement	USD	22,884,401	29,432,432	33,521,432	38,518,317	29,003,677	29,003,677	29,003,677	29,003,677	**240,371,289**
2.1. Conservation of natural forests	USD	11,672,526	11,962,526	12,237,526	15,473,196	15,473,196	15,473,196	15,473,196	15,473,196	**113,238,559**
2.2. Enhancement of carbon stock in plantations	USD	7,182,725	10,864,756	10,814,756	8,333,478	8,333,478	8,333,478	8,333,478	8,333,478	**70,529,627**
2.3. Enhancement and restoration of natural forests	USD	4,029,150	6,605,150	10,469,150	14,711,643	5,197,003	5,197,003	5,197,003	5,197,003	**56,603,103**
3. Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people	**USD**	4,393,000	6,728,000	8,133,000	9,783,000	10,383,000	7,170,000	7,170,000	7,170,000	**60,930,000**
3.1. Improve climate smart agriculture	USD	4,393,000	6,248,000	7,413,000	9,063,000	9,663,000	6,450,000	6,450,000	6,450,000	**56,130,000**
3.2. Diversifying and sustaining livelihoods for forest dependent people	USD	0	480,000	720,000	720,000	720,000	720,000	720,000	720,000	**4,800,000**
4. Program Management and Emissions Monitoring	**USD**	0	876,700	605,200	749,800	493,550	1,318,150	652,750	0	**4,696,150**
4.1. Program coordination and management	USD	0	518,950	427,900	346,300	316,250	272,950	291,250	0	**2,173,600**
4.2. Monitoring and evaluation (M&E) incl. monitoring of safeguards and improving forest information	USD	0	237,750	57,300	253,500	57,300	925,200	211,500	0	**1,742,550**
4.3. Program communication	USD	0	120,000	120,000	150,000	120,000	120,000	150,000	0	**780,000**
Total uses	USD	**28,147,401**	**37,997,132**	**43,219,632**	**49,861,117**	**40,690,227**	**38,301,827**	**37,636,427**	**36,983,677**	**312,837,439**

6.2.2 Financing strategy (sources of finance)

The Government of Vietnam is very committed to the successful implementation of the program and closely links it with the existing government programs and financing sources. This is demonstrated by the commitment of significant long term investments of more than USD 1 billion in forestry, agriculture and livelihood improvement program in the six ER-P provinces during 2018 – 2025. Out of this, at least USD 100 million will be provided to the NCC region, which makes up about 11.5% of the total Vietnamese population. The ER Program can also be expected to receive significant support from national and provincial budgets that will continue beyond the program period lifetime and integrated into the national development plans.

In order to finance the ER-P implementation and to fill the financing gaps **USD 51.5 million** from the Carbon Fund advance and results-based emission reduction payments will be required.

The funding to the ER program is categorized into domestic and international sources. A major source of international finance is through results-based payments from the FCPF Carbon Fund for emission reductions. A brief description of the domestic and international financing sources, including results based payments is presented below.

Domestic financing sources

The program proposes to use a combination of domestic funding sources - national and provincial budget, payments to forest environmental services (PFES), credits from financial institutions, and "other domestic sources" which include the private sector and the state-owned enterprises and protection forest management boards). These actors will reinvest revenues from sale of forest products to maximize the synergies of domestic public financing. The major domestic financing sources to the program include:

National government financing to the six ER-PD target provinces (USD 50.6 million) is the committed GoV budget for implementation of the target program on SFM during 2018-2020 and 2021-2025. This will mainly finance component 1 in the year 2018 and part of the component 2 throughout the implementation period.

Provincial government financing of the forest sector is closely linked to the state level budget related to the target program for SFM during 2018-2020 and 2021-2025. Historically this budget has been ranging between 12-15% of the state budget, equivalent to USD 6.1 million. The exact budget allocation depends on the province level decision and budget processes. This source will mainly contribute to the financing of the component 2 of the ER-P.

Payment for Forest Environmental Services (PFES) financing source is based on the collection of funds from hydropower and water supply companies in compliance of the decree 147 of the Government of Vietnam[59]. The PFES scheme which has been operational since 2010 as per the Decree No. 99/2010. In total, PFES revenues are expected to rise to about USD 50 million over the ER-P implementation period and are to be distributed among forest owners to compensate for forest protection services. For the ER-P, USD 12.4 million of PFES funding is counted as a financing source. This will finance the natural forest management and protection interventions under the component 2. As further discussed in the chapter on BSM, grant support will also be provided to local communities as part of the ACMA process.

The credit from financial institutions is estimated at USD 24.5 million will be provided by the Vietnam Bank for Social Policies (VBSP) through several operating credit programs to the rural and ethnic minority households. The credits will be eligible to implement the models for transforming short to long rotation plantations under the component 2; and adoption of climate-smart agriculture under component 3 of the ER-P. Partly these credit programs are strongly subsidized and targeted only to the poorest society groups and ethnic minorities.

The other sources (USD 91.2 million) are related to the revenues and profits generated from forestry activities by households, state forest companies (SFC) and the protection forest management boards (PFMB) that can be reinvested. This source is part of the financing mix for implementation of the target program for SFM 2016-2020 and 2021-2025. This financing source will be invested in the interventions of the component 2.

The domestic financing also seeks to maximize the engagement of participating MBs and SFCs. The work with the MBs and SFC follows a grant-based approach, combined with access to PFES funds and loans through the Vietnam Bank for Social Policies (VBSP), in particular for plantation development. Channeling

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[59] Decree on Revising, supplementing some articles of Decree No. 99/2010/ND-CP dated 24th September, 2010 of the Government on the policy for payment for forest environmental services

funding through the MBs and SFCs is expected to streamline the packaging and processing of the provincial budgets and will facilitate the implementation over a large and diverse area affecting different stakeholders. Directly involving the MBs in detailed work-plan budget planning is expected increase their ownership and accountability over program activities. The approach also allows flexibility and facilitates specific solutions to management issues with different communities. It is also anticipated that program funding will help MBs and SFCs to leverage public and private finance, respectively.

International financing sources

The major international financing sources include ODA from bilateral and multilateral sources (**USD 76.5 million)** and results based payments from the sale of emission reductions to the FCPF Carbon Fund (expected **USD 51.5 million**).

ODA is mainly estimated from the WB loan for the Forest Sector Modernization and Coastal Resilience Enhancement (FMCR) project, expected KfW loans for the forestry sector to the government of Vietnam and JICA 2 project on restoration and sustainable management project (JICA 2), USAID financed Vietnam Forests and Deltas Program; and KfW financed Forest Restoration and Sustainable Management in Central and Northern regions of Vietnam. About **USD 51.4 million** of the ODA financing source is will come from the WB loan on coastal protection, financing all coastal and sandy forest protection, reforestation (component 2) and the related livelihood development activities under component 3. The remaining **USD 25.1 million** will be covered from the remaining ODA project currently under preparation or implementation. USAID financed Vietnam Forests and Deltas Program will to contribute about USD 4.54 million between 2018 - 2020. The remaining USD 20.6 million are expected to be largely financed by KfW loans.

The ER program expects to receive **USD 51.5 million** in results-based payments from the FCPF Carbon Fund under the Emission Reduction Payment Agreement to be negotiated for the sale of emission reductions achieved in the program. These results-based payments are expected to be used in the ER-P implementation. The program proposes to receive a portion of these results-based payments as advance payment to meet the funding needs of implementing the critical early stage ER program activities.

The results-based payments from the **Carbon Fund** are expected to support (16.5% of total program costs under different ER program components. In the **component 1** on strengthening of the enabling environment for emission reduction, their contribution is assessed at USD 3.18 million. In the **component 2 and 3,** about USD 45.35 million of the results-based payments are proposed to be used for implementation of participatory and collaborative management of forest resource in and around deforestation / forest degradation hotspots and reforestation with native tree species. This will include the operationalization of the ACMA and support to the livelihood development of poor and ethnic minority households and deforestation free value chains of the ER-Program. In the **Component 4,** the results-based payments from the Carbon Fund are expected to cover the coordination and monitoring costs of USD 2.96 million.

The financing sources of the program are summarized in the Figure 6.2; and the year-wise contribution of the financing sources presented in Table 6.3

Figure 6.2: Financing sources for the ER-P implementation
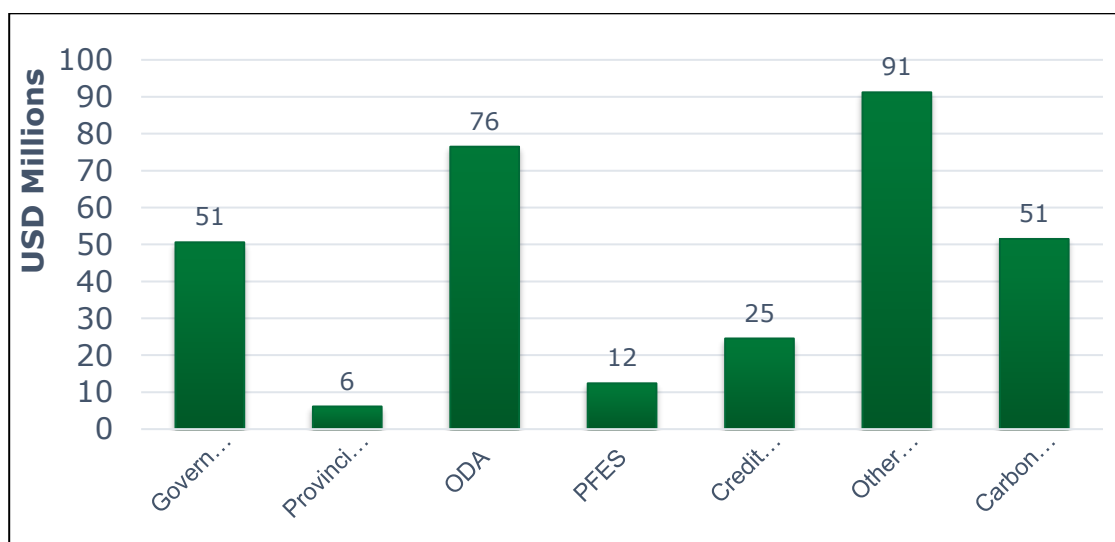
Cash flow analysis

The timing of the cash flow will be decisive to cover the costs of the ER-Program. The Figure below shows a cash flow analysis of the ER-P including all costs and financing sources. The cashflow analysis also includes potential Carbon Fund results based payments to the program after 3 years (in 2021)[60] and 6 years (in 2024) years. Further assumption of the cash flow analysis is that **52%** of the monitored and verified emission reductions as estimated in the net ex-ante GHG emission reductions will be offered to the Carbon Fund at a carbon price of USD 5 /tCO$_2$ which equals **USD 51.5 million**. This would make Vietnam eligible to receive result-based payments at USD 28.7 million in year 3 and further USD 22.8 million in year 6. With this payment schedule, a portion of **USD 7.5 million** financing gap up to year 3 is proposed to be met with advance payment from the Carbon Fund. The results-based payment in year 3 would compensate for the advance payment and turn the cumulative cashflow of the program positive and allow Vietnam to carry out the necessary upfront investment to deliver results.

Vietnam acknowledges that the Carbon Fund payments are results based and that performance may be higher or lower than estimated. Thus, Vietnam conservatively offers to Carbon Fund only 52% of the total expected emission reductions which reduce the non-delivery risk of the offered 10.3 million tCO$_2$.

If the performance is better than the estimates, Vietnam is planning to access other results-based financing sources to further increase its ambition and considers to use the additional emission reductions to account for its nationally determined contributions (NDC).

Figure 6.3: Cashflow analysis of the ER-P implementation assuming result-based payments in year 3 (2021) and 6 (2024) of the ERPA timeframe and based on delivery of actual ERs (at a carbon price of USD 5 /tCO2)

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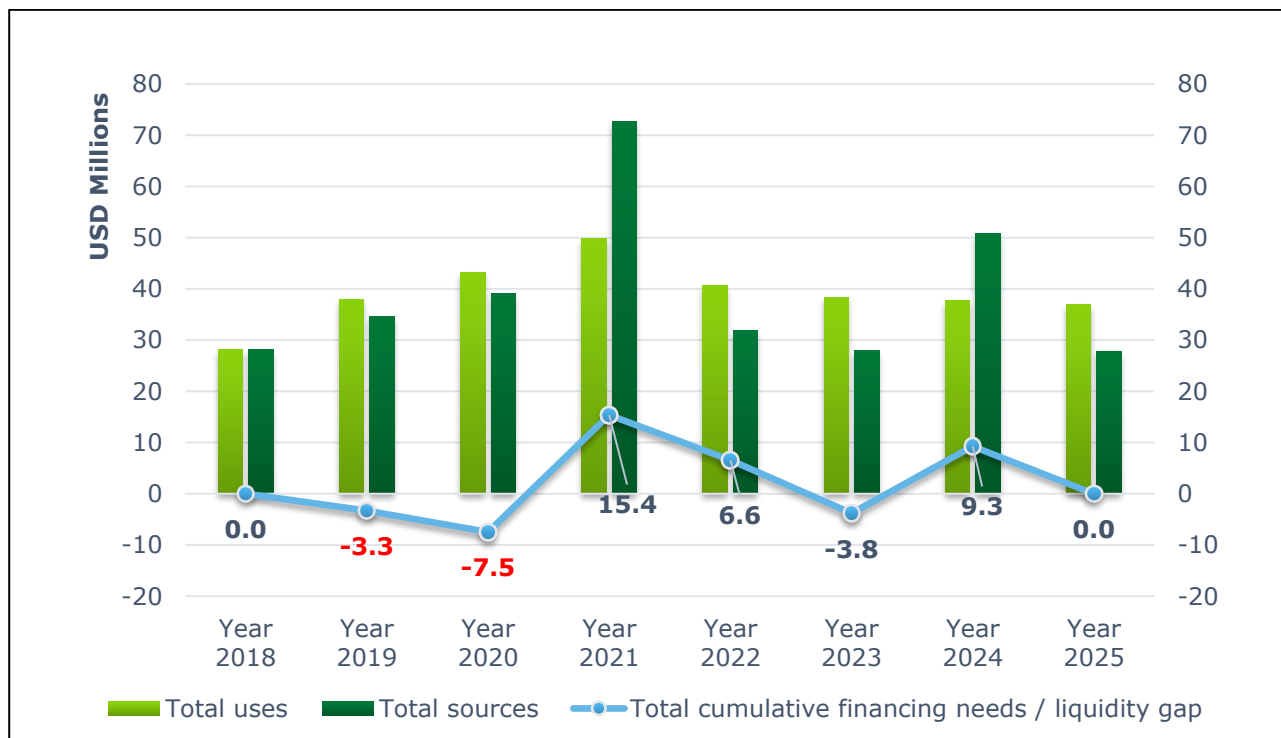
[60] The program implementation period is assumed 2018-2025 and follows the governmental planning cycles (2016-2020 and 2021-2025). The assumed ERPA period is assumed only for six years (2019-2024).

The need for an advance payment from the Carbon Fund (USD 7.5 million up to year 3)

Government of Vietnam is committed to the implementation of the program and will start with the ER-P implementation in 2018 while the ERPA is expected to be negotiated for the period 2019 - 2024. The ER-P program is fully integrated into the governmental 5-year planning and budgeting cycles (2016-2018 and 2021-2025).

The ER-P included interventions are new and additional to the existing governmental plans. These new interventions will specifically address the drivers of deforestation and forest degradation. Government of Vietnam will make early investments into the strengthening of policies and controlling conversion of forest. These interventions are crucial for achieving results and to unfold the impact on the entire ER-P accounting area. A portion of **USD 7.5 million** financing gap up to year 3 is proposed to be met with advance payment from the Carbon Fund. The advance payment is needed at the early years of the ER program implementation and will be invested into operationalization of the adaptive collaborative management approach (ACMA) in close partnership with the forest management entities.

These interventions are new, additional and have not been fully integrated into the government 5-year planning and budgeting process during 2016-2020. Thus, these interventions will only be considered in the government budget process during next 5-year planning period of 2021-2025. Therefore, advance payment from the Carbon Fund will be crucial to fill the funding gap between 2018-2020 and provide the necessary co-financing source to implement these new interventions.

Furthermore, advance payment is also needed to support institutional arrangements, strengthen capacity, building trust with communities and other stakeholders, and is also seen as a measure of partnership to achieve the desired program performance.

Table 6.3: Financing sources by years (Sources of funds)

Year	Unit	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022	Year 2023	Year 2024	Year 2025	Total (8 years)
Total uses of funds (program costs)	USD	**28,147,401**	**37,997,132**	**43,219,632**	**49,861,117**	**40,690,227**	**38,301,827**	**37,636,427**	**36,983,677**	**312,837,439**
Expected sources of funds										
1. National										
National governmental financing	USD	7,020,539	7,446,319	7,771,514	6,659,416	5,851,937	5,347,432	5,362,072	5,129,072	**50,588,303**
Provincial governmental financing	USD	797,264	797,884	797,419	822,002	741,021	724,438	724,438	724,438	**6,128,905**
Policy for Payment for forest environmental services	USD	1,628,599	1,630,159	1,628,989	1,690,843	1,487,084	1,445,361	1,445,361	1,445,361	**12,401,760**
National credit sources (Vietnam Bank for Social policies- Various credit lines)	USD	1,063,192	2,562,008	2,936,783	3,443,677	3,584,493	3,651,469	3,651,469	3,651,469	**24,544,561**
Other legal financing sources (organizations, individuals, forest products revenues)	USD	10,321,903	12,130,279	12,122,884	12,513,831	11,225,971	10,962,260	10,962,260	10,962,260	**91,201,647**
2. International										
Overseas Development Assistance projects	USD	3,248,681	3,299,221	3,296,941	3,417,476	3,020,408	2,939,102	2,939,102	2,939,102	**25,100,032**
WB Loan - Forest Sector Modernization and Coastal Resilience Enhancement Project	USD	4,067,222	6,809,722	10,507,222	15,481,111	5,966,471	2,849,771	2,849,771	2,849,771	**51,381,063**
Carbon Fund REDD+ results based payment[61]	USD				28,678,418			22,812,785		51,491,203
Total sources	**USD**	**28,147,401**	**34,675,592**	**39,061,752**	**72,706,775**	**31,877,386**	**27,919,834**	**50,747,259**	**27,701,474**	**312,837,473**
Net revenue (=Total sources – Total uses)	**USD**	**0**	**-3,321,540**	**-4,157,880**	**22,845,658**	**-8,812,841**	**-10,381,993**	**13,110,833**	**-9,282,203**	**0**
Total cumulative financing needs / liquidity gap	**USD**	**0**	**-3,321,540**	**-7,479,420**	**15,366,238**	**6,553,397**	**-3,828,595**	**9,282,237**	**35**	**0**

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[61] Assumes that results-based payments occur after emission reduction were measured, reported and verified as estimated in the ex-anted emission reductions section 13. Only 52% are assumed to be offered to the Carbon Fund valued at USD 5 /tCO$_2$. It does not include an advance payment and demonstrates the financing gap and the need for an advance payment.

6.2.3 Financial and Economic Analysis

The **financial and economic analysis** or cost and benefit analysis is conducted to assess the project's contribution to the society's welfare and support decision making whether to invest into a project. The analysis gives monetary value to the benefit (positive welfare) and to the costs (negative welfare) effects of the project by applying a discounted cashflow analysis.

The **discounting** is conducted because future cost and revenues are worth less than the cost and revenues today. To consider this, different discount rates are normally used in the financial and economic analysis. In the economic analysis, the social discount rate is used which reflects the social view on how future benefits and costs should be valued against present ones. In the financial analysis, the discount rate is normally higher and reflect the opportunity cost of capital (EC, 2014[62]). For the economic analysis, a social discount rate at 6% is used, while the discount rate of 12% is considered in the financial analysis. This reflects the cost of capital of lending to long-term forestry and agriculture sector projects.

The **financial analysis** takes into values only the costs and revenues that constitute financial flows between actors and for which actual functioning market exists, while the **economic analysis** integrates externalities such as environmental cost and benefit, e.g. biodiversity, carbon, soil productivity or avoided losses due to natural catastrophes).

The net present value (NPV) and internal rate of return (financial - FRR / economic – ERR) are used as performance indicators. The NPV is the result of the discounted cashflow analysis. The FFR and ERR is the discount rate (%) that would make the net present value 0. Or in other words, it is the gain or loss (in %) of an investment

The **sensitivity analysis** highlights the impact of changes in key variables on the financial and economic performance of the program.

Financial analysis

The financial analysis considers the costs from the program accruing to the Government of Vietnam. These were estimated at USD 312.8 million. To account for the financial benefits of the program implementation, forest products from natural and plantation forests and agricultural products were valued at current market prices.

- Forest product value from natural forests and plantations including timber and non-timber forest products, will amount to 246.6 million over 8 years and more than double after 12 years to USD 635.2 million. The estimates are based on area of 1 million of natural forest and more 80,378 ha plantation forests. These are the ER-P target areas as described in section 4.4 and in section 13. This increase in revenue can be explained by significant increase in the natural and plantation forest revenues that starts within 5-10 years after to initial investment.

- Benefit from improved livelihoods and climate-smart agriculture in mountainous and coastal forests is estimated at USD 72.3 million after 8 years and USD 151 million after 12 years.

Based on these estimates the **Financial Rate of Return (FRR) for the ER-Program is positive after 8 years (1.4%) and results in a negative NPV of USD -24.8 million**. The FRR and NPV improve after 10 and 12 years to 16% (NPV: USD 15.2 million) and 23.8% (NPV: USD 68.9 million) and makes the program financially profitable. This analysis indicates that the financial returns from the program investment are inadequate to justify the commitment of medium-term investment in the program. In the long-term the program investment justifies the investment.

Economic analysis

The economic analysis assumes additional economic benefits to the national economy and integrates additional imputed benefits in the analysis. The costs remain the same as in the financial analysis. The

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[62] http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf

additional economic benefits of the program are expected from reduced sand storm erosion by coastal forests and reduced GHG emissions and enhanced removals by sinks imputed in the economic analysis.

- The economic value of benefits from reduced sandstorm erosion through coastal sand forest protection will accumulate to USD 7.8 million after 8 years; and double to USD 15 million after 12 years. This assumes the per ha benefit of USD 32.8 /ha for 7 years after coastal forests are established or restored.

- The social value of carbon is assessed using the World Bank Group guidance on "Social Value of Carbon in Project Appraisal" (2014) which recommends to use a shadow price of social value of carbon at USD 30 in the year 2020. Based on this value and the estimated ex-ante GHG estimates (see section 13) the additional economic benefit will amount at USD 919.5 million and accounting for 74% of the total economic benefits attributable to the program.

- The economic benefits are likely to be significantly higher, as the ER-P interventions under component 1 (enabling condition for emission reduction) can be scaled up to impact beyond the 1.05 Mha of natural forests and climate-smart agriculture interventions can impact more than 60,300 ha. These potential economic benefits have not been taken into account in the economic analysis but can significantly strengthen the justification for investment in the program.

- Furthermore, several environmental benefits are not quantified in the economic analysis. The non-carbon benefits chapter elaborates the environmental benefits in a qualitative manner.

The economic analysis results in a NPV of USD 678 million and ERR of 585.3% after 8 years. It demonstrates the significant economic benefits the national economy and justifies investment in the program.

Also, the economic analysis demonstrates that the benefits of reduced emissions and enhanced removals by sinks significantly outweigh other program benefits. The analysis highlights that the results based payments of USD 5 per tonne of CO_2e represent only a fraction of the social value of carbon of USD 30 per tonne CO_2e. This serve as powerful signal to direct national investment to reducing emissions from deforestation and forest degradation and increasing removals by sinks from enhancement of carbon stocks.

6.2.4 Sensitivity analysis

The sensitivity analysis assesses the sensitivity of different variables on the overall program performance. In the sensitivity analysis below the FRR, the ERR and the respective NPVs are presented under different cost and revenues sensitivity scenarios. Considering the future uncertainties around prices and costs of the program, sensitivity analysis considers scenarios with 10% cost and revenues increase and decrease and their implication for the overall financial and economic performance of the program.

In a scenario with 10% cost increase, the FRR reduces by about 7% and the NPV reduces by about USD 20 million. The implication on the ERR is significantly larger. The 10% cost increase reduces the ERR by almost 100% and the NPV by USD 25 million.

In a scenario with 10% decrease in revenue, the FRR goes down to -6.4% (NPV: USD -41.5 million) while the ERR will go down by more than 100% to 476.5% and a NPV reduction by about USD 90 million.

Table 6.4: Sensitivity analysis for ER-Program

Cases	Financial analysis		Economic analysis	
	NPV (USD) - 8 years	FRR - 8 years	NPV (USD) -12 years	ERR - 8 years
Base case	**-24,787,417**	**1.42%**	**678,020,495**	**585.3%**
Project cost (10% higher)	-44,020,290	-5.7%	653,840,901	485.9%
Project cost (10% lower)	-5,554,544	9.4%	702,200,090	722.4%
Revenues (10% higher)	-8,033,286	8.7%	770,002,139	707.9%
Revenues (10% lower)	-41,541,548	-6.4%	586,038,851	476.5%

The change of the discount rate for the financial analysis changes the net present values as presented in the table below. In all cases the NPV is negative in the financial analysis.

Table 6.5: Sensitivity analysis discount rates to estimate NPV of financial and economic analysis

Cases	Financial analysis		Economic analysis	
	Discount rate	NPV (USD) - 8 years	Discount rate	NPV (USD) - 8 years
Base case	**12%**	**-24,787,417**	**6%**	**678,020,495**
Increase by 2%	14%	-26,960,010	8%	614,517,078
Decrease by 2%	10%	-22,028,671	4%	750,473,689

6.2.5   Summary of financial and economic analysis

In summary, the ER-P will cost USD 312.8 million over the timeframe 2018-2025 and will generate economic benefits worth USD 1.24 billion. By discounting the cost and revenues with 6% social discount rate the program has a NPV of USD 678 million. This demonstrate that the investment into the ER-P program is highly justifiable from an economic perspective. Even if costs increase and revenues decrease the investments are justifiable. From a financial point of view the investment are only justified from a long-term view perspective of more than 10 years. In this time-frame the FRR is 16% (NPV: USD 15.2 million), while the 8 years performance at a FRR of 1.4% and a NPV of USD -24.8 million.

The financing strategy demonstrate the high commitment of the Government of Vietnam to make investment into the program and reduce its GHG emissions from deforestation and forest degradation and the GHG removals by sinks from the carbon stock enhancement. About 60% (USD 184.5 million) of the total program costs will come from domestic sources while 40% (USD 128.4 million) will be financed by existing ODA projects and the potential results - based payment from the Carbon Fund.

Vietnam would like to receive USD 51.5 million of results based payment to support the implementation of the program. The cash flow analysis demonstrates a financing gap of USD 9.9 million until 2020. For this financing gap an advance payment is requested to make the needed new and additional investments into enabling environment to reduce emissions and increase removals by sinks and to operationalize the adaptive collaborative management of natural forests. These new interventions were not considered in Vietnam's 5-year planning and budget cycle of 2016-2020. Therefore, Vietnam will request an advance payment.

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 7.1.

Table 7.1: Justification of sources and sinks included in the ER program

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. The annual average forest loss in the program area was 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.
Removal 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.
Removal 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 NCC is presented the tables below:

Table 7.2: Carbon pools and gases included in the construction of the FREL/REL

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)[63] 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.
Soils	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 change is zero for mineral soils. In Vietnam, most of the NCC 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.

Table 7.3: Gases included in the construction of FREL/REL

Greenhouse gases	Selected?	Justification / Explanation
CO_2	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.
Non-CO_2	No	Non-CO_2 gases (such as CH_4, CO, N_2O) are emitted only through incidents of biomass burning. The 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 NCC, 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.

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

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 and monitoring and assessment program (NFIMAP) from 1990 and it is implemented through a 5-year cycle. To date, data from the national forest inventories are only available for 1990 – 2010. Vietnam is now implementing 2015 national forest inventory and statistics[64].

 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 1995), 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 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 from 2010 is defined as the base map for forest type boundaries that are present across years. The 2005 forest type 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 (see Annex 4, Activity Data Report, for examples). 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 reanalyzing 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

8.2.1 Forest Definition

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)[65]. This definition is in line with the definition of forests used for the national GHG inventory[66]. 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

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[64] As of October 2017, MARD has completed the appraisal and approval. The data and information will be transferred to FOMIS for publication.
[65] Issued by Ministry of Agriculture and Rural Development in 2009.
[66] MONRE, 2014. First Biennial Updated Report (BUR) for 2010.

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.

8.2.2 Forest stratification

The government forest classification Circular 34 also includes several criteria for classifying forest based on growing stock, biological characters etc. To reduce the complexity of such a system, and for the purpose of improving the estimation of forest carbon stock and emissions and removals; the harmonization of forest and land uses stratification was proposed following Karsten et al, 2010[67]; the 2012 JICA (2012)[68] study also used this stratification, which stratifies17 land uses, of which 12 land uses correspond to forests. However, in the ER-P, stratification is further simplified by merging rehabilitated evergreen broadleaf forest and rocky forests into poor forest; bamboo and mangrove forests are combined into other forest; and all non-forest lands (bare land, water body, residential area and other) are combined to represent the carbon stock of these lands as zero. The reason for the simplification is that sub-stratification of evergreen broadleaf forest based on growing stock needs to be consistent and growing stock of rehabilitated evergreen broadleaf forest and poor evergreen broadleaf forest is quite similar (Dien, 2015[69]). In addition, the number of primary sample units (PSUs) for such forest types are limited and if they are separated, the precision of the carbon stock estimation is declines. Such simplified forest stratification will help reduce uncertainty in the activity data (AD) and emission factors (EFs). The forest stratification used for the construction of the ER-P reference level includes the following five types of forestland and non-forest land as shown in Table 8.1.

Table 8.1: Stratification of land use types for the NCC

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

8.3.1 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

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[67] Karsten Raae et al., 2010. Technical Assistance in the Development of the National REDD Program of Vietnam Component of Collecting Information and Analysing Trends of Forest Resources and Forest Carbon Stock for Establishment of the Interim Baseline Reference Scenarios. Danish Forestry Extension and Nordeco. The main activities of this project were the digitization of the hard copy maps of the NFIS for the period of 1998-2000 and standardizing digital output map and the mapping of NFIMAP cycles 3 and 4; including: classification system, coordination, and structure of attributes. However, there were some limitations such as the satellite images of 2000, 2005, and 2010, which were less used to supplement and update the maps. The content that needed to be updated included: polygon boundaries, names of forest type and logical forest change over time.

[68] JICA, 2012. Potential forest and land related to "Climate change and forest" in the Socialist Republic of Vietnam, Hanoi. The study was aimed at enhancement of the quality of the maps produced by the Nordeco project, including: Landsat images covering the period 2000, 2005 and 2010 were used to enhance the quality of the maps by applying visual interpretation methods, including: polygon boundaries, names of forest type and misclassification of forest changes over time. The limitation was that the results were subjective and depended on the knowledge and experiences of the interpreter, hence the quality of the enhanced map is uneven.

[69] Dien, V.T, 2015, Carbon stock assessment and development of forest reference level for REDD+ in Vietnam. Ministry of Agriculture and Rural Development, Hanoi, Vietnam

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 (see details in Annex 4 – Activity Data Report).

Emission factors (forest carbon stock) is estimated by applying allometric equations and measurement data of National Forest Inventory, Monitoring and Assessment Program (NFIMAP). NFIMAP data exist for 2005 (Cycle 3) and 2010 (Cycle 4); there are at present no NFIMAP data available for 2015, so EF 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 project an estimate for 2015; and (3) simply using the 2010 estimates, which are considered to be the most reliable, as preliminary estimates of EF for 2015. It was decided that the third option, using 2010 EFs as proxies for 2015, is the simplest and most conservative means for estimating EFs for 2015. For most forest types the difference between 2005 and 2010 is very small. The proposed MMR system assumes the continuation of the NFIMAP program in the future, and will eventually result in updated EFs. If those figures are substantially different from the figures assumed in the RL, then Vietnam can consider whether the RL should be recalculated using updated data.

See more details of the methods used in the construction of RLs in Annex 6 – Reference Level Report for the NCC Region of Vietnam. (data related to the AD, EF and RL is available on the website of the Management Board of Forest Projects and Vietnam REDD Office).

Figure 8.1: Approach of reference level construction
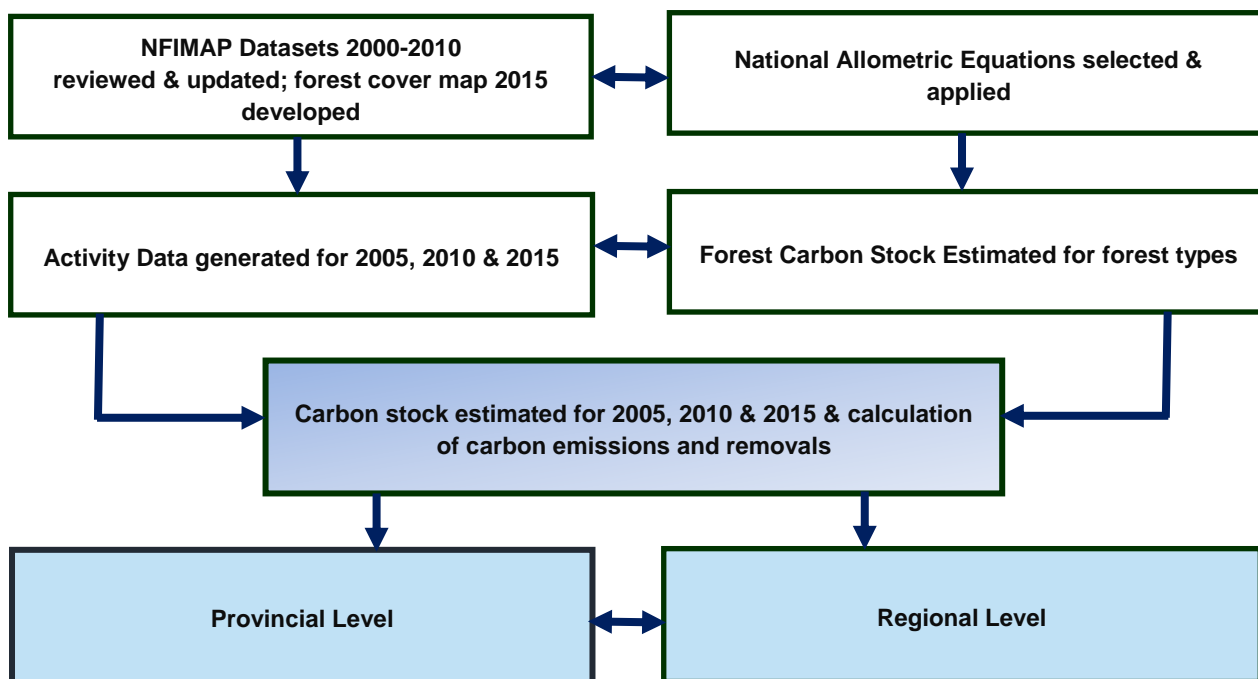
Activity Data

The AD and land use change matrices are generated from the updated forest cover maps for all classified land uses at provincial and regional level for the two periods of 2005-2010 and 2010 – 2015 at provincial level,

adjusted for bias following the accuracy assessment, and then are aggregated for NCC. The following Tables 8.2 to 8.6 show the development of the AD.

Table 8.2: Activity Data for the construction of the reference level

Description of the parameter	Parameters
Description of the parameter including the time period covered (e.g., forest-cover change between 2005 – 2015 or transitions between forest categories X and Y between 2005-2015):	Spatial analysis of 4 parameters: deforestation, forest degradation, reforestation and forest enhancement is conducted for separate periods 2005 – 2010 and 2010 – 2015. The definition of those parameters are as follows: *Deforestation*: The activity of conversion of forests to non-forest land, as identified following the NFIMAP[70] and updates[71]. Where a series of activities including deforestation may have occurred within a single cycle of the National Forest Inventory (NFI). *Forest degradation*: Any activity resulting in a downward shift in terms of carbon stock between forest types, including evergreen broadleaf forest volume-based sub-types of "rich, medium, and poor" (based on the average standing volume per ha) and other forest types. In the case that the deforestation activity occurring as a transitional activity not captured by the NFI, and thus will be reported as degradation. *Reforestation*: Any activity resulting in land use change from non-forest land to forest land. The conversion of forestland into plantations is not considered "reforestation"; *Forest enhancement*: Any activity resulting in an upward shift of carbon stock between forest types, including evergreen broadleaf forest volume-based sub-types of "rich, medium, and poor" (based on the average standing volume per ha) and other forest types;
Explanation for which sources or sinks the parameter is used (e.g. deforestation or forest degradation):	Emissions associated with deforestation and forest degradation are considered sources. Removals generated by increment of forest biomass through forest enhancement and reforestation are considered sinks.
Data unit (e.g. ha/yr):	ha/period and ha/year
Value for the parameter:	

Parameters	2005-2010	2010-2015	Average (ha/yr)
Deforestation	114,892	203,325	31,822
Forest degradation	154,972	125,067	28,004
Reforestation	389,808	368,418	75,823
Forest restoration	87,166	76,285	16,345

Source of data (e.g., official statistics) or description of the method for developing the data, including (pre-)processing methods for data derived from remote sensing images (including the type of sensors and the details of the images used):	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 NCC and six provinces of NCC 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.

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[70] Including both plot measurements and remotely sensed information.
[71] Updates were made to the original results of the NFIMAP Cycles 1-4 by the same implementing body the Forest Inventory and Planning Institute (FIPI) under MARD with technical and financial assistance from (in sequential order) Finland, Japan, MARD and UN-REDD throughout 2011-2015.

	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 NCC.
	See details in the AD report (*Annex 4: Activity Data Report*).
Spatial level (local, regional, national or international):	Provincial and regional (NCC)
Discussion of key uncertainties for 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.
Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:	A total of 541 points are sampled and checked for analysis for 6 mentioned land use categories for 2005 – 2010 and 541 points for 2010-2015. Olofsson's Method[72] is used to estimate accuracy. The accuracy assessment results show that at 95 % confidence level, the overall accuracy of land use change detection is 95.4% for the changes in 2005 – 2010 and 94.5% for changes in 2010-2015. For details see *Annex 4 – Activity Data Report*.

Table 8.3: Development of the Emission Factors

Description of the parameter	Parameter
Description of the parameter including the forest class if applicable:	Above Ground Biomass (AGB) is estimated using national allometric equations and plot measurement data (DBH) of NFIMAP cycle 3 (for 2005) and 4 (for 2010 and 2015). 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 Cycle 3 and 4), The biomass equations are available for evergreen broadleaved forests (including plantations) and bamboo forest. Belowground Biomass is estimated using IPCC default value of 0.24 for forest classes with AGB > 125 t/ha, and 0.20 for forest classes with AGB < 125 t/ha[73]. The total forest carbon is estimated using carbon faction (CF = 0.47). Carbon stock of post –deforestation non-forest land is assumed to be zero. The carbon stock of non-forestland (such as rocky mountain, resident and water areas and other land) is assumed to be zero (IPCC 2006 default values). (*See details in Annex 5 – Emission Factors Report*)
Data unit (e.g. t CO₂/ha):	tCO_2/ha

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[72] Good practices for estimating area and assessing accuracy of land change.
[73] Table 4.4. of IPCC 2006. AGB of forests values in Vietnam are less than 125 tones ha-1except for Evergreen Rich forest, which has AGB > 125 tones per ha

Value for the parameter:	Estimated carbon stock for land uses and forests for 2005 & 2010 are as follows:

Land use and forest	2005 Carbon stock (tCO₂e/ha)	2005 SE, 95% cl (%)	2010 Carbon stock (tCO₂e/ha)	2010 SE, 95% cl (%)
1. EBF-R	627.8	15.43	544.5	10.39
2. EBF-M	269.2	2.04	261.1	2.85
3. EBF-P	116.2	4.69	107.2	6.24
4. OFO	47.9	10.57	54.1	17.95
5. PLA	76.9	36.01	86.4	25.89
6. NOF	0	NA	0	NA

Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter:	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) and cycle 4 (2006-2010 for 2010 and 2015 EF). 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 23,680 SSUs of 592 Primary Sample Units (PSUs - 100 ha each) for cycle 3 and 16,080 SSUs of 402 PSUs for cycle 4 in the NCC region and this dataset includes information in tree species name, DBH, tree height. Those information is used to apply in national allometric equations[74] 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 stocks of forests are calculated. Only the other forests which include bamboo and mangrove forests, the carbon stock of mangroves is estimated based on scientific literature review report (Phuong et al 2016). Based on carbon stocks estimated to forest types and AD on land use changes, the EF is calculated (see details separate section below and in the report on *development of emission factors in Annex 5*)
Spatial level (local, regional, national or international):	Regional
Discussion of key uncertainties for this parameter:	The significant uncertainties for estimating emission and removal factors are associated with uncertainties of forest carbon stock estimation and AD of land use changes. The key uncertainty of forest carbon stock estimation is a propagation uncertainty of parameters used for the estimation. Such uncertainties include models for estimating forest above biomass, plots measurement error, statistical random sampling error and uncertainty of AD as mentioned above. However, of those potential uncertainty sources, the error of statistical random sampling and measurement error are not applicable to uncertainties analysis for the parameters as there is no data and information. See more details in Section 12.2
Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:	A propagation error of forest carbon is assessed based on uncertainties of above forest carbon estimates generated from national equations and plot measurement data, errors of carbon fraction and root to shoot ratio. The propagation errors of forest carbon stocks range from 24 - 30%. For details see *Annex 6 - Reference Level Report.*

8.3.2 Methods for estimation of forest carbon stock

The steps for the development of emission and removal factors are as follows:

1) Estimation of AGB at tree level

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[74] 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).

The estimation of AGB at tree level is based on plot measurement data of NFIMAP cycle III for 2005 and data of NFIMAP cycle IV for 2010 and allometric equations developed for the NCC (UN-REDD 2015). The tree level AGB is estimated for all SSP and the following equations are applied (Table 8.4).

Table 8.4: Allometric equations used for tree level AGB estimation

Forest types	Equations	Indicators
1. Evergreen broadleaved forests (including plantations) (Huy, B 2014[75])	$AGB = 0.121155 \times DBH^{2.415395}$	n = 331; MAE = 33.6%; adjusted R^2 = 0.854
2. Bamboo forests (Phuong et al 2014[76])		
2.1. Bambusa balcooa	$AGB = 0.0612 \times DBH^{2.0848} \times H^{0.2778}$	n = 120; MAE = n.a.; adjusted R^2 = 0.875
2.2. Dendrocalamus membranaceus	$AGB = 0.1012 \times DBH^{1.9667} \times H^{0.2778}$	n = 100; MAE = 16.0%; adjusted R^2 = 0.875
2.3. B. chirostachyoides	$AGB = 0.3558 \times DBH^{1.2154} \times H^{0.2778}$	n = 120; MAE = n.a.%; adjusted R^2 = 0.875
2.4. Indosasa angustata	$AGB = 0.2829 \times DBH^{1.4306} \times H^{0.2778}$	n = 70; MAE = n.a.%; R^2 = 0.875

Where:
- AGB is above ground biomass expressed in kg;
- DBH is diameter at breast height expressed in cm;
- H is tree height expressed in m;

2) Calculation of carbon stock per for each SSU

Step 1: Estimating AGB of SSU.

Total AGB of trees in each SSU is estimated as the sum of all individual tree AGBs in this SSU.

$$AGB\_T_i = \sum_{j=1}^{n_i} AGB\_T_{ij}$$

Where AGB_T_i is the total AGB of trees in SSU *i*, n_i is the number of trees in SSP *i*, and AGB_T_{ij} is the AGB of the *j*th tree in SSP *i*.

Total AGB of bamboos in each SSU is estimated as the sum of all individual bamboo AGBs in this SSU.

$$AGB\_B_i = \sum_{j=1}^{m_i} AGB\_B_{ij}$$

Where AGB_B_i is the total AGB of bamboos in SSU *i*, m_i is the number of bamboos in SSP *i*, and AGB_B_{ij} is the AGB of the *j*th in SSU *i*.

Since the area of tree measurement in each SSU is 500 m² and the area of bamboo measurement in each SSU is 100 m², the total AGB of both trees and bamboos in SSU *i*, AGB_i, is:

$$AGB_i = AGB\_T_i + 5 \times AGB\_B_i$$

[75] Huy, B., 2014. Part B1: Equations for biomass of aboveground trees, branches and leaves in Evergreen Broadleaved forests, and for aboveground biomass of six tree families in Evergreen and Deciduous forests. In: (eds) Sola, G. et al., (2014): Allometric equations at national scale for estimating tree and forest biomass in Viet Nam, UN-REDD Programme, Ha Noi, Viet Nam

[76] Phuong, V.T., Xuan, N.V., Linh, N.T.M. and Trung. P.D., 2014. Part B4 - Allometric equations for Bamboo forests. In: Allometric equations at national scale for estimating tree and forest biomass in Viet Nam. UN-REDD Programme, Ha Noi, Viet Nam.

The AGB for each SSU is in the unit of kg per 500 m^2. Apply the following formula to convert to the unit of ton per ha:

$$tAGB/ha_i = AGB_i \times \frac{10000}{500 \times 1000} = AGB_i/50$$

Step 2: Estimating below-ground biomass (BGB) of SSU.

BGB is be estimated for each SSU as follows:

$$tBGB/ha_i = tAGB/ha_i \times R$$

Where *tBGB/ha$_i$* is the BGB of SSU *i* in the unit of ton per ha; *R* is the root-to-shoot ratio. As Vietnam has no specific data on R and the development of such factor is very costly, therefore, the default values of R of 0.20 for forest type with aboveground biomass less than 125 tdm/ha and R of 0.24 for forests with aboveground biomass larger than 125 tdm/ha (IPCC 2006) are used for calculation of BGB.

Step 3: Estimate total living biomass (including AGB and BGB) for each SSU.

Total living biomass in SSU *i* is the sum of AGB and BGB of this SSU:

$$tB/ha_i = tAGB/ha_i + tBGB/ha_i$$

Step 4: Estimating carbon stock of each SSU.

Carbon stock of SSP *i* in the unit of ton carbon per ha, *tC/ha$_i$*, is calculated as follows:

$$tC/ha_i = tB/ha_i \times CF$$

Where *tB/ha$_i$* is total living biomass of SSU *i* in ton per ha; *CF* is the carbon fraction coefficient. This work applied the IPCC default value for CF, which is 0.47 (IPCC, 2006).

3) Calculation of carbon density for each forest type

The carbon density (i.e., average carbon stock per ha) of forest type *i* is the mean of the carbon stock per ha over all SSPs in this forest type.

$$\overline{tC/ha}_i = \frac{1}{np_i} \sum_{j=1}^{np_i} tC/ha_{ij}$$

Where *np$_i$* is the number of SSP in forest type *i*; *tC/ha$_{ij}$* is the carbon stock per ha of SSU *j* in forest type *i*.

4) Calculation of errors for carbon densities

Step 1: Calculation of coefficient of variation.

The coefficient of variation of carbon density in forest type *i* is estimated by formula below:

$$CV\%_i = \frac{SE_i \times \sqrt{np_i}}{tC/ha_i} \times 100$$

Where *SE$_i$* is the standard error of average carbon stocks per hectare of SSUs in forest type *i*. Since the sample plots in NFIMAP is a grid of clusters, the standard error is estimated by the equation below (Tomppo 2010[77]):

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[77] Tomppo, E., Schadauer, K., McRoberts, R.E., Gschwantner, Th., Gabler, K. & Ståhl, G. 2010. Introduction. In: Tomppo, E., Gschwantner, Th., Lawrence, M. & McRoberts, R.E. (eds.). National Forest Inventories - Pathways for common reporting. Springer, p. 1-18. ISBN 978-90-481-3232-4.

$$SE_i = \frac{1}{\sum_{j=1}^{l_i} np_{ij}} \sqrt{\frac{l_i}{l_i - 1} \sum_{j=1}^{l_i} \left(Y_{ij} - \overline{tC/ha_i} . np_{ij}\right)^2}$$

Where l_i is the number of PSU with at least one SSU in forest type i; Y_{ij} is the total value of all SSUs in forest type i in PSU j; np_{ij} is the number of SSUs in forest type i in PSU j.

Step 2: Calculation of errors.

Error in percentage of carbon density for forest type i, $E\%_i$, is calculated by the following formula:

$$E\%_i = \frac{t_{\alpha,l_i-1} \times CV\%_i}{\sqrt{np_i}}$$

Where t_{α,l_i-1} is the value of the t distribution of l_i-1 degrees of freedom for the 1-α confidence interval (CI). In this work, errors are estimated for 95% CI (α = 0.05).

5) Estimation of uncertainty of forest carbon:

Uncertainty of forest carbon is assessed through the errors of forest carbon estimation using propagation error. Propagation error is derived from errors of sampling, estimation of AGB (error of biomass equations), BGB (errors of conversion using root to shoot ratio) and carbon (error of carbon fraction). The formula for calculation of propagation error of forest carbon stock is as follows:

$$Ep = (E_s^2 + E_m^2 + E_r^2 + E_c^2)^{0.5}$$

Where:
   E_s is errors of sampling (%) (this is calculated).
   E_m is error of biomass equations (%) (this is calculated).
   E_r is error of root to shoot ratio used for conversion of BGB from AGB (default value of GOFC-GOLD sourcebook 2015, Table 2.3.3, page 72).
   E_c is error of carbon fraction (%) (the default value of the IPCC, Volume 4,).

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 EF and the steps implemented are as follows:

1) Develop emissions and removal matrices of provinces

Using the AD (land use time series change table) of the NCC (for 2005 – 2010 and 2010-2015) and EFs, emissions and removal estimates are prepared for NCC for 2005 – 2010 and 2010-2015. Those estimates indicate emissions associated with deforestation and forest degradation and removals resulted from reforestation and forest enhancement[78]. 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% 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:

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[78] The detailed calculations are available in a separate spread sheet.

- 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 NCC based on emissions and removal matrices for 2005 - 2010 and 2010-2015 and are then aggregated to the provincial scale for the period of 2005 – 2015[79].

3) Estimate emissions and removals for NCC

After the emissions and removals of provinces are estimated, they are aggregated for NCC 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 NCC. The final emissions and removals for 2005 – 2015 for NCC are presented below (see Table 8.5)[80].

Table 8.5: Estimation of emissions and removal for the NCC in 2005 – 2015

Emissions/Removals	2005-2010 (tCO$_2$e)	2010-2015 (tCO$_2$e)	2005-2015 (tCO$_2$e)	Average 2005-2015 (tCO$_2$e)
1. Emissions from deforestation	9,825,826	14,409,627	24,235,453	2,423,545
2. Emissions from forest degradation	64,041,968	20,717,264	84,759,232	8,475,923
3. Removal from reforestation	-8,473,390	-6,661,003	-15,134,394	-1,513,439
4. Removals from restoration	-12,949,438	-34,672,979	-47,622,417	-4,762,242
5. Total emissions	**73,867,786**	**35,126,737**	**108,994,685**	**10,994,523**
6. Total removals	**-21,422,828**	**-41,333,982**	**-62,756,810**	**-6,275,681**
7. Net emissions	**52,444,958**	**-6,207,245**	**46,237,713**	**4,623,771**

8.4 Estimated Reference Level

Historical emissions associated with deforestation and forest degradation and removals generated by reforestation and forest enhancement are estimated for reference period for the ER Program. Analysis of historical emissions going back to 1990 show no consistent upward or downward trend. Therefore, no upward or downward adjustment of reference level is proposed (see details in Annex 6, Reference Level Report). Table 8.6 below summarizes the estimated reference level (see details at Annex 6 - Reference Level Report)[81].

Note that the RL likely includes an underestimate of emissions from stable forest degradation due to the current lack of inventory data for 2015. Please see section discussion of Annex 6 for a complete discussion of this issue, including other alternatives considered and proposed approach for addressing the underestimate in the future through a stepwise continuous improvement process. We believe that the underestimate is conservative and puts the burden on Vietnam to show extra future emission reductions to make up the difference

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[79] As footnote above. The detailed calculations are available in a separate spread sheet.

[80] As footnote above. The detailed calculations are available in a separate spread sheet

[81] The difference of emissions and removals is resulted from using different EF for 2005-2010 and 2010-2015 and adjusting removals. As for period 2005-2010, JICA study (2012) estimated total emissions of 8.3 MtCO$_2$ and the national REDD+ RL counted emissions of 6.9 MtCO$_2$. See detailed discussion in the Annex 13 on RL construction.

Table 8.6: The estimated ER Program Reference level

ERPA term 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 (reforestation) over the Reference Period (tCO$_{2-e}$/yr)	If applicable, average annual historical removals by sinks (restoration) over the Reference Period (tCO$_{2-e}$/yr)	Reference level (tCO$_{2-e}$ /yr)	
					Emissions	**Removals**
2018	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2019	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2020	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2021	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2022	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2023	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2024	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
2025	2,560,089	8,339,363	-1,513,439	-4,762,242	10,899,452	-6,275,681
Total	**20,480,712**	**66,714,904**	**-12,107,515**	**-38,097,933**	**87,195,618**	**-50,205,448**

8.5 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 NCC 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, 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 NCC is based on a sum of emissions and removals of six provinces in the NCC region. The Reference Level for the NCC 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 NCC region 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 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 (BUR) of Vietnam for 2010. To date, Vietnam has prepared national a GHG inventory for 1994, 2000 and 2010. The estimation of emissions and removals in Reference Level for NCC 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 second 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, we 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, we will update the Emission Factors through the NFIMAP, and will use those data for future national GHG and ER reporting. Finally, we 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 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

9.1.1 Approach for estimating emissions and/or removals

The approach for estimating emissions and removals follows the IPCC guidelines, multiplying the activity data (AD) with the emission factors (EF) (Figure 9.1)[82].

Figure 9.1: Approach for estimation of emissions/ removals
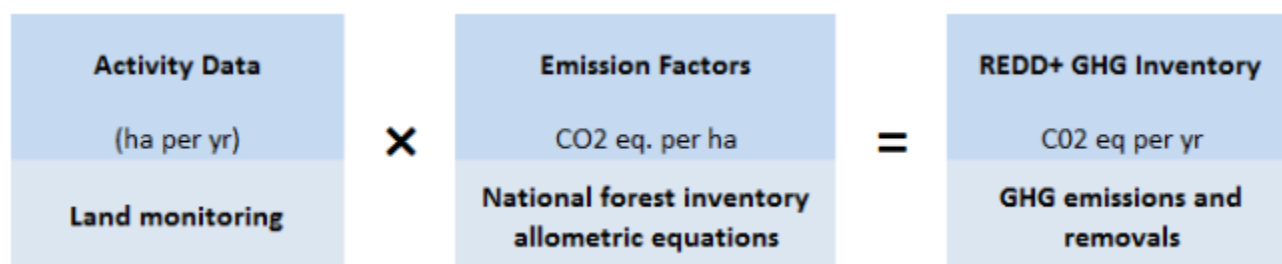
9.1.2 Monitoring activity data for forests using remote sensing

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-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-5, with the 2015 forest cover map as the original basis, to produce the FCM year X. The following Figure 9.2 summarises the processing steps applying Approach 3 for generating the FCM year X based on medium-resolution satellite images and the FCM year X-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 bareland stand indicates a potential change from bareland to forest etc. Currently Landsat 8 and Sentinel 2 images are considered to be the most suitable[83].

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.

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[82] The forest definitions, stratifications, REDD+ activities, carbon pools and gases to be monitored, change matrix are all standardised and follow those already described in Section 8.
[83] 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.

Figure 9.2: Approach for generation of the FCM year X from base FCM year X-5

Base FCM year X-5

Step 1: Resolution enhancement
Resolution merge function in image processing software is used for merging panchromatic and multipicture bands.

Landsat 8/ Setinel images

Step 2: Geometric correction
Received images are in UTM WGS84 projection and will need to be converted to local VN2000 datum using 'Project Transformation' function in ArcGIS. Geometric correction is done using 'Geometric Calibration' function in ERDAS software.

Step 3. Automatically draw stand boundaries
This step aims to separate the image into small areas which are equal or smaller than existing stands. The Digital Number (DN) values in each area are highly homogenous. This step is carried out using Multiresolution segmentation in eCognition software

Step 4. Detecting potentially changed stands
The stand areas in step 3 have forest types from base FCM and image DN values. Image features such as NDVI, total reflectance index are used to determine potential changed stands.

Step 5. Visually check the potential changed stands
To reduce mistakes in step 4, all potential changed stands are checked on the screen

Step 6. Delineate changes using field surveys or high resolution images
All potential changed stands are visited in the field by forest rangers and/or local forest staff at the commune level and the real changed areas are delineated using GPS or Tablet with a GPS function on the field. In cases of using high-resolution satellite images, the changes are delineated using a GIS software.

Step 7. Produce the FCM year X
All the changed areas are then integrated in the base FCM year X-5 to produce the FCM year X.

Generating a forest and land cover change map and matrix

By using the above procedure, FCMs will be generated for each province in the NCC region from 2020 with a 5-year interval 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 will have its boundaries registered to the previous map to maintain consistency in the time series over time. The provincial forest and land use change map will be generated by intersecting the provincial FCMs in year X with the corresponding provincial FCMs in year X-5 for all the NCC provinces. They will then be combined to generate a regional NCC forest and land cover change map. Finally, the resulting area of Activity Data will be adjusted based on statistical analysis of the accuracy assessment described below (e.g. the methods of Olofsson 2014).

The NCC forest and land cover change map will be used to update the time series database of change sequences for individual parcels. The time series for individual parcels will be tracked over time to improve the classification of the Activity Data (deforestation, degradation, reforestation, etc.) and to identify areas where

forest growth. Adjustment Factors are applied to adjust (reduce) the rates of Removals for land changing from a lower biomass to higher biomass forest class. The time series will also enable tracking of reversals. In particular, land parcels which transition from forest to non-forest, then later from non-forest to plantation, will not be counted for FCPF purposes as Reforestation/Afforestation; they will be tracked as a separate forest-to-plantation class, and the conversion from non-forest to plantation on these land parcels will not counted as Carbon Removals.

Accuracy assessment of AD

As described above, AD is generated from overlaying two forest cover maps at two different dates. Such maps are subject to interpretation errors and the role of the accuracy assessment is to characterize the frequency of errors for each land cover change class in each map and to use this information to obtain unbiased estimates of the area for each change class (Olofsson et al 2014).

Different components of the monitoring system affect the quality of the area estimates, including:
- Quality and suitability of satellite data (i.e., in terms of spatial, spectral, and temporal resolution);
- Radiometric/geometric preprocessing (correct geo-location);
- Cartographic standards (i.e., land category definitions and minimum mapping unit);
- Interpretation procedure (algorithm or visual interpretation);
- Post-processing of the map products (i.e., dealing with no data, conversions, integration with different data formats); and
- Availability of reference data (e.g., ground truth data) for evaluation and calibration of the system.

The method for assessing the accuracy of a map and adjusting strata sizes uses independent reference data (of greater quality than the map) to obtain—by the Accounting Area—the overall accuracy, errors of omission (excluding an area from a category to which it does truly belongs), and errors of commission (including an area in a category to which it does not truly belong).

Reference data should be distinguished from the *training data* and must be acquired using a probability sampling design. The method for obtaining reference data is based on interpretation of high resolution satellite images such as SPOT-5,6,7 or equivalent which were taken during the ERPA with the assistance of the Open Foris Collect Earth software.[84] A stratified sampling method will be used to randomly generate the observation points. At a maximum, there will be 36 classes (including 30 land cover change classes and 6 stable classes) in the land cover change map. The number of observation points is estimated to be 50 points per class, or 1,800 points for all 36 classes.

The method described in Olofsson et al. (2013)[85] and Olofsson et al. (2014)[86] will be applied to build a confusion matrix, estimate un-biased areas per each class, derive errors of area estimates as well as calculate the user's accuracies per class, producer's accuracies per class and overall accuracy.

9.1.3   Estimating emission removal factors using forest inventory

Sampling design

After the completion of Cycle IV, 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

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[84] Available at http://www.openforis.org/tools/collect-earth.html.
[85] Olofsson, P.; Foody, G.M.; Stehman, S.V.; Woodcock, C.E. Making better use of accuracy data in land change studies: Estimating accuracy and area and quantifying uncertainty using stratified estimation. Remote Sens. Environ. 2013, 129, 122–131.
[86] Olofsson, P.; Foody, G.M.; Herold, M.; Stehman, S.V.; Woodcock, C.E.; Wulder, M.A. Good practices for estimating area and assessing accuracy of land change. Remote Sens. Environ. 2014, 148, 42–57.

Project period 2016-2020 (under the National Target Programme for Sustainable Forest Development period 2016-2020). Forest Inventory and Planning Institute is preparing necessary steps for implementing the improved sample plot system in the 2016-2020 and subsequent NFIMAP cycles. These results will be available for purposes of updating EFs during the FCPF performance period.

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, for the MMR system in the NCC region 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 NCC region.

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 cluster is established (see Figure 9.3)

Main parameters of the sampling design are:

- The distance between the clusters is 8km x 8km;
- The cluster is in L shape;
- The number of the sample plots in one cluster is five; and
- The distance between the sample plots is 150m.

Figure 9.3: Shape and distance between clusters sample plots
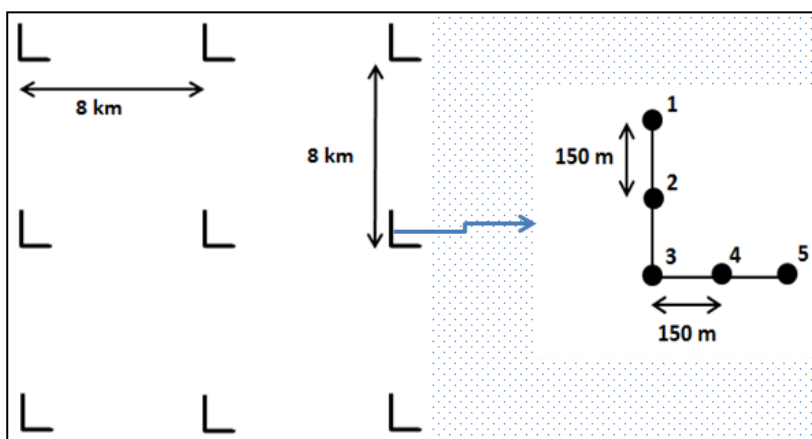
The numbers of clusters and plots per provinces are provided in Table 9.1. The precise locations of the sample plots will be kept confidential, so as to avoid possible manipulation of the results over time.

Table 9.1: The number of clusters and plots by provinces

No	Province	Number of clusters	Number of plots
1	Thanh Hoa	179	895
2	Nghe An	252	1,260
3	Ha Tinh	87	435
4	Quang Binh	125	625
5	Quang Tri	72	360
6	Thua Thien Hue	74	370
Total		**789**	**3,945**

Sample plot design

One sample plot 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 9.4). The distance mentioned here refers to horizontal distance.

Figure 9.4: Sample plot design
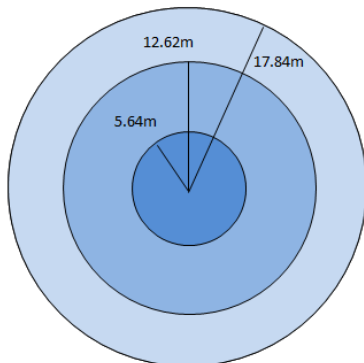
Sub-plot with the area of 100 m^2 and radius of 5.64m (SP3): Measuring trees with DBH ≥ 6 cm; measuring bamboos with DBH ≥ 2 cm

Sub-plot with area of 500m^2 and radius of 12.62m (SP2) to measure:):
  Trees with DBH ≥ 20cm
  Dead, stump-cut trees;
  Shrubs, ground cover vegetation
  Climber with D ≥ 2cm

Sub-plot with area of 1,000m^2 and radius of 17.84m (SP1) to measure:):
  All trees with the diameter at the height of 1.3m (DBH) ≥ 40cm

Quality assurance/Quality control (QA/QC)

A Quality Assurance/Quality Control (QA/QC) protocol will be applied to field inventory. To evaluate the reliability of field data, data quality objectives need to be defined. A full QA/QC protocol, including data quality objectives, for field inventory of the improved sample plot system is proposed to be developed so that the data quality assurance for field inventory of the MMR in the ER-P is consistent with the NFMS.

The teams with QA/QC responsibilities are expected to check the quality of sample plot measurements of the plots conducted by other field teams. These controlling measurements are conducted within 1–2 weeks after the field measurements. The purpose of QA/QC is to ensure that the field teams have conducted measurements as per the standard operating procedures (SOP). Furthermore, results of control measurements can be used for training purposes to clarify field measurement to find out issues unclear to the teams after training.

The results of the control measurements will be reported using a control measurement checklist and the QA/QC team is expected to hand over the checklists to the field manager and feedback. Feedback is organized both to the field team and to the manager in charge of field work. The QA/QC team is expected to review measurements conducted by field teams as part of feedback session. Differences in measurements between QA/QC team and field team are stated, and unclear issues are clarified.

The field measurement reports can be used for evaluating reliability of the field data. Measurements that are found incorrect will be reviewed during subsequent training sessions. To evaluate the reliability of the field data, data quality objectives need to be defined.

9.1.4 Calculation of emissions reduction and/or removals enhancement

The method for estimating EFs from inventory data should be consistent with that in Reference Level setting. This means that the allometric equations as well as the R/S ratio and the Carbon Fraction factor used should be the same with those used in Reference Level setting. Based on AD generation and estimation of EFs, the emissions and removals are estimated. The estimates of emissions and removals are methodologically consistent with methods used in constructing the reference level.

Uncertainty assessment

The same propagation-of-error method used for uncertainty assessment in FREL/FRL setting (see Section 8.4) will be used to assess uncertainty of emissions reduction and/or removals enhancement. The results will potentially be enhanced by stepwise improvements in MMR methods including (1) tracking time series of land change by parcel, to increase accuracy in classifying Activity Data; (2) potential inclusion of other pools

including soil carbon, dead wood and litter, which will increase precision in Emission Factors; and (3) consideration of moving towards a gain-loss approach for estimating change, which will increase overall precision in estimating emissions and removals.

Table 9.2: Data and parameters to be measured

Parameter:	ADij (1 ≤ *i* ≤ 6; 1 ≤ *j* ≤ 6)
Description:	Area of conversion from land class *i* in year x-5 to land class j in year x
Data unit:	Hectare per year
Source of data or measurement/calculation methods and procedures to be applied (e.g. field measurements, remote sensing data, national data, official statistics, IPCC Guidelines, commercial and scientific literature), including the spatial level of the data (local, regional, national, international) and if and how the data or methods will be approved during the Term of the ERPA.	Provincial forest and land cover map year x-5 for the six provinces in the NCC region. Provincial forest and land cover map year x for the six provinces in the NCC region. Overlay provincial forest cover maps year x-5 with provincial forest cover maps x to generate forest and land cover change maps. Combine provincial forest and land use change maps of six NCC provinces to generate the regional forest and land cover change map for the NCC region. Generate the matrix of changed area (i.e., AD) from the regional forest and land cover change map. Conduct accuracy assessment and adjust change area estimates.
Frequency of monitoring/recording:	The FCM set to be updated annually; and to meet requirements of the program, AD can be monitored annually
Monitoring equipment:	Combination of remote sensing images and field drawing using GPS or tablet. Using medium resolution satellite images (e.g., Sentinel and/or Landsat) to detect the potential changes annually. Using field drawing with GPS or tablet to update the provincial forest cover maps annually.
Quality Assurance/Quality Control procedures to be applied:	Standard procedure for generating the forest cover map Accuracy assessments of the forest cover maps year x and year x-5 are based on interpretation of high resolution satellite images (e.g., SPOT-5,6,7) using stratified sampling and applies the method described in Olofsson et al. (2014) to calculate the overall accuracies.
Identification of sources of uncertainty for this parameter:	Quality of satellite images Interpretation error of the forest cover maps Boundary delineation error (due to error of GPS, tablet)
Process for managing and reducing uncertainty associated with this parameter:	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
Any comments:	
Parameter:	EFij/RFij (1 ≤ *i* ≤ 6; 1 ≤ *j* ≤ 6)
Description:	Emission/Removal factors for conversion of land class *i* to land class *j*.
Data unit:	tCO_2e/ha
Source of data or measurement/calculation methods and procedures to be applied (e.g. field measurements, remote sensing data, national data, official statistics, IPCC Guidelines, commercial and scientific literature), including the spatial level of the data (local, regional, national, international) and if and how the data or methods will be approved during the Term of the ERPA.	Plot measurement data of improved NFIMAP will be used together with country-specific allometric equations and IPCC default values for R/S ratio and Carbon fraction factor to estimate average carbon stocks per forest type per agro-ecological region. The EFs/RFs resulting from conversion of land types are calculated as the differences of carbon densities between two land types.
Frequency of monitoring/recording:	Every five years
Monitoring equipment:	GPS, tree diameter measurement equipment, tree height measurement equipment, distance measurement equipment
Quality Assurance/Quality Control procedures to be applied:	The quality assurance/quality control protocol for field inventory developed for the improved NFIMAP will be applied.
Identification of sources of uncertainty for this parameter:	Measurement errors, sampling errors, allometric equation error, errors of IPCC default values (R/S ratio, Carbon fraction factor)
Process for managing and reducing uncertainty associated with this parameter:	Following QA/QC protocol for field inventory. Using equipment with high accuracy.

9.2 Organizational structure for measurement, monitoring and reporting

9.2.1 Organizational structure, responsibilities and competencies

Organizational structure of agencies associated with MMR is provided in Figure 9.5. 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 (see section 14.2 on monitoring of safeguards).

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).

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[87].

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[87] consistent with the Criterion 16 of the FCPF Carbon Fund Methodological Framework.

Figure 9.5: 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 it is 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 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) will act as a potential service provider 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 NCC 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

9.2.2 Methods and standards for generating, recording, storing, aggregating, collating and reporting data on monitored parameters

As part of the MMR System, an information system will be established. This information system will have 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);
- Time series database of land cover changes
- Emission factors;
- Average annual emissions over the Reference Period;
- Adjusted emissions, if applicable; and
- Any spatial data used to adjust emissions, if applicable.

In Vietnam, the project on Development of Management Information System for Forestry Sector – Phase I (FORMIS I) (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: (1) the databases for storing quantitative and qualitative data collected and managed by agencies inside and outside of the FORMIS system; (2) the platform for strengthening capacity for integration of existing and new data and applications, security, data and business functionalities in standardized manners; and (3) 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 to date. The Development of Management Information System for Forestry Sector – Phase II (FORMIS II) project has started in May 2013 and will last until 2018. FORMIS II aims to integrate data on forest resources including the results of the NFIS 2011-2016 into the system developed by FORMIS I. If the proposed ER-P is approved, the Government of Vietnam will give 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.

9.2.3 How the proposed Monitoring, Measurement and Reporting system builds upon existing systems

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 9.1.2, the proposed MMR will rely 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 improved NFIMAP proposed by the NFA Project will be used to generate EFs 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 based on 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)[88]; 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 adheres to the guidelines; and

- The results are accurate, to the extent possible.

9.3 Relation and consistency with the National Forest Monitoring System

9.3.1. Vietnam's National Forest Monitoring System

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, four 5-year cycles (Cycle I: 1991-1995; Cycle II: 1996-2000; Cycle III: 2001-2005; and Cycle IV: 2006-2010) 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 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 of six forestry regions at the scale of 1:250,000 and a national forest cover map at the scale 1:1,000,000. Cycle IV has also generated commune-level (scale 1:25,000) and district-level (scale 1:50,000) forest cover maps. Data from a systematic sample plot system were also collected in each cycle. The forest cover maps and sample plot data of NFIMAP are used for FREL/FRL setting in the Accounting Area (see Section 8). The NFIMAP is currently under review for

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[88] This does not mean that AD and EFs need to be generated every two years. For the reporting year without new data generation, extrapolation can be used to estimate AD and EFs.

improvement and is expected to be restarted from 2016-2020 and subsequent cycles (see section 9.1.3). The MMR of the ER-P is based mainly on the improved NFIMAP. If approved, the sample plot data and forest cover maps of NFIMAP will be used for AD and EFs generation in the NCC region. Otherwise, the ER-P will implement the proposed MMR for at least the NCC region and the budget for this implementation is already allocated in the financial estimation of the ER-P.

2) National Forest Inventory and Statistics Projects

Based on Prime Minister's Decisions, several NFIS Projects have been carried out in the past and the current NFIS Project is 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 Monitoring and Reporting Program (Program No. 32)

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 requires 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; and (ii) the data on area changes cannot be tracked spatially as they are not associated with maps. 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.

9.3.2. Relation and Consistency of the proposed MMR with National Forest Monitoring System

A national forest monitoring system for REDD+ is being developed based on the above programs/projects. The NFIMAP will be used to generate the AD while the NFIS in combination with the Program no. 32 will be used to verify and improve the data 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, starting from 2020, 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 ER-P

MMR will be an aggregation of all data generated by the sub-national forest monitoring operating in each of the six provinces so it is fully consistent with the evolving national forest monitoring system for REDD+.

At the national scale, a revised NFIMAP will be operationalized to collect data on changes in forest growing stock. At the minimum, the ER-P MMR will apply all technical specifications of the revised NFIMAP. It will only consider applying higher technical specifications (e.g., increasing the number of sample plots for achieving higher accuracy) than those in the revised NFIMAP if it is more cost-effective (i.e., the benefits received from reduction of ERs set aside for uncertainty when using lower conservativeness factor is significantly larger than the cost for achieving lower uncertainty). To be consistent, the ER-P MMR will use the same forest stratification for carbon accounting under REDD+ as with Forest Reference Level development.

9.4 Plan for Stepwise Improvement of Carbon Accounting in Vietnam

It is recognized that, although the development of the FRL is based on the best available data and current IPCC guidance, there are opportunities for further improvements and strengthening of Vietnam's program for MMR on carbon emissions and removals. Following is a tentative list of investigations to be undertaken over the initial phase of the implementation period in order to develop data and methods for reducing uncertainty and improving carbon accounting.

1. Distinguishing between human caused changes vs. changes due to natural causes. This will require some exploratory analysis of methods and available data, possibly including (1) the NFIS national forest stand level inventory program which collects local data on causes of land cover change; (2) additional remotely sensed data layers and analysis which may be able to identify common patterns of change associated with human or natural causes; and (3) improved time series analysis of change over time which may improve the ability to discriminate between human and natural change

2. Testing of a gain-loss approach in place or in addition to the stock change approach for carbon accounting. This might provide more information on the magnitude and location of specific Activities, which in turn could inform the REDD+ intervention process. This might also provide improved methods for addressing C removals over time, in lieu of the simplified assumption made in the FRL.

3. Improved collection of reference data to inform accuracy assessment and estimation of areas of change. This will involve analysis of uncertainty from the current data set to inform adjustments to future sample sizes and stratification for purposes of collecting reference data, then using the reference data to adjust the time series estimates of area.

4. Better methods for incorporating information from accuracy assessment and spatial reference data into increasing precision of the estimates of land cover change over time series.

5. More in depth assessment of the potential impact of soil carbon, dead wood and litter on carbon emissions and removals associated with different Activities.

10 DISPLACEMENT

10.1 Identification of risk of Displacement

The potential risks of displacement of emissions from the proposed ER Program activities are summarized below in Table 10.1. The overall potential risk of domestic displacement is characterized as low (4 drivers as low risk and 1 driver as medium risk), while the risk of international displacement is characterized as medium, and is expected to decrease to low during ER program implementation.

Table 10.1: Summary of possible displacement risk

Driver of deforestation or degradation	Risk of Displacement	Explanation/ justification of risk assessment
Domestic		
Planned conversion to agricultural land	Low	The risk of displacement of forest conversion to regions outside the ER Program accounting area is deemed low due to reduction in planned conversion of agriculture. The major driver of forest loss from planned conversion to agriculture has been rubber. For rubber, as highlighted in Box 1, there have been several high level policies and implementation efforts to address agricultural expansion, particularly in forested areas. In particular, the instruction 1685 and the recent Prime Minister's Directive 13 in 2017 are contributing to slow rubber expansion. It is increasingly difficult for provinces to covert areas for rubber, across the country. Also considering that the most conversion is ''planned'' and supported through provincial authorities in State Forest Company's land, covering large areas, these developments can be clearly monitored. The current provincial plans for any further rubber expansion are currently under review. These plans are set at the provincial level and there is little reason to expect that changes in one province has any impact on another province, particularly outside the NCC. Also, the policies to stop forest conversion from rubber are nationwide. The main area for rubber production outside the NCC is the Central Highlands and it has been specifically targeted by the Prime Minister's Directive 13 to address deforestation through conversion to rubber. It is unlikely that provinces will go against such high profile decisions of the Prime Minister. So overall the risk is deemed low. For ''planned'' conversion of forest land to cassava the risk is also low as Vietnam is currently stabilizing the overall area used for cassava production. There is little support from provinces to set aside more area for cassava production or to allow any conversion of forest areas for cassava. Cassava also tends to be more of a localized risk, for example in Quang Tri due to the presence of a processing factory.
Unplanned forest conversion to agriculture (shifting cultivation)	Low	Any interventions which affect land availability could exacerbate existing poverty, food insecurity and vulnerability to climate change and lead to negative impacts on rural livelihoods. There are safeguard concerns that the ER-P could lead to situations where ethnic minority households and communities may be involuntarily resettled, lose productive land and/or access to natural resources. The ER-P includes in-built program design features as well as safeguard processes for avoiding, minimizing and otherwise mitigating or compensating loss of land and resource access restrictions. However, in cases where interventions may limit people's access to land, this is unlikely to cause displacement outside the accounting area. Any displacement is likely to be localized. The fact the program works with the different Forest Management Units should help to

Driver of deforestation or degradation	Risk of Displacement	Explanation/ justification of risk assessment
		ensure that addressing the issue in one place does not lead to conversion elsewhere. The ACMA and support for sustainable livelihoods will help to ensure that local populations can benefit from the program. Additionally, the western boundary of ER Program aligns with national borders, and the eastern boundary aligns with a coastline and the ER Program design will mitigate the risk of unplanned conversion to agriculture (see Table 10.2 below).
Planned and unplanned natural forest conversion to planted forest	Low	As described in Section 4.4, activities focused on AF/RF (new plantations) will be implemented on areas of bare land (either forest land with no forest or non-forest bare land). Assisted natural regeneration activities will be concentrated on forest land classed as 'poor forest' etc. In this way, the risk of plantations replacing natural forest is minimized. Considering that most of the wood production from plantations is from smallholders it is unlikely they would be willing to move to areas outside the accounting area in order to convert natural forests for plantations. Also, most of the existing wood processing facilities are in the NCC region and continues to be the main areas for tree plantations.

The recent policies and regulations (e.g. Directive 13 and the NRAP) for minimizing the conversion of natural forests will also be a major deterrent for converting natural forest areas to plantations. Therefore, the risk is considered low. |
| Planned and unplanned conversion related to infrastructure (in particular HPP) | Low | Planned and unplanned conversion of forests related to hydropower project (HPP) development is comparatively small. It is unlikely that decisions on the building HPP in one province will have any bearing on infrastructure projects in other provinces.

Following national concerns over the environmental and social impacts during and after dam construction for HPP and poor safety, including the sudden release of water, in 2013 the Ministry of Industry and Trade reviewed all pending hydropower projects in the national and provincial hydropower plans. This resulted in the cancelation of 424 projects nationwide. These two resolutions issued by the Assembly (Resolution 40/2012/QH13 dated 23 Nov 2012; and Resolution 62/2013/QH13 dated 27 Nov 2013) and one resolution issued by GoV (no. 11/NQ-CP dated 18 Feb 2014). This was reaffirmed with Directive 13. HPP priorities are currently being set nationally and there is likely to be low risk of displacement. |
| Unsustainable legal and illegal selective logging for commercial and subsistence purposes | Medium | Unsustainable legal logging is being addressed at the national level through implementation of the logging ban of 2014. Therefore, the issue related to logging is primarily the illegal logging, both for commercial and subsistence purposes.

Harvesting of wood for subsistence purposes is unlikely to lead to displacement outside the ER program as wood is used for local consumption and any displacement would occur locally within the accounting area if no mitigation measures are in place.

With reference to domestic illegal logging for commercial purposes, it was limited to rich natural protected forests, easily accessible areas, and border areas and regions with small-scale timber processing facilities. It is difficult to predict the likely impacts of this risk in areas outside then ER program accounting areas as a result of the ER Program implementation. The improvements in forest enforcement at |

Driver of deforestation or degradation	Risk of Displacement	Explanation/ justification of risk assessment
		national and provincial levels are seeking to address Illegal logging. However, the problem persists and for this reason the risk is rated as medium. The ER Program's design will further mitigate this risk (see Table 10.2 below) and adopt measures to monitor and address the risk.
International		
Unsustainable legal and illegal selective logging for commercial and subsistence purposes (International displacement mainly Lao and Cambodia)	Medium decreasing to low over time	Through activities that reduce illegal logging in the NCC – the ER Program could lead to increased imports from Cambodia and Lao PDR (and other countries). Where these increased imports are sourced unsustainably, this would lead to international displacement of emissions. A recent report from Forest Trends, based on customs data shows the import trends of log and sawnwood indicates that there has been a substantial decrease in imports from Laos into Vietnam in 2016, compared to years earlier, mainly because of the Laos' Prime Minister Order 15 (May 2016) that bans the export of log and sawnwood. In 2016, just 36,060 cubic metres of raw logs from Lao PDR were imported into Vietnam compared to 321,718 cubic metres in 2015. Sawn wood entering Vietnam from Laos, meanwhile, dropped from 383,149 cubic metres in 2015 to 95,572 cubic metres in 2016. Furthermore, analysis of the timber trade data by month, shows that the trade in log and sawnwood dwindled for both categories in the second half of 2016 following the ban, which the report states: "appears to have had its intended effect". The 2016 import data from Cambodia also shows a drop, compared with 2015's import levels, because of Prime Minister Hun Sen's law enforcement in 2016. Though this has not been as successful as the export ban in Lao PDR. The analysis timber trade data by Forest Trends shows that the wood imports from Laos and Cambodia into Vietnam through border crossings have declined due to the policy changes implemented in Vietnam, Lao PDR and Cambodia and are expected to continue their impact by reducing the supply of unsustainable legal and illegal selective logging for commercial purposes. Therefore, improved enforcement of timber trade policies, coordination among countries and monitoring of timber trade as of the ER program interventions are expected to further limit the displacement risk of legal and illegal logging and trade with Lao PDR and Cambodia. Even so the risk remains and it has been scored as medium with a likelihood of becoming low risk in the future. The ER Program design will continue to monitor and address this risk (see Table 10.2 below).

10.2 ER Program design features to prevent and minimize potential Displacement

Table 10.2: ER Program Design features to mitigate displacement risk

Driver of deforestation or degradation	Displacement risk mitigation measures
Planned conversion to agricultural land	In relation to rubber, which is historically the major driver of forest loss, there is expected to be less pressure for forest conversion in the future due to the strict policies and programs introduced by the Prime Minister Directive 13, which is expected be implemented nation-wide. The ER Program will continue to support the provinces in introducing these policies and revising future rubber plans. There are also efforts to support improved agriculture production models, through support to improved cassava productivity, which could reduce the need for additional land for cassava production, both inside and outside the accounting area. Also through the ACMA, the Program can contribute to land use plan based on land capability to effective use of non-forest degraded and bare lands for agricultural use.
Unplanned forest conversion to agriculture (shifting cultivation)	The overall design features of the ER Program are expected to lead to a reduction in shifting cultivation and encroachment by providing stable alternative incomes to households and communities through investment in production forests, benefit sharing mechanism, and through support to sustainable agriculture. ACMA involving forest MBs and communities can address the issues of encroachment and can identify alternative livelihoods that could reduce the risk of unplanned forest conversion for subsistence agriculture.
Planned and unplanned natural forest conversion to planted forest	The possible conversion of natural forests to plantations will be closely monitored during the MMR program across the six provinces and can be monitored beyond, particularly in neighboring provinces as part of implementation of the prime minister directive on minimizing the conversion of natural forests. The development of plantations on bare lands under the ER program emphasizes the need to improve timber supply from non-forest sources to avoid the conversion of natural forests to plantations
Planned and unplanned conversion related to infrastructure	The ER Program will support local authorities in preparing land use plans for infrastructure development so as to minimize conversion of natural forests to infrastructure development.
Unsustainable legal and illegal selective logging for commercial and subsistence purposes	The ER Program will contribute to improved l law enforcement through collaborative management approaches to reduce illegal logging. By certifying production forests, sustainable wood supply can be maintained, thereby reducing the risk of both domestic and international displacement. To mitigate the threat of illegal logging, the government has introduced various programs and policies to curb this problem. The risk of displacement is likely in the Central Highlands, In June 2016, the Prime Minister issued directions: to implement the policy to stop timber harvesting from natural forests following Decision No. 97-KL/TW dated 9 May 2014. As a consequence, enhanced monitoring of natural forests is expected to identify and address the risks related to harvest of timber from natural forests. Interventions necessary to stop illegal logging occurring outside the accounting area need to be introduced. The design of ER Program includes

Driver of deforestation or degradation	Displacement risk mitigation measures
	cross-sector collaboration involving other programs to address illegal logging.
Unsustainable legal and illegal selective logging for commercial and subsistence purposes (International displacement mainly Lao and Cambodia)	The risk of international displacement is expected to be mitigated due to the following initiatives to be implemented during and subsequent to the ER program period time: • Vietnam and neighboring countries, including Lao PDR propose to implement the Voluntary Partnership Agreement (VPA) to implement the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan. • Bilateral negotiations between Vietnam and Lao PDR on meeting Vietnam's Voluntary Partnership Agreement (VPA) on to ensure Lao PDR is able to meet Vietnam's VPA requirements on imported timber. • The EU-VN Joint Implementation Framework and VN Legal documentation and guidelines for implementation of Vietnam Timber Legality Assurance System (VNTLAS) are expected to be i developed the integration of voluntary certification and VNTLAS national schemes with support from GIZ. • UNREDD I support to VPA negotiations and international review of initiatives and lessons learnt in making operational [disclosure of information]; assisting FPD is designing and developing violations database and an imported timber list per risk category and protocol for classification; support to sharing of information between countries on legality requirements; and concepts for the VN organization classification system. • Customs officials at Vietnam's major importing ports and border points are provided training on implementation of timber import and export controls. • Chain-of-Custody (CoC) certification among large processing companies in Vietnam, particularly in furniture manufacturing; as a result, increased number of certificates. • A number of international agreements committing Vietnam to coordination on forest management and protection, law enforcement and trade. • Memorandums of understanding (MoUs) have been signed between Vietnam Forest Protection Department and the Department of Forest Inspection, Lao PDR on the cooperation of forest protection, forest law enforcement, and preventing illegal trading and transport of timber, forest products and wildlife; between the Vietnam Forest Protection. • Negotiations among the provinces, which have border crossings in the NCC (Quang Binh, Quang Tri and Nghe An) and Ha Tinh province supported under the UNREDD. • The introduction of timber regulations by Lao PDR has already made significant impact on movement of logs and sawnwood into Vietnam.

11 REVERSALS

11.1 Identification of risk of Reversals and ER Program design features to prevent and mitigate Reversals

Reversal of GHG benefits could result from fire, disease, illegal logging, unplanned agricultural expansion (due to increase in demand for agricultural products), infrastructure development, or climate change (due to increase in frequency and intensity of typhoons). The risks of reversal range from low to medium. Table 11.1 provides an assessment of the anthropogenic and natural risks of Reversals that might affect ERs during the term of the ERPA and the corresponding mitigation strategies.

Table 11.1: Assessment of Reversal risks and mitigation strategies

Risk	Level of risk	Mitigation strategies
Anthropogenic	*Categorized as High, Medium or Low*	
Expansion of commercial (particularly industrial crops) and subsistence agriculture due to responses to rising prices	Medium	There is a possibility that increase in rubber prices will lead to more interest from companies and smallholders to produce rubber and/or Acacia. Considering the strict controls on forest conversion for expansion of rubber and other agricultural crops, it is unlikely to lead to a large scale conversion of forests. Through Action Plan 256 and the PRAPs current rubber and Acacia plans are expected to review the agricultural expansion and implement remedial action
HPPs – locally high risk due to inconsistent application and management of environmental safeguards and weak planning.	Low given current government policies to cancel dam projects.	Continue to support the non-expansion of dam developments in forest areas in current and future plans. Inputs to the FSPD and PRAPs. Feedback as part of the ACMA process.
Small-scale infrastructure including roads, small HPPs, water supplies, multipurpose irrigation/ HEP schemes etc.	Medium but locally high in limited areas	Participatory land-use planning through ACMA, improved SEDP process, and forestland allocation.
Roads - construction of new roads in forest area, e.g. roads in forested border areas and national parks	Medium but locally high in limited areas	As above.
Illegal logging	Low overall impact, but can include selective logging of high value/ rare species	Improved accountability and 'ownership' over forest areas through collaborative management, and participatory forest monitoring; ACMA, PFMS and FPDPs/ PRAP and PRSC process. The activities under the sub-components of the ER Program component 1 – Strengthening enabling conditions for emission reductions; and component 2 – Sustainable management of forests and enhancement of carbon stocks.
Climate change (increasing temperatures and changes in precipitation and frequency and severity of extreme climatic events)	Medium – increased frequency or severity of typhoons could impact near	Improve technical advice, appropriate selection of locations for future industrial tree crop plantations during ACMA to avoid exposure to typhoons; better selection of species that are able to withstand strong winds, planting wind breaks in coastal areas (within 50 km from the

Risk	Level of risk	Mitigation strategies
coastal and coastal forests		coast). MONRE will continue to monitor typhoon activity with international support, e.g. from CSIRO Australia.
	Climate change is likely to affect acacia plantations – vulnerability is expected to be low until 2030 but could become medium in 2050 [89]	Continue to monitor conditions and likely impacts and identify plantations that are potentially at risk. Further research on planting material. Task of the Vietnam Academy of Forest Sciences (VAFS) with international collaboration e.g. CSIRO Australia
Natural		
Typhoons are natural hazard risks in NCC and cause farmer to be risk averse, for example preference for short rotation plantation.	Medium	As above - similar to mitigation measures under climate change;
Fire is historically a minor driver of deforestation and forest degradation, but could increase with climate change	Low	Monitored by VNFOREST; implementation of fire prevention measures and fire-fighting infrastructure (Vietnam has a well-established and functioning fire prevention and management system in the FPD).
Pests and Diseases Currently Acacia spp. are not significantly affected by pests or diseases. There have been low pest and disease problems reported. However, pest outbreaks included - *ceratocystis sp.*[90] wilt identified in 2001 in A. *mangium* A. *auriculiform* and A. hybrid had the most serious threat) and resulted in up to 20% mortality	Low but increasing over time	Normal approaches to disease control such as improved pruning and timing of the pruning (avoiding the rainy season), and long-term strategy to diversify species. Identification of disease resistant varieties. Task of VAFS with international collaboration e.g. CSIRO Australia.

11.2 Reversal management mechanism

The ER Program will create a buffer into which ERs from the ER Program can be deposited to cover future Reversals in the ER-P Accounting Area, and which is managed on behalf of the Carbon Fund. This will follow the relevant Carbon Fund Methodological Framework Criteria, and the agreed negotiated requirements as set out in the ERPA. The buffer risk table (Table 2 from ER-P Buffer Guidelines) is shown in Table 3.1 and Table 3.2 of Annex 2, and all risks are assessed following the table guidelines. The overall risk of reversal is deemed 21%.

Reversal management mechanism	Selected (Yes/No)
Option 2: ERs from the ER Program are deposited in an ER Program -specific buffer, managed by the Carbon Fund (ER Program CF Buffer), based on a Reversal risk assessment.	Yes

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[89] Planting domains of key species in a changing climatic environment; T H Booth, T Jovanovic and C Harwood; 2014, CSIRO Australia.
[90] *Ceratocystis manginecans* and other species are known to cause serious canker and wilt in other parts of SE Asia; report from VAFS (Forest Protection Research Centre) in collaboration with the Forestry and Agricultural Biotechnology Institute of South Africa; Pham Quang Thu, Dang Nhu Quynh, Ariste Fourie. Irene Barnes and Michael J. Wingfield 2014 conference proceedings.

11.3 Monitoring and reporting of major emissions that could lead to Reversals of ERs

The proposed MMR system will track land use change over time by parcel, allowing the identification of areas which undergo reversals, e.g. areas which are measured and credited as Removals in one time period and as Emissions in a later time period. The MMR system will enable the quantification, in area and emissions associated with such cases. During ER Program implementation, emissions in the Accounting Area or changes in ER program circumstances that the ER program considers could lead to reversals of previously transferred ERs by the next monitoring event, will be reported to the Carbon Fund within the timeline prescribed in the Carbon Fund Methodological Framework. A percentage of the potential emissions under the proposed ER Program will be used as insurance against the occurrence of any reversals in the Accounting Area included in the Program. In addition to the buffer solution of reserving ERs during the full ER Program's development, other national non-permanence risk mitigation strategies - namely national/subnational compensation funds and formal insurance mechanisms - will be investigated.

12 UNCERTAINTIES OF THE CALCULATION OF EMISSION REDUCTIONS

12.1 Identification and assessment of sources of uncertainty

Uncertainty of Activity Data

Uncertainty sources:

The sources contributing to uncertainty of activity data is the misclassification of land use and forests. This is commonly associated with the quality of satellite data, interoperability of different sensors, image processing, cartographic and thematic standards, location and co-registration, the interpretation procedure and post-processing.

Assessment of uncertainty:

The accuracy assessment of t forest cover maps for 2005, 2010, and 2015 are made based on existing data at more or less the same year, and based on the following:

- Satellite images with high spatial resolution;
- Aerial photographs; and
- Ground truth points: sample plots etc.

However, in the project area, there were no high resolution satellite images or aerial photos available for 2005, 2010, and 2015.

The ground truth using the sample plots implemented in 2005, 2010, and 2015 (during the NFIMAP cycles 2, 3 and 4) were utilized to improve the quality of forest cover maps, thus they could not be used in the accuracy assessment of spatial data.

Consequently, the following steps are used for the accuracy assessment:

Step 1. Create forest change maps for the period 2005 – 2010 and 2010-2015

- By overlaying the forest cover maps in 2 points of time, the forest change map was created with 36 possible transition classes;
- The forest change maps for 2 points of time were reviewed and the final forest change map with 6 main change categories were assessed as noted in Table 12.1;
- The vector maps of the forest change for the period 2005-2010 and 2010-2015 are rasterized with the pixel size of 30*30m to create the raster maps of forest change for these two periods.

Table 12.1: Combination of forest change

Code	Category	Description
FD	Forest degradation (FD1, FD2, FD3, FD4)	All forest type changes from higher timber stock volume to lower timber stock volume.
DF	Deforestation (D1, D2, D3, D4, D5)	All changes from forest to non-forested type
FE	Forest Enhancement (FE1, FE2, FE3, FE4)	All forest type changes from lower timber stock volume to higher timber stock volume
AF	Afforestation (A1, A2, A3)	All changes from non-forested to forest type
SF	Stable forest	No change in forest type
SNF	Stable non-forest	No change in non-forest type

Step 2. Sampling design to assess the land use and forest cover change

- Determine sample size:

  - Calculate the areas of each change category on the final forest change maps;

  - The number of sample points required per change category is determined by three main parameters: 1) the level of precision required of the estimates, 2) the proportion of each mapped category in the map and 3) the expert-estimated map accuracy of each category;

  - If the total number of sample points of any change category is less than 30, then it will be given as 30 to satisfy the minimum sample size for that category. The sample points of other change categories were recalculated.

- Allocation of the sample points for each category of change

  - Based on the total number of sample points, the map of sample points was stratified randomly for each forest change category by applying ARC/GIS software. The sample points were separated by at least 400 m.

In this accuracy assessment, 541 sample points are checked for 2005 – 2010 and 541 sample points for 2010-2015. Details on sampling distribution can be seen at the Annex 11 Report on AD.

Step 3. Assess each sample point on Landsat images of "year X" and "year X+5"

- Landsat images covering NCC region for 2005, 2010, and 2015 were downloaded from the Webpage: http://earthexplorer.usgs.gov/ . The details are shown in Table 12.2;

- Sample points were overlaid on the Landsat images in 2005, 2010, and 2015;

- At each of the sample points, the forest changes were independently evaluated by three remote sensing experts to assess forest change by applying visual interpretation.

Table 12.2: Metadata of Landsat images

Path/Row	Information	2005	2010	2015
125_48	LANDSAT_SCENE_ID	"LT51250482005140BKT00"	"LT51250482010186BKT01"	"LC81250482015232LGN00"
	DATE_ACQUIRED	20/05/2005	05/07/2010	20/08/2015
	CLOUD_COVER	0	0	2.53
125_49	LANDSAT_SCENE_ID	"LT51250492005124BKT01"	"LT51250492010042BKT00"	"LC81250492015024LGN00"
	DATE_ACQUIRED	04/05/2005	11/02/2010	24/01/2015
	CLOUD_COVER =	7	0	0.3
126_47	LANDSAT_SCENE_ID	"LT51260472005195BKT00"	"LT51260472009238BJC00"	"LC81260472015127LGN00"
	DATE_ACQUIRED	14/07/2005	26/08/2009	07/05/2015
	CLOUD_COVER =	1	1,63	4.62
126_48	LANDSAT_SCENE_ID	"LT51260482005275BKT00"	"LT51260482009238BKT00"	"LC81260482015271LGN00"
	DATE_ACQUIRED	02/10/2005	26/08/2009	28/09/2015
	CLOUD_COVER =	7	2	10.56
127_46	LANDSAT_SCENE_ID	"LT51270462004344BKT01"	"LT51270462010040BKT00"	"LC81270462015150LGN00"
	DATE_ACQUIRED	09/12/2004	09/02/2010	30/05/2015
	CLOUD_COVER	1	0	2.31

Path/Row	Information	2005	2010	2015
	LANDSAT_SCENE_ID	"LT51270462005314BJC00"		
	DATE_ACQUIRED	10/11/2005		
	CLOUD_COVER	10		
127_47	LANDSAT_SCENE_ID	"LT51270472005026BKT01"	"LT51270472010056BKT00"	"LC81270472015182LGN00"
	DATE_ACQUIRED	26/01/2005	25/02/2010	01/07/2015
	CLOUD_COVER	8	0	6.77
	LANDSAT_SCENE_ID	"LT51270472005314BKT01"		
	DATE_ACQUIRED	10/11/2005		
	CLOUD_COVER	16		
128_46	LANDSAT_SCENE_ID	"LT51280462005065BKT02"	"LT51280462010111BKT01"	"LC81280462015029LGN00"
	DATE_ACQUIRED	06/03/2005	21/04/2010	29/01/2015
	CLOUD_COVER	8	2	0.2
128_47	LANDSAT_SCENE_ID	"LT51280472005065BKT01"	"LT51280472010303BKT00"	"LC81280472015093LGN00"
	DATE_ACQUIRED	06/03/2005	30/10/2010	03/04/2015
	CLOUD_COVER	0	2	0.08

Step 4. Summarize the results and create error matrix.

- The independent assessment of three experts combined considering the consensus of reference sample points to create the error matrix of land use change.

Step 5. Accuracy calculating by applying Olofsson's method[91]

- The estimation of accuracy (User, Producer, and Overall) was conducted by applying the steps and procedure suggested in Oloffson (2014 et al) to make unbiased estimation of Activity Data. These change estimates were assigned to the forest cover classes in proportion to the area of forest contributing to each Activity.

Uncertainty of Emission Factors (EF)

Sources of uncertainty:

The sources for uncertainty of EF closely relate to the uncertainty in estimation of carbon stocks in different types of forests. Table 12.3 below shows potential causes of uncertainties associated with the estimation of emission factors in the NCC.

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

Table 12.3: Potential sources of uncertainties in the emission factor estimates

Potential sources of uncertainty	Relevance for the NCC RL/REL?	Applied (yes/no) and explanations
Lack of completeness	Not believed to be relevant. The components of forest emissions and removals are generally known in theory and significant gaps are unlikely	Not applicable.
Effects of boundary issues in independent mapping for Activity Data	Relevant, believed (based on analysis of errors) to be on the order of ~3% of area. Will be addressed in the next iteration of mapping, all maps will be registered to a common base year to eliminate inconsistent boundaries	Not applied.
Model	Relevant, significant. Uncertainty in statistical models used to estimate biomass as function of tree parameters, models to estimate aggregate biomass/ha, and models to classify forest type as a function of spectral signature	Applicable, errors of forest carbon stock estimation are assessed (see Annex 5 - Emission Factor report)
Lack of data	Relevant, minor. Data do not exist to estimate contributions from several pools (litter, deadwood, soil) and gases (CH4, NOx) which are assumed to be small (< 10%) relative to contribution of C from AGB and BGB. Data currently do not exist for change in C stock for land remaining in the same class.	Not applicable. The proposed MMR system will provide future estimates of C change for land remaining in the same forest type class.
Lack of representativeness of data	Not believed to be relevant. Emission factors come from a statistical systematic sample across the whole NCC region. Activity data comes from wall to wall forest cover mapping.	Not applicable
Statistical random sampling error	Relevant, significant. Affects estimation of Emission Factors from forest inventory sample.	Not applicable as no data and information on the source
Measurement error	Relevant, minor. Measurement of tree species group, DBH assumed to be with minimal error.	Not applicable as no data and information on the source
Missing data	Not believed to be relevant. Sampling and forest cover mapping covers 100% of the area of interest. It is possible that some change may be missed given the 5-year cycle of measurement, but over time this change is expected to average out.	Not applicable as no data and information on the source.

Assessment of uncertainty

Assessment of the uncertainty in the estimation of emissions and removals for the reference period follows the IPCC guidelines (Chapter 3, IPCC, 2006). A propagation errors method to carbon estimation was used to estimate uncertainty of forest carbon estimation for forests. The error propagation is estimated based on 4 parameters representing the respective error sources: i) error of sampling; ii) error of equations used for biomass estimation; iii) error of converting BGB from AGB; and iv) error of using carbon fractions for converting biomass to carbon stock.

Uncertainty assessment of emissions and removals

Tier 1 approach is used to assess the overall uncertainty of emissions and removals is estimated following the formula below:

$$U_{total} = \frac{\sqrt{(U_1 * x_1)^2 + (U_2 * x_2)^2 ... (U_n * x_n)^2}}{|x_1 + x_2 ... + x_n|}$$

Where:

- $U_1, U_2, U_3, ... U_n$ is the %age of uncertainty associated with each of the parameters;
- $X_1, X_2, ... X_n$ is the value of each parameter; and
- U total is %age uncertainty in the sum of the parameters.

12.2 Quantification of uncertainty in Reference Level

The uncertainty in activity data estimated based on accuracy assessment conducted for forest cover change during 2005-2010 and 2010-2015 and the uncertainty in emission factor data are used to estimate the uncertainty of forest reference level of the ER Program.

Uncertainty of Activity Data

Accuracy assessment of activity data was conducted for two periods 2005-2010 and 2010-2015 is summarized in the following tables. The results indicate that the overall accuracy (with the confidence of 95%) for activity data is over 90%.

Table 12.4: Accuracy assessment for forest change, 2005 – 2010

Map Class	Reference Class					
	SF	SNF	AF	DF	FE	FD
SF	0.3993	0.0103	0.0000	0.0062	0.0000	0.0000
SNF	0.0185	0.4204	0.0000	0.0000	0.0000	0.0000
AF	0.0020	0.0041	0.0696	0.0000	0.0000	0.0000
DF	0.0000	0.0007	0.0000	0.0201	0.0000	0.0015
FE	0.0000	0.0000	0.0000	0.0005	0.0159	0.0000
FD	0.0020	0.0000	0.0000	0.0000	0.0000	0.0286
Cond Ref Class Proportion	0.4220	0.4356	0.0696	0.0269	0.0159	0.0301
SE	0.0087201	0.0081525	0.0034471	0.0037767	0.0000000	0.0017573
95% CI	0.0174402	0.0163051	0.0068942	0.0075534	0.0000000	0.0035146
Adjusted area est. (ha)	2,170,909	2,240,793	358,201	138,150	81,554	154,913
95% CI	89,722	83,882	35,467	38,859	-	18,081
User accuracy	0.960	0.958	0.919	0.900	0.967	0.933
Producer accuracy	0.946	0.965	1.000	0.748	1.000	0.951
Overall accuracy	**0.954**					

Table 12.5: Accuracy assessment for forest change, 2010 – 2015

Map Class	Reference Class					
	SF	SNF	AF	DF	FE	FD
SF	0.4294	0.0204	0.0000	0.0041	0.0020	0.0041
SNF	0.0163	0.3713	0.0000	0.0020	0.0000	0.0000
AF	0.0000	0.0000	0.0675	0.0000	0.0020	0.0020
DF	0.0000	0.0000	0.0000	0.0382	0.0000	0.0013
FE	0.0000	0.0000	0.0000	0.0000	0.0130	0.0000
FD	0.0000	0.0000	0.0009	0.0000	0.0000	0.0253
Cond Ref Class Proportion	0.4457	0.3917	0.0684	0.0443	0.0170	0.0328
SE	0.0095323	0.0087184	0.0029814	0.0037712	0.0028927	0.0038741
95% CI	0.0190646	0.0174368	0.0059627	0.0075425	0.0057854	0.0077482
Adjusted area est. (ha)	2,293,039	2,015,294	351,855	228,082	87,700	168,550
95% CI	98,078	89,704	30,675	38,803	29,763	39,861
User accuracy	0.933	0.953	0.943	0.967	1.000	0.967
Producer accuracy	0.963	0.948	0.987	0.862	0.760	0.773
Overall accuracy	**0.945**					

Uncertainty of emission factors

The assessment of uncertainties of emission factors representing the forest carbon stock conducted based on the propagation errors show that the errors of 2005 forest carbon estimation range from 22.4 to 27.0% and the errors for 2010 forest carbon stock estimation is in the range of 22.4% – 27.1 % for 2010 for different forest categories (see Table 12.6).

Table 12.6: Uncertainty assessment of 2005 forest carbon stock for the NCC

Parameters	EBF-R	EBF-M	EBF-P	OFO	PLA
2005 forest carbon stock (total SE, %)	**26.0%**	**22.4%**	**22.4%**	**27.0%**	**22.8%**
1. AGB error from sampling (calculated in EF report)	0.1338	0.0076	0.0076	0.007	0.037
2. AGB error from biomass equation (UNREDD, 2015)	0.096	0.096	0.096	0.180	0.100
3. Root to shoot ratio error (GOFC-GOLD sourcebook 2015)	0.200	0.200	0.200	0.200	0.200
4. Carbon Fraction factor (IPCC 2006)	0.027	0.027	0.027	0.027	0.027
B. 2010 Forest carbon stock (total SE, %)	**23.6%**	**22.4%**	**22.4%**	**27.1%**	**22.7%**
1. AGB error from sampling (calculated in EF report)	0.078	0.010	0.009	0.013	0.030
2. AGB error from biomass equation (UNREDD, 2015)	0.096	0.096	0.096	0.180	0.100
3. Root to shoot ratio error (GOFC-GOLD sourcebook 2015)	0.200	0.200	0.200	0.200	0.200
4. Carbon Fraction factor (IPCC 2006)	0.027	0.027	0.027	0.027	0.027

Uncertainty of emissions and removals

The uncertainties of emissions and removals estimation are estimated considering the uncertainties of activity data and emission factor data of forest carbon stock. The results of uncertainty assessment for emissions and removals show that weighted average uncertainty of emissions and removals is from 26% -35% (see Table 12.7).

Table 12.7: Uncertainty assessment of emissions and removals

Emissions and Removals	2005 - 2010		2010 - 2015		Weighted average uncertainty 2005-2015 (%)
	Amount (tCO2e)	Uncertainty (%)	Amount (tCO2e)	Uncertainty (%)	
1. Emissions caused by Deforestation	9,825,826	30.5	14,409,627	28.4	29.4
2. Emissions caused by forest degradation	64,041,968	25.1	20,717,264	27.1	26.1
3. Removals resulted from reforestation	-8,473,390	27.5	-6,661,003	27.4	27.4
4. Removals resulted from forest restoration	-12,949,438	34.5	-34,672,979	34.5	34.5

13 GHG EMISSION REDUCTIONTIMATES OF ER-PROGRAM

13.1 Ex-ante estimation of GHG emissions reductions

The ER program is expected to generate about **32.09 million tCO$_2$e** from reduced emissions and increased removals by sinks over the program period of 2018-2025. The ex-ante estimate of reduced emissions and increased removals by sinks will amount to **26 million tCO$_2$e** over the ERPA period of 2019-2024 (6 years). In this ERPA timeframe, ex-ante estimate of emission reductions from reduced deforestation and forest degradation will amount at 13.26 million tCO$_2$e which is equivalent to a reduction of 20 % compared to the RL emissions. The increase in removals by sinks due to carbon stock enhancement amount at 12.7 million tCO$_2$e which is an increase by 34% compared to the RL removals (see Table 13.1).

Excluding the calculated 4% uncertainty factor and the 21% buffer (as quantified in Annex 2), the net ex-ante estimated GHG emission reductions reduces to **19.5 million tCO$_2$e** over 6 years (2019 – 2024), which excludes **6.5 million tCO$_2$e** for uncertainty and reversal buffer. All key assumptions are further described in the subsequent sections.

Table 13.1: Ex-ante GHG emissions reduction and removals of the ER-Program

ERPA term year t	Reference emissions level (tCO$_2$e/yr)	Reference level annual GHG emissions (tCO$_2$e/yr)	Reference level GHG removals (tCO2/yr)	Estimation of expected emissions under the ER Program (tCO$_2$e/yr)	Estimation of expected removals (tCO$_2$e/yr)	Estimation of total expected emissions (incl. removals) under the ER Program (tCO$_2$e/yr)	Expected set-aside to reflect the level of uncertainty associated with the estimation of ERs during the Term of the ERPA + buffer (25%) (tCO$_2$e/yr)	Total Estimated net Emission Reductions /carbon removal benefit (tCO$_2$e/yr)
2018	4,623,771	10,899,452	-6,275,681	8,688,544	-6,469,062	2,219,482	601,072	1,803,217
2019	4,623,771	10,899,452	-6,275,681	8,688,544	-8,234,099	454,445	1,042,331	3,126,994
2020	4,623,771	10,899,452	-6,275,681	8,688,544	-8,320,541	368,003	1,063,942	3,191,826
2021	4,623,771	10,899,452	-6,275,681	8,688,544	-8,385,643	302,901	1,080,217	3,240,652
2022	4,623,771	10,899,452	-6,275,681	8,688,544	-8,440,638	247,906	1,093,966	3,281,898
2023	4,623,771	10,899,452	-6,275,681	8,688,544	-8,482,645	205,899	1,104,468	3,313,404
2024	4,623,771	10,899,452	-6,275,681	8,688,544	-8,524,652	163,892	1,114,970	3,344,909
2025	4,623,771	10,899,452	-6,275,681	8,688,544	-8,566,659	121,885	1,125,471	3,376,414
Total 2019 2024)	27,742,626	65,396,712	-37,654,086	52,131,264	-50,388,217	1,743,047	6,499,895	19,499,684
Total (2018-2025	36,990,168	87,195,616	-50,205,448	69,508,353	-65,423,938	4,084,414	8,226,438	24,679,315

Vietnam acknowledges that the Carbon Fund payments are results based and that performance may be higher or lower than estimates. Thus, Vietnam conservatively offers to Carbon Fund only 52% of the total expected emission reductions which reduce the non-delivery risk of the expected 10.3 million tCO$_2$. The financing for these USD 51.5 million is required to cover the financing gap of program implementation and adopt new and additional interventions. If the performance is better than estimates, Vietnam is planning to access other results-based financing sources to further invest in emission reduction activities. Vietnam also considers to use the additional emission reductions to account for its nationally determined contributions (NDC).

In the ER-P program implementation period of 2018-2025, the major GHG benefits will occur due to reduced deforestation and forest degradation. The reduced deforestation benefits are estimated to generate 0.8 million tCO_2e over the ER-P implementation period, while the majority of ERs will be due to reduced forest degradation amounting to 16.9 million tCO_2e. Additional removals from reforestation are estimated at - 2.0 million tCO_2e, while removal benefit due to restoration of plantation forest and to a large extend in natural forests will add up to -13.2 million tCO_2e.

The benefits are expected to occur from the enabling conditions (component 1) on the entire ER-P area and enable carbon stock enhancement in the remaining natural forest categories (evergreen forest rich: 167,988 ha; medium: 493,193 ha; and poor: 1,331,464 ha). Furthermore, forest land specific investments will unfold on about 50% of the remaining natural forest (1 Mha) and 11% of the plantation area (82,838 ha). The table 13.2 presents the area proposed to be covered under the interventions described under section 4.2, under the ER-P design, and used in development of the financing plan.

Table 13.2: Cumulative forest based ER-P investment areas (in hectares) (Component 2)

Sub components & activities	Unit	2018	2019	2019	2020	2020	2021	2021	Total
Component 2.1. Conservation of existing natural forests									
2.1.3. & 2.1.4. Natural forest protection contracts	ha	884,215	884,215	884,215	884,215	884,215	884,215	884,215	884,215
2.1.3. & 2.1.4. Coastal/sandy forest natural forest protection	ha	33,017	33,017	33,017	33,017	33,017	33,017	33,017	33,017
Component 2.2. Enhancement of carbon stock of plantation									
2.2.1 Investment in transformation of short-rotation plantations to long-rotation plantations for sawn timbers supply	ha	0	5,359	10,718	16,078	21,437	26,796	32,155	37,515
2.2.2. Investments in reforestation in long rotation plantations (non-forest land) (Establishment of new plantations (ha)	ha	4,500	9,000	13,500	16,350	19,200	22,050	24,900	27,750
Component 2.3. Enhancement and restoration of natural forests									
2.3.1. Investments in natural assisted regeneration (medium quality forests, no planting)	ha	56,500	56,500	56,500	56,500	56,500	56,500	56,500	56,500
2.3.2 Investment in enrichment planting for poor natural forests	ha	24,785	24,785	24,785	24,785	24,785	24,785	24,785	24,785
2.3.3. Investment in enrichment planting of coastal protection forests (coastal inland forest)	ha	1,000	2,000	3,500	5,000	6,925	6,925	6,925	6,925
2.3.3. Investment into reforestation of sandy inland forests	ha		1,000	2,500	4,423	4,423	4,423	4,423	4,423
2.3.4. Investment in reforestation of protection and special use forest in mountainous areas (native species)	ha	1,847	3,693	5,540	6,558	7,576	8,594	9,612	10,630

Summary	% of total ER P accounting area								1,085,820
Natural forest interventions	50% of natural forest area								1,005,442
Plantation forest C enhancement interventions	11% of plantation forest area								80,378

Note: Natural forest area will be protected and managed from the beginning of ER-P implementation period, thus are cumulated from year 1 onwards.

The enabling conditions under component 1 such as improved law enforcement and policy implementation and other relevant interventions can be expected to have broad impact on the ER-P accounting area. Therefore, it is expected that emission reductions and removals by sinks not only occur from the direct

interventions under the component 2 and 3, but also on a large scale with enabling conditions. The potential of removals by sinks through improved protection of natural forest increases as additional 381,265 of natural forests are expected to regenerate and thus enhance forest carbon stocks, while potential avoided forest degradation benefits are conservatively excluded from the estimates.

With reference to the plantations, the private sector investment can increase in the transformation of short to long rotation plantations due to strong governmental support and higher profitability of long rotation plantations. This effect can increase the carbon stock enhancement on more than additional 112,544 ha of plantation forests. A consistent approach has been applied to the estimate of the ex-ante GHG removals by sinks benefits from the site-based interventions and enabling conditions and policy. The table below summarizes the key assumptions and results of the ER-estimates according to ER-P activities.

Table 13.3: Total expected ER generation from forest based investments (Component 2) and additional Carbon stock enhancement areas due to policy and enabling condition investments (Component 1) and deforestation free and climate smart agriculture implementation (Component 3)

REDD+ activity	Targeted area forest lanscape investments (ha)	Estimated additional carbon stock enhancement area due to enabling condition investments (ha)	Percentage of total remaining forest type in ER-P accounting area in 2010 (%)	ER category: Emissison reduction (ER) / Carbon stock enhancment (C+)	Total ERs (8 years) (tCO2) (excl uncertainty and buffer)	% of 8yr RL GHG emissions	% of 8yr RL GHG removals
2.1.3. & 2.1.4. Natural forest protection contracts	884,215		44.4%	ER	14,280,324	16.4%	
2.3.1. Investments in natural assisted regeneration (medium quality forests, no planting)	56,500	381,265	22.0%	ER	2,610,300	3.0%	
				C+	-7,465,731		14.9%
2.3.2. Investment in enrichment planting for poor natural forests	24,785		1.2%	ER	796,639	0.9%	
				C+	-5,210,022		10.4%
2.2.2. Investments in reforestation in long rotation plantations (non-forest land) (Establishment of new plantations (ha)	27,750		3.7%	C+	-1,169,278		2.3%
2.3.4. Investment in reforestation of protection and special use forest in mountainous areas (native species)	10,630		1.4%	C+	-661,263		1.3%
2.2.1. Investment in transformation of short-rotation plantations to long-rotation plantations for sawn timbers supply	37,515	112,544	5.0%	C+	-274,898		0.5%
2.1.3. & 2.1.4. Coastal/sandy forest natural forest protection	33,017		21.6%	-	-	-	-
2.3.3. Investment in enrichment planting of coastal protection forests (coastal inland forest)	6,925		4.5%	C+	-264,477		0.5%
2.3.3. Investment into reforestation of sandy inland forests	4,423		2.9%	C+	-172,821		0.3%
	1,085,760	493,809		Emission reductions	17,687,263	20.3%	30.3%
	Total	1,579,568		Carbon removals	-15,218,490		

13.2 Key assumptions

- All emission factor data is fully aligned with the RL section 8, thus the ERs estimates are fully consistent with the RL approach. Emission factor data that was not used in the RL, such as annual increment rates for the different forest types are based on nationally published information and assumptions were closely coordinated with the RL development team.

- The GHG estimates assume a 21% reversal buffer as calculated in the Annex 2 and a 4% uncertainty factor as reported and quantified for the RL. Thus, only 75% of the estimated ex-ante reduction of emissions and removals by sinks are assumed to generate benefits for results based payment and in the financing plan assumptions.

- For carbon stock enhancement activities on plantations and areas reforestation areas, it is assumed that 87% of the plantation will survive and contribute to removals by sinks. This is the historical survival rate of the Program 661 and is a reliable proxy for future plantings.

- The estimates of carbon stock enhancement benefits in plantations use a long-term average carbon stock which takes into consideration the harvesting and reversal over time (Figure 13.1).

13.3 Assumption for estimating emission reductions and carbon stock enhancement

13.3.1. Emission reduction from reduced deforestation

- GHG emissions reductions from avoided deforestation are quantified based on the REDD+ intervention activity "Natural regeneration and enrichment planting of natural forest" (Component 2.3.2, 24,785 ha) which will prevent the conversion of the evergreen natural forest towards non-forest land use (agricultural land use). The target intervention areas for this model will be based on REDD+ Needs Assessments and Social Screening Reports at the inception of the ER-P implementation. The RNAs will identify the key deforestation/forest degradation hotspots for which investment and management plans and Adaptive Collaborative Management Approached will be defined to effectively tackle deforestation and forest degradation.

- It is assumed that once the intervention areas enter in the ER-P program, GHG benefits due to avoidance of deforestation start to occur. This will result in avoiding emissions of 138.6 tCO_2/ha (carbon stock of evergreen natural forest – poor in RL, aboveground biomass and belowground biomass[92]). However, the GHG benefits of each effectively protected forest area are accounted not immediately, but over a period of 8 years (107.1 tCO_{2e}/8 years = 13.4 tCO_{2e}/ha/yr). This approach is conservative approach and avoids overestimation of emissions reduction from deforestation and forest degradation.

- In addition, due to the natural regeneration of the evergreen natural forest poor, aboveground and belowground biomass carbon stock enhancement benefits will occur. For this, we apply an annual growth emission factor of 3% of the total carbon stock of evergreen forest-poor, (MARD 2006, Forest Growth in: Forest Sector Manual. MARD, Hanoi). This is equivalent to 3.2 tCO_{2e}/ha/yr (aboveground and belowground biomass).

- In the ER estimates it is conservatively assumed that 30% of the area subject to interventions will actually deliver results and will be effectively managed.

13.3.2. Reduction in forest degradation

- GHG emission reductions from reduced forest degradation are assumed in the REDD+ intervention model "protection of existing natural forest (Component 2.3.1, 884,215 ha) which prevents "degradation of evergreen broadleaved forests degradation to lower density classes.

- Reduction of emissions is calculated as the difference between the RL emissions factor (carbon stock) between evergreen forest rich and evergreen forest medium (544.5 - 261.1 = 283.4 tCO2e/ha aboveground and belowground biomass). This emission reduction is assumed to occur over a period of 8 years, after the natural forest area enters into the ER-P implementation resulting an annual emission factor of 35.4 tCO2e/ha/yr over 8 years (ABG+BGB). In this model, carbon stock enhancement benefits are not accounted for as the forest is conservatively assumed to be in equilibrium (undisturbed or minimally disturbed).

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[92] For quantification or belowground biomass an IPCC root to shoot ration of 0.2 is applied. This factor is consistently used by Vietnam for all forest types in the RL.

- In the second reduction of forest degradation intervention (Natural regeneration of "evergreen natural forest – medium" (Component 2.3.2.) which prevent forest degradation to "evergreen natural forest – poor". Emission reductions benefits are quantified as the difference between the carbon stock evergreen natural medium and evergreen natural forest – poor (261.1 – 107.1 tCO2e/ha = 154 tCO2e/ha). The accounting of GHG benefits is distributed over a period of 8 year, same as under model 1 and 3 (19.3 tCO2e/ha/yr over 8 years).

- For the quantification of the carbon stock enhancement benefits, the annual growth increment for these forest types equivalent to 2.3% of the reported carbon stock (6 tCO2e/ha/year) are assumed in the RL assessment equivalent to 2.3% of the reported carbon stock (6 tCO2e/ha/year) (MARD, 2006. Forest Growth. In: Forest Sector Manual. MARD, Hanoi).

- For both interventions, the ER estimates are conservatively made conservatively assuming that 30% of the investment areas will actually deliver results.

13.4 Assumptions for estimating carbon stock enhancement benefits (reforestation and plantation restoration model – Acacia and native species)

- Carbon stock enhancement models include Afforestation/Reforestation models to be implemented on bare land (Component 2.2.1.2 (27,750 ha) and 2.3.4.1 (10,630 ha)) and transformation of existing short-rotation Acacia plantation towards a longer rotation plantations (Component 2.2.1.1, (37,515 ha) (see table 13.2).

- For the quantification of the carbon stock enhancement average growth data from Vietnam for respective species is used, and is based on conservative assumptions. For Acacia growth rates a detailed literature review was carried[93]. Six studies were reviewed. The average of these measured growth rates results in a 20 m³/ha/year[94] (Harwood and Nambiar, 2014; CIFOR; Martin van Beuren; 2004; Tran Duy Ruong; Vu Tan Phuong (2011); and Phan Minh Sang; 2011)[95].

- Reports on the basic wood density of Acacia hybrid clones is based on VN Forest measured data (2011[96])

- Estimates for native species reforestation are based on Vietnamese research data and include species such as *Tarrietia javanica*, *Dipterocarpus spp.*, *Hopea odorata*, Mechelia, for these species an average value of 6.8 tdm/ha/year is assumed (ABG) (personal communication Vu Tan Phuong August 2017).

- In order to account for the risk of reversals, and taking into account that plantation model will be subject to harvesting leading to reversals, a long-term average carbon stock approach is used to account for the long-term carbon stock enhancement benefits (Figure 13.1). The long-term average carbon stock is an average carbon stock over more than 20 years taking into consideration planting, thinning and harvesting and replanting over more than one rotation period. The calculations assume that after harvesting replanting of the models occur.

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[93] This was carried out in particular to respond to the TAP comments that annual Acacia related growth rates seem to be overestimated.

[94] This was reduced from originally 30 m³/ha/year

[95] Harwood, C.E.; Nambiar, E.K.S 2014: Productivity of acacia and eucalypt plantations in Southeast Asia. 2. trends and variations. International Forestry Review Vol.16(2), 2014; CIFOR (Sein, C.C; Mitlöhner, R.); 2011. Acacia hybrid: ecology and silviculture. CIFOR, Bogor, Indonesia; Van Beuren, M; 2004. Acacia hybrids in Vietnam, ACIAR Project FST/1986/030. Centre for International Economics, Canberra and Sydney; Vu Tan, P. 2011. Report on Vietnam Profile Development for Measurement and Monitoring for REDD+ Implementation; Tran Duy Ruong, 2011. Assessment on growth and economic effects of Acacia hybrid in Quang Tri. Forest Science Institute of Vietnam

[96] http://vafs.gov.vn/en/2011/01/wood-properties-of-some-commercial-tree-species-for-the-central-north-region-of-vietnam/

Figure 13.1: Carbon enhancement accounting approach for plantation forest rotation models (4-8)

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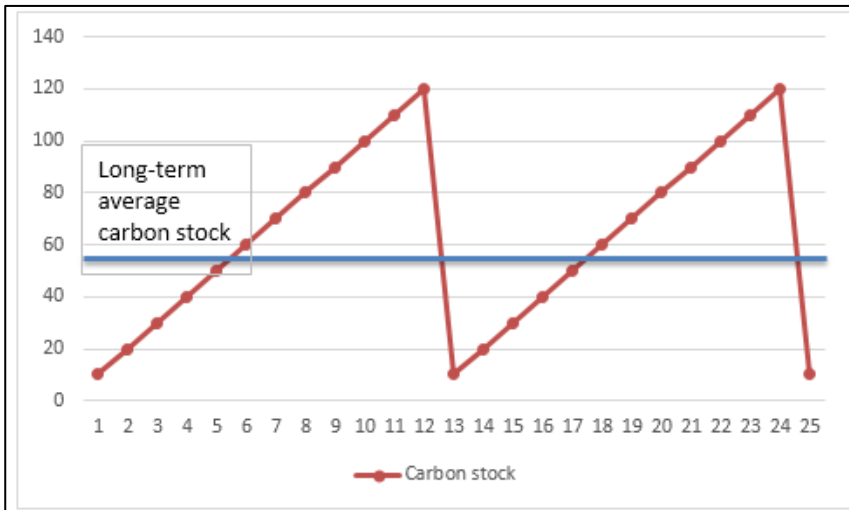
13.4.1. Plantation transformation models

- For the quantification of the annual carbon stock enhancement benefits of existing plantations (Component 2.2.1.) the average RL reported plantation carbon stock of 86.5 tCO$_{2e}$/ha (ABG) which is as a starting point for the calculations. The calculation is based on an in-depth feasibility assessment[97] of the growth performance of different plantation models in Vietnam for Acacia and the review of ER-P accounting area specific literature (see above)

- For Transformation of short rotation Acacia to long-rotation Acacia (12 years)) the average long-term carbon stock is calculated as 98 tCO$_{2e}$/ha. Thus, the long-term benefit is 11.5 tCO$_{2e}$/ha, the difference of the RL carbon stock of 86.5 tCO$_{2e}$/ha and the 98 tCO$_{2e}$/ha. Based on this long-term benefit an annual emissions factor is calculated as 11.5 tCO$_{2e}$/10 yr = 1.1 tCO$_{2e}$/ha/yr. This emission factor is used to account for the enhancement benefits of this intervention (For key input variables see Table 13.4 below).

- The interventions indicate a relatively moderate increase of the long-term average carbon stock compared to the RL average plantation carbon stock. This is mainly due to the need to carry out thinning in the lifetime of the production cycles which is taken into account in the model, thus is conservative.

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[97] UNIQUE forestry and land use and Climate Focus, 2016: Development of Business Models to Address Drivers of Deforestation: *Phase II – Feasibility Study* - Restoration of short-rotation Acacia plantations with high value native tree species in Vietnam.
This project is part of the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative based on a decision adopted by the German Bundestag.

Table 13.4: Transformation of short rotation to long-rotation plantation[98]

Parameter	Acacia long rotation
Rotation length (Years)	12 years
Assumed management	Thinning in year 4 and 8
Average growth rate (MAI) (m³/ha/yr)	20 m³/ha/yr[99]
Biomass Expansion Factor	1.3
Wood density (tdm / m³ fresh volume	0.57[100]
Root to shoot ratio	0.2
Carbon fraction	0.47
Conversion factor C to CO_2	44/12
Calculated average long-term carbon stock (tCO_2/ha)	98 tCO_{2e}/ha
Long term average accountable C enhancement benefit (tCO_2/ha)	11.5 tCO_{2e}/ha

13.4.2. Reforestation models

- The reforestation models (component 2.2.1 and 2.3.4) assume "bare land" as the starting point equivalent to a carbon stock of 0 tCO_{2e}/ha. For each model, average growth rates are assumed, as presented in Table 13.5, including the key input values. C enhancement benefit are accounted for once the intervention enters the ER-P, e.g. if the intervention starts in year 3 after ER-P implementation start C enhancement benefits are accounted for from year 3-10.

- For the intervention under component 2.2.1. – "Investments in reforestation in long rotation plantations (non-forest land) - Plantation after harvest (in ha)", carbon removals are not quantified because as the increase long-term average increase compared to the RL can be expected to be achieved later than the end of the ER-P implementation timeframe

- For the Acacia plantation models, an annual average carbon enhancement benefit of 9.8 tCO_{2e}/ha/year (ABG+BGB) is estimated, equivalent to a maximum accountable carbon stock of 98 tCO_{2e}/ha.

- For the mixed species plantation model (Component 2.3.4), the long-term average carbon stock is higher, but growth rates are lower compared to pure Acacia. Therefore, over a period of 10 years, an average annual carbon stock enhancement benefit of 11 tCO_{2e}/ha/year is accounted for.

Table 13.5: Reforestation plantation models

Parameter	Acacia long-term model	Acacia with mixed species
Rotation length (Years)	12 years	Acacia 12 years and subsequently replaced by mixed Native species 20 years
Assumed management	Thinning in year 4 and 8	Acacia: Thinning in year 4 and 8 Native species: Thinning year 4 and 12
Average growth rate (MAI) (m³/ha/yr)	20 m³/ha/yr	Acacia: 20 m³/ha/yr Native species:6.8 tdm/ha/year[101]

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[98] The calculations and data sources are based on an in-depth research of Acacia and native species in the frame of the International Climate Initiative (IKI) project ("Business models to address the drivers of deforestation"), supported by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and implemented by UNIQUE forestry and land use.
[99] Six studies were reviewed with reference to the ER-P accounting area and measured Acacia related growth rates. The average of these measured growth rates results in a 20 m³/ha/year[99] (Harwood and Nambiar, 2014; CIFOR; Martin van Beuren; 2004; Tran Duy Ruong; Vu Tan Phuong (2011); and Phan Minh Sang; 2011)
[100] http://vafs.gov.vn/en/2011/01/wood-properties-of-some-commercial-tree-species-for-the-central-north-region-of-vietnam/
[101] Personal communication Vu Tan Phuong August 2017

Parameter	Acacia long-term model	Acacia with mixed species
Biomass Expansion Factor	1.3	1.3 for Acacia 1.5 for native species
Wood density (tdm / m³ fresh volume	0.57[102]	0.57 for Acacia 0.6 for native species
Root to shoot ratio	0.2	0.2
Carbon fraction	0.47	0.47
Conversion factor C to CO_2	44/12	44/12
Calculated average long-term carbon stock	98 tCO_2e/ha	110 tCO_2e/ha

13.4.3. Coastal sandy forest models

- For coastal sandy forests the assumptions are based on the RL data under the category of Other Forest with an average aboveground and below ground biomass of 54.1 tCO_2e/ha.

- For the protection model of coastal / sandy forests (33,017 ha), no GHG benefits are accounted because coastal forests are not subject to significant deforestation and forest degradation pressure in the ER-P accounting area. Thus, protection will maintain existing carbon stocks and the GHG benefits are assumed to be zero.

- For the coastal/sandy forest enrichment planting (6,925 ha) (2.3.2.1) enrichment planting and protection will result in annual increment 13.8 tdm/ha/year (AGB+BGB) or 7.8 tCO_2e/ha/year. This increment is an average between Cassuriana spp. and Acacia crassicarpa. Based on Vietnamese research data Cassuriana spp growth ranges between 15-29 tdm/ha/year and an average of 20.7 tdm/ha/year according to Vu Tan Phuong et al., (2012)[103]. The growth rates for Acacia crassicarpa are based on a research from Quang Tri (Nguyen Thi Lieu, 2017)[104] and are estimated at 6.8 tdm/ha/year.

- For the reforestation model and reforestation interventions (4,423 ha), the starting situation is assumed to be bare land with a carbon stock per ha of 0. Same as under the enrichment planting model, the annual increment of 7.8 tCO_2e/ha/year.

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[102] http://vafs.gov.vn/en/2011/01/wood-properties-of-some-commercial-tree-species-for-the-central-north-region-of-vietnam/
[103] Vu Tan Phuong et al, 2012. Final report on study on valuation of coastal protection forests in South Central Coast and Southeast. The Ministerial level research. Ministry of Agriculture and Rural Development.
[104] Nguyen Thi Lieu, 2017. Scientific base for development of planting techniques for Acacia crassicarpa on sandy coastal area for protection and economic purposes in Quang Binh, Quang Tri and Thua Thue Hue provinces. PhD thesis. Vietnam Academy of Forest Sciences, Hanoi.

14   SAFEGUARDS

14.1 Description of how the ER Program meets the World Bank social and environmental safeguards and promotes and supports the safeguards included in UNFCCC guidance related to REDD+

14.1.1   Environmental and Social Safeguards Triggered by the ER-P

The ER Program is expected to trigger the following World Bank Operational Policies/Bank Procedures (OP/BPs): related to Environmental Assessment (OP/BP 4.01); Gender and Development (OP/BP 4.20), Natural Habitats (OP/BP 4.04); Pest Management (OP 4.09); Indigenous Peoples (referred to in Vietnam as ethnic minority peoples) (OP/BP 4.10); Physical Cultural Resources (OP/BP 4.11); Involuntary Resettlement (OP/BP 4.12) and relating to Forests (OP/BP 4.36). Operational policy relating to Gender and Development (OP/BP 4.20) provides a cross-cutting approach needed to ensure the social inclusiveness of projects wholly or partially financed or supported by the World Bank.

14.1.2 Strategic Environmental and Social Assessment/Environmental and Social Management Framework (SESA/ESMF) Process

A SESA has been conducted in the ER Program area with the key objective of integrating environmental and social considerations at an early stage in REDD+ program design, and this helps to ensure compliance with the World Bank's applicable Safeguards. An ESMF, as an output of the SESA process is in place, and it provides a framework for managing and mitigating the environmental and social risks and impacts of future REDD+ investments (projects, activities, and/or policies and regulations) associated with implementing a REDD+ program. The ESMF provides a direct link to the relevant safeguard policies and procedural requirements of the World Bank.

As part of the SESA and focusing in the ER Program area, intensive and extensive work has been undertaken to meet the World Bank and UNFCCC social and environmental safeguards and this has included consultations, and both quantitative and qualitative socio-economic assessments. The SESA process comprised two main diagnostic parts: 1) A qualitative assessment and consultations on environmental, socio-economic and institutional aspects in largely ethnic minority areas of the six proposed ER-P provinces (See Tables 5.1 and 5.2 in Section 5 for more details); and 2) a quantitative Probability Proportional to Size (PPS) sampling method survey of 102 communes focusing on forest dependence, poverty and livelihoods of primarily ethnic minority households in the six proposed ER-P provinces. The northern most provinces of Thanh Hoa and Nghe An are larger in terms of ethnic minority populations, the two provinces have roughly 88% of the ethnic minority population in the ER-P area, and the area of forest land, consequently the survey sample was weighted in favour of these two provinces (See Figure 5.1 for the quantitative survey commune sites).

The SESA assessment clearly shows that the ER-P area is not uniform, but a complex area of upland and lowlands mixed with quite marked socio-economic, agronomic and climatic differences. Much of the upland farming systems used by rural communities and in particular, the ethnic minority communities are often in relatively fragile areas, where good agricultural land is in short supply, the land is more likely to be steeply sloping or communities may face limitations on permitted land use, the rural communities are generally resource poor, and food security and poverty are the important issues. Many communities have very limited opportunities for expansion or the intensification of agriculture, and a developing coping strategy is wage employment and out migration[105]. The ER-P area is an important area for biodiversity of international significance and competes with development and cross sector issues which include the presence of HPPs, large ports, industrial/special economic zones and a dynamic agricultural sector which includes both smallholders and some large scale agricultural and forest management entities. The farming systems of the smallholders are quite dynamic and adaptive (where possible) and are responsive to the market. An important government aim has been to set ambitious goals for the modernization of the agricultural sector, and generally

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[105] Draft Strategic Environmental Social Assessment (SESA) October 2016; Quantitative socio-economic survey for Emission Reduction Program (ER-P) provinces area Project "Support for the REDD+ Readiness Preparation in Vietnam" MDRI July 2016.

the government has been promoting the need to adopt less rigid constraints on production processes in the sector.

The SESA provides a comprehensive analysis of the important social issues of concern and a summary of those identified issues is provided below and these are then addressed in the Section 14.1.5 onwards.

Consultations in the ER Program area

Consultations on the proposed ER interventions and its potential impacts/risks in the ER-P started in July 2014 with field visits by multidisciplinary teams to all ER-P provinces and included work with villages and communes which contributed to the SESA process. Further information on consultation can be found in Section 5 of this ERPD, the SESA and the REDD Readiness Assessment. Consultations were also an integral part of the development of the six PRAPs which included the use of independent consultants to help facilitate the consultation with the different levels of government and types stakeholders. Additional consultations in March 2017 were undertaken with the most vulnerable ethnic minority groups in the two provinces (Nghe An and Thanh Hoa[106]) with the highest percentage of ethnic minorities were undertaken and consultations specifically targeted women and other vulnerable households in each province and were undertaken in the language of choice requested by each ethnic minority group.

In Nghe An, consultations were undertaken with the Khmu ethnic group, specifically communities impacted by the loss of agricultural land and forestry land for HPPs. Consultations were also undertaken with the Thai ethnic group, which has also been affected, and who were also constrained by living on the edge of the Pu Huong NR, but were better positioned to take advantage of alternative non-rural based livelihood opportunities than the Khmu and consequently have more of an incentive to protect remaining forest land. In Thanh Hoa consultations were undertaken with the Hmong ethnic group that is considered the most marginalized of all ethnic minority groups in Vietnam. In all instances people consulted, irrespective of gender or age expressed concern that if protection forest land that has been converted to either production forest land or other land use purposes, they will experience serious food security occasions in their households.

During all consultations participants expressed concern that if the ER-P were to negatively impact upon their livelihoods it would need to identify sustainable livelihood activities that would benefit the household and be provided with income support during the period it would take to restore their livelihoods. However, as a result of the consultations, as part of the SESA process an ESMF along with an ethnic minority planning framework is drafted to ensure that the program would minimize and address any negative impacts while ensuring the positive impacts from program implementation are equitably shared. See Section 15 on Benefit Sharing.

Summary of the quantitative/qualitative assessments of socio, economic/poverty profile ethnic minority issues

In the ER-P area the ethnic minority groups are found in the largely mountainous districts and communes that also have higher percentages of land classified as forest. The partial exception to this is Thanh Hoa Province where, with its large Muong and Thai populations (essentially paddy cultivators often occupying the midlands rather than highlands); the ethnic minority people are not highly concentrated in a very few districts or even in just a few communes of a few districts (as is the case in Quang Binh, parts of Quang Tri and Thua Thien Hue). Ethnic minority poverty remained high especially in the northern provinces of the ER-P area during 2015, and it will likely rise in 2016. The reason for this is that MOLISA has updated the poverty indicators for the period 2016 – 2020[107,108]. The major poverty measurements in use in Vietnam, however, do not capture dimensions related to social exclusion and vulnerability which may be important factors in ethnic minority poverty,

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[106] Communes (and villages) visited Nghe An: Trung Dung District and Communes visited were Luong Minh (Thai and Khmu), Xien My (Thai), and Yen Na (Khmu); Thanh Hoa: Mung Lat District, Trung Ly Commune (Thai and Hmong) Commune.
[107] The new rural per capita income rate has been raised from VND 400,000 per month to VND 700,000, while the near-poor income has increased to VND 1,000,000. The GoV now defines people as "poor" if they have a near-poor income between VND 700,000 and 1,000,000 per month and if they lack three of ten services/infrastructure items listed in the Decision; the new definition aims at a more multi-dimensional characterisation of poverty in Vietnam.
[108] See Prime Minister Decision 59/2015/QD-TTg.

especially women's, children's and the elderly.[109] See Section 3.2.5, Figure 3.2 and Table 3.3 for the distribution of the ethnic minorities by provinces, poor households and potential ER-P communes.

The poorer living conditions and overall poverty of the districts and communes in the mountainous areas of the ER-P are also reflected in the number of communes that belong to "Category III" according to the definition of the Committee for Ethnic Minority Affairs (CEMA) these are the communes with "exceptionally difficult circumstances" [110]. The high forest cover area districts, both Program 30a and non-30a, in the six provinces tend to be those with larger numbers of Category III communes, where there are also higher poverty rates and larger numbers of ethnic minority people. The Category III classification provides a good proxy for higher poverty rates and high dependence on agriculture and forestry. Examples of Category III communes visited by the SESA team are Tam Hop and Luong Minh in Nghe An (Tuong Duong District) where poor households remain at 61% and 72% respectively (2015). Of the 102 communes selected for the quantitative survey, 67 of them belong to the CEMA Category III.

Forest dependency, use of NTFPs and livelihoods

Different ethnic minority groups show different levels of forest dependent livelihoods. For some ethnic minority groups, such as the Ta Oi-Pa Co, Co Tu, and Hmong, forest dependent livelihoods account for up 90% of the households' livelihoods. Some ethnic minority groups, such as Hmong, Ta Oi-Pa Co and to a lesser extent the Thai, have a higher level of dependency on NTFPs (ranging from 70.3% - 97.2% of the households), while only a very small proportion of the majority Kinh are involved in NTFPs collection and there is almost no commercialization of NTFPs among Hmong households, where 94.5% of NTFPs collected are for self-consumption. There is a clear trend that the poor are more likely to collect NTFPs than the non-poor, using a higher share of the collected NTFPs for their own household consumption. A particular, but growing problem for many communities who are dependent on the forest is the influx of "outsiders" who come to an area and undertake illegal logging and mass collection of NTFPs for both the domestic and regional markets (SESA Section 3).

Sacred forest has important cultural significance to households in the ER-P areas as most households do not have sacred forests nearby, however, the level of significance varies among ethnic minority groups, with 76% Bru-Van Kieu ethnic group living close to sacred forests; and Ta Oi-Pa and Co Tu appearing more dependent on the forest for its cultural values than other groups.

The poorest ethnicities have a lower percentage of working age people as well as a lower proportion of economically active household members; in the Bru-Van Kieu, Ta Oi-Pa Co and Hmong groups, under 60% of household members are economically active. However, despite being one of the poorest, ethnic minorities groups, the Thai group has a relatively high percentage of active members, almost as high as that of the Kinh group, whereas only 18% of Hmong are employed for wages, but earn the majority of their income from cultivation (42.3%) and livestock raising (26.2%). While there is some consistency among ethnic groups when it comes to livestock-raising, the Co Tu derives just 7.5% of their net income from this activity, with a greater proportion coming from cultivation and forestry.

Land tenure and access to resources in the ER-P area

Land tenure, access to resources and livelihoods are consistently cited as the most important social issues identified through the SESA and quantitative survey with relation to the implementation of REDD+ activities in the ER-P area. Comprehensive assessments and analyses undertaken during the SESA process highlighted that REDD+ interventions in the ER-P will focus on remote, rural, upland regions which are often dominated by ethnic minority populations characterized by persistently high poverty rates and in some cases, are also vulnerable to food shortages. Currently, in many natural forest areas the forest and NTFP resources are looked upon as "free goods" with unclear statutory land tenure from incomplete forestland allocation to forest owners

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[109] Draft SESA October 2016; Quantitative socio-economic survey for (ER-P) MDRI July 2016; Social Safeguards and REDD+ Readiness: Frameworks and Gaps in Quang Binh GIZ 2012; Social and Environmental Safeguards, Quang Binh Province GIZ 2013

[110] See the SESA for further details, a further 24 communes belong to Category II, nine to Category I and only two fall outside of CEMA's categories (meaning communes with no particular difficulties).

and the default management of forest areas is by the CPCs (SESA Section 3.6.1). This often results in an open access regime due to a lack of incentives for protection and/or sustainable use, coupled with insufficient management capacities on the part of the Districts and CPCs. Such communities are often extremely dependent on land and forest resources to meet even the most basic livelihood issue associated with household food security.

Therefore, any interventions, which affect land availability, could exacerbate existing poverty, food insecurity and vulnerability to climate change and lead to negative impacts on rural upland livelihoods. There are safeguard concerns that ER-P conservation and reforestation interventions could lead to situations where ethnic minority households and communities may experience involuntarily resettlement issues, lose productive land (particularly lands which are customarily used) and/or access to natural resources. The ER-P includes in-built program design features as well as safeguard processes for avoiding, minimizing and otherwise mitigating or compensating for the loss of land and resource access restrictions.

There are differences in the land holdings of the ethnic minorities, for example, the Co Tu, Hmong, and Bru-Van Kieu have the largest area of land per capita. The Ta Oi-Pa Co has the largest area of land per capita dedicated to forest farming. Meanwhile, for mixed-use land Thai, Co Tu, and Hmong are likely to have a larger area of land and Muong and Hmong households have on average markedly less production land than other groups. The Hmong have only a small proportion (4.1%) of their land for forestry crop farming; this is partly explained by the fact that the Hmong households are still mostly dependent on forests for their self-subsistence.

The prevalence of LURCs varies across ethnic minority groups, with Co Tu, Kinh and Thai groups having the highest percentage of land area with LURCs, at 74.4%, 68.0%, and 65.5%, respectively. The high figure for Co Tu group demonstrates an active process of granting LURCs to this group in Thua Thien Hue Province. Muong and Ta Oi-Pa Co share similar figures of around 63%. The Hmong have the lowest percentage of land area with LURCs, at just 3.9% with most of these land parcels being residential land (58.4% of the residential land parcels of Hmong have the LURCs) while hardly any production land is secured through LURCs (less than 1% for both agricultural crops and forestry crop farming land) although there are some Hmong in upland villages of Thanh Hoa that do have LURCs for such land, but some of the women state they do not understand the value of these LURCs because they cannot do as they would prefer with the land.**[111]**

Land problems and disputes

Poor land quality is the most significant reason for dissatisfaction with agricultural crop land (59.6%), followed by too small land area (29.6%), and inconvenient parcel location (15.4%). However, land disputes are not frequent in the ER-P area, occurring in only 5.1% of the overall households, although it is slightly more common among the poor (7.5% of the households). The main types of land with disputes are land used exclusively for forestry crop farming (37.4%) The main reasons for land disputes involved the boundary of the land (58%) and the use of the land (37.2%). Most disputes were resolved through self-arrangements among the parties (55.8%), however, 31.3% were solved through the intermediary role of the local authority, either at the commune or district level. The Muong and Co Tu were the only ethnic groups that solved a significant portion of their disputes through the intermediary role of local organizations[112] (25.4% and 15.7%, respectively) and the Muong and Kinh were the only groups to solve their disputes through judgment by the court (25.4% and 12.8%, respectively). More emphasis is now placed on time limits for the settlement of land disputes which may make it easier to seek redress through the courts[113]. Settlement of disputes is further discussed in Section 14.3.

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[111] LURCs are only valued by households if they can effectively use them to undertake activities that respond to the market demand and also are appropriate for the climatic conditions and soil types that predominate on land for which an LURC has been issued. Of equal importance, no household has an interest in an 'LURC' on an area of 'protection forest' as is has highly restricted land use.

[112] These include socio-political organizations under the umbrella of Vietnamese Father Front, e.g. Women's Union organization, Farmers' Association organization, Veterans' organization, and Youth organization.

[113] Amendments and complements to several Decrees detailing the implementation of the Land Law Article 90a added setting time limits for settlement of disputes and effects of decisions. Decree No.01 2017- ND-CP 6th January 2017.

Customary rights

Local, especially ethnic minority, customary tenure and land use rights are not recognised in law; but they may occasionally have *de facto* recognition on a case-by-case basis. This has recently been somewhat strengthened through the new Forestry Law (2017) and places more emphasis on the needs of the forest dependent, and particularly ethnic minority, communities (Article 4) and also recognises the need for communal forestry (Article 102) and this requires state forestry managers to collaborate with local forest dependent communities. Ethnic minority ancestral or other socio-cultural traditions related to land are not given constitutional or statutory recognition, making their tenure rights insecure in many areas where statutory rights have not been formally recognised. The lack of recognition of customary land rights is considered a safeguard issue since both the World Bank OP/BP 4.10 on Indigenous Peoples and the UNFCCC safeguard principle (c) on respect for the rights of IPs which invokes the United Nations Declaration on Indigenous Peoples (UNDRIP), to which Vietnam is also a signatory, do recognize the rights of indigenous peoples over customary lands and territories. Since REDD+ activities would be concentrated in forest landscapes inhabited by numerous ethnic groups in the NCC, these safeguards are triggered. Thus, there is conflict between customary tenure and resource management regimes and policies regarding ownership and use of particular forest categories. REDD+ activities such as AF/RF or strengthened conservation could exacerbate access restrictions and negatively impact livelihoods.

Community forest management and forest land allocation

While customary rights may not be recognized much effort has been made to facilitate ethnic minorities and communities to be able to have secure land tenure and participate in SFM and CFM through a basket of legal land use titling measures that support and encourage local involvement in forest management. The measures include long term (50 year) renewable[114], transferable government guaranteed land and forest titles. This process is continued in the new Forestry Law which places more emphasis on the involvement of ethnic minorities (Articles 4 and 94) and introduces prioritisation for them (Article 14 in the Forestry Law and this is in line with the Land Law Article133) and as noted encourages communal forestry (Article 102). Where forest land is accessed by local communities, communal ownership can provide rights and help protect forests and some districts have allocated protection forest land to communities and communes for forest protection and development. However, the Civil Code does not consider communities as legal entities *per se* for the purpose of land allocation. This means that, unlike households and individuals, they are not eligible for receiving LURCs, i.e. they cannot transfer, convert, lease, inherit and joint venture by forest and forestland use right. However, a community can apply for a LURC on production forest land by forming a cooperative or an association.

There are examples of this arrangement, for example in Thai Nguyen Province. While much of the forest land is still managed by state forest management entities (SFCs or PFMBs and SUFMBs), and they can restrict access to this forest land (although this will now be more difficult as Article 102 of the new Forestry Law requires state forestry managers to work with local forest dependent communities) the reality on the ground is that in forest-dependent communities where there has been limited forest land allocated, individual households can still access these forests. This access includes harvesting of NTFPs and tree felling for household construction purposes. Some individual households can "over-exploit" this informal access by the over-harvesting of NTFPs for commercial purposes and quasi-commercial logging albeit on a small scale. In general, while there is restricted access to and use of forest resources, forest dependent households are not normally denied (they may face agreed extraction limits) access on a "*de facto*" basis. Hence lack of tenure *per se* does not mean lack of access. What a lack of tenure means is that there is the possibility of restricted formal access to forest resources by forest-dependent households.

Gender Issues, Women and Forestland Use Rights

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[114] The Land Law (2013) introduced a major reform allowing the extension of duration of agricultural land tenure for annual crops to 50 years from 20 years (perennial crops and forest plantations already have longer leases) and farmers are allowed to renew more easily without pre-set conditions. This improvement in tenure security will have a greater impact over coming years and will also help to reduce deforestation pressures, as farmers can be expected to respond to the added security of tenure.

The Constitution of Vietnam (Civil Code 2013) upholds women's equality, and there is a 2006 Law on Gender Equality, and as of 2003 the Land Law required that the spouse's (women's) names also be included on LURCs rather than simply "head of household." Additionally, there are national and provincial strategies to 2020 to promote women's rights. The Vietnam Women's Union (VWU) promotes gender equality and women's participation in development; however, gender equality has yet to be fully mainstreamed in reality. Rural women's concerns, whether Kinh or ethnic minority, have not made much progress in areas that greatly impact their livelihoods: land, agriculture and forestry. These remain male-dominated professions where gender mainstreaming has yet to take place. Overall, the quantitative survey data indicate that the poor and women are structurally disadvantaged in the ER-P area in that they have less access to land and information, and most probably formal credit.

The first legal reference to husbands' and wives' equal rights to property was Decree 70/2001/ND-CP detailing the implementation of the Marriage and Family Law of 2000. It stated that all documents registering family assets and land use rights must be in the names of both husband and wife. The Land Law (2003) and its subsequent iteration (2013) also enshrined women's usufruct rights to all types of land. Another issue related to women's land use rights is that when they have been allocated agricultural or forest land it is often less than that which men are allocated because a female-headed household likely has less labour than a male-headed household. This is because in some localities, land is allocated based on the available labour in the household at the time of allocation therefore less labour, may result in less land (this particular factor is used mostly for paddy land which requires high labour inputs).

As mentioned, common property rights are not formally recognised in Vietnam (although as above the new Forestry Law does introduce collaborative management approaches with state forestry managers) this also has a negative effect on women, as with their still reduced land rights, they rely more heavily than men do on common property rights to meet livelihood needs for themselves and their families. Women, for example, maintain a greater interest in the forest as a source for NTFPs[115]. More women than men will go to the forest to search for NTFPs, whether for sale or for domestic use. Ethnic minority women are more likely to have knowledge of different forest foods compared to men or to Kinh women. Thus, women are more concerned about the reducing availability of both NTFPs and firewood in their areas. While NTFP collection is arduous work often involving further and longer treks into the forest, and does not result in large incomes in the ER-P area (this can be different in other provinces i.e. close to China where NTFP trade is considerable), women require steadier sources of income to make food purchases for their families.

The female-headed households are also reported to have higher percentages of residential land utilized for production, usually small-scale activities like livestock raising and vegetables or planting medicinal herbs. Notably, female-headed households have a greater proportion of their land coming from state allocation, and smaller proportion from inheritance than male-headed households, which can be explained by the preference for male heirs, as well as preference in many localities to allocate land to widows who usually end up being the female head of the household.

Gender inequality *vis-à-vis* land use rights, including forest land rights, has the potential for serious negative implications for women's abilities to benefit under REDD+ on the same scale as men. Under PFES-type schemes that require formal land tenure arrangements, women are more likely to be disadvantaged unless a CPC makes special provision which can happen. Additionally, a woman-headed household may be left out of forest protection contracting because of labor shortages in the family (or unwillingness/ unavailability to go on forest protection patrols). When women are represented to a much lower extent on land titles, it may also mean a reduced availability of credit for productive investments. 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 labor outlays.

A gender action plan as part of the ESMF has been prepared to ensure that women benefit from ER-P interventions. The action plan includes gender specific indicators to monitor outcomes and impacts of the intervention. In addition, as part of the global Gender fund approved by the Participants Committee, the FCPF has funded a proposal implemented by a gender based CSO. Multiple groups of EM youths and EM women in Thanh Hoa province, an ER-P province having the highest concentration of ethnic minorities, will receive

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[115] It is estimated that 81.4% and 62.3% of the households have female members collecting fuel wood and other NTFPs.

capacity building support to establish their local network or organizations that focus on the conservation of indigenous knowledge for forest protection, climate sustainable livelihood, enhancing the value chain for their productive farming and collection of NTFP, and economic development in line with the ER interventions. It is expected that the results from this work will feed into ER-P implementation in the long run.

14.1.3   Legislative regulatory and policy regime for addressing safeguards

The ESMF (Section 3.1) refers to the main Vietnamese policies, laws and procedures for social and environmental safeguards in Vietnam. MONRE at the national, provincial and district level is responsible for all social and environmental safeguards with the exception of ethnic minority safeguards, which is the responsibility of CEMA at the national and provincial level. CEMA is also represented at the district level where there are significant numbers of ethnic minority groups residing in one or more communes. Section 3.3 of the ESMF refers to policy gaps between the World Bank and Vietnam social and environmental safeguards.

The major social gaps between the two sets of social safeguard policies relates to the World Bank requirement that project affected people have their living standards restored to at least pre-project levels and occupiers of land who do not have legalizable land rights are entitled to be compensated for loss of affected land based livelihood activities, and consultations with project affected persons including women and other vulnerable groups. In relation to ethnic minority safeguard issues, the major gap is the requirement for consultation with ethnic minority people, including women and other vulnerable groups even if they are not directly affected by the intervention (e.g. involuntary resettlement).

While the gap between World Bank and GoV environmental policies has been narrowed, there are still some gaps in the screening process, public consultation and disclosure requirements, use of independent experts, review and clearance procedures, EIA appraisal, content of EIA reports and EA supervision. Where there are gaps, the gap filling measures that the WB requires on all projects and programs it supports in Vietnam will be undertaken. It also needs to be noted that Vietnam is in the process of putting in place safeguards for REDD+, and as for other programs and projects, the government, will ensure that the World Bank safeguards are followed and adhered to. (See the SESA and see Section 4.3.3).

14.1.4   Selected program design activities and measures supporting ethnic minorities

The achievement of REDD+ objectives in the ER-P context ultimately requires engaging with and motivating rural poor farmers. However, the prevailing context is one where upland farmers receive limited incentives to participate in forest protection and they face considerable obstacles to benefit from forest land and often have limited viable alternative livelihood options. Whilst recognizing that this is a significant challenge, and in isolation REDD+ and the ER-P will not be able to address poverty and vulnerability, contributions toward poverty alleviation are seen as an important element in achieving REDD+ goals. This is recognized in all ER-P region and PRAPs. It should be noted that the national rural development program and the national poverty alleviation program currently being implemented to include in the ER provinces would be expected to significantly contribute towards poverty reduction and improved livelihood for poor rural farmers. In addition to this, the ER-P supports a number of livelihood improving activities (also see Section 4) that will be identified through the ACMA process and supported through the BSM process and these are expected to contribute through improved livelihoods to local poverty reduction, particularly in the upland forest areas and in summary include the following activities:

Small-scale livelihood activities to benefit poor and ethnic minority households: The ER-P will provide support to smallholders to improve their livelihoods[116] through small sub-projects that are REDD+ compatible and with forest protection and biodiversity conservation. Such subprojects will be anticipatorily designed at the site-level, and will be integrated into the management plans of the participating MBs and SFCs. The design will depend on local needs. An important issue is that while there are many poverty alleviation programs (see Section 4.2.3) etc., most focus on improvements to infrastructure rather than direct livelihood improvement models (which is in part due to difficulties in coordination that is required).

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[116] The extant reality is that for many ethnic minority people are it should be recognized that only non-rural based income generation activities will provide the enabling environment for poor ethnic minority households to move out of poverty.

Improvements to land tenure security: The ER-P includes the strengthening of individual and collective ethnic minority tenure rights and includes safeguard measures as outlined in SESA Section 3.75 for ethnic minority communities and through the ACMA process which is expected to contribute towards reducing conflicts and negative impacts related to access and use of customary lands and resources. In addition, forest land allocation is identified as an important activity in all PRAPs and in the ER-P and continues to be central government policy to improve sustainable forest management, and involves the allocation of land currently allocated to CPCs to households and potentially communities (where they form cooperatives). Currently only 2% of forest land in the NCC region is allocated to communities, whilst 12% is still under the jurisdiction of CPCs, the ER-P will strengthen individual and collective forest land tenure rights of ethnic minority communities (see Section 4, a number of sections including Section 4.4.1).

Improvements to sustainable forest management and involvement of the community: The ACMA process aims to improve site-level sustainable forest management, particularly where ER-P activities are focused on SFCs, SUFMBs and PFMBs, and where greater appreciation of customary land use and natural resource management practices through the increased consultation and participation of local stakeholders (local people, village and customary leaders) would result in improved sustainable forest management. The ACMA provides a participatory mechanism that includes assessing social issues and impacts, mapping and registering customary resource use and developing spatially-referenced forest protection agreements between communities and forest owners. The agreements outline the rights and responsibilities of communities and the benefits to which they are entitled (including use of forest lands and forest resources). This process has now been reinforced in the new Forestry Law which requires the state forestry managers to work with communities There is the opportunity to incorporate existing local level regulations (e.g. including where commune land funds have set aside areas for communal use) and demonstrate respect for indigenous knowledge (Cancun safeguard c) within the terms of the agreement e.g. many villages maintain "huong uoc" or "quy uoc" (local guidance or regulations), often containing elements of customary law and traditional knowledge pertaining to areas of sacred forest, communal grazing, woodlots (firewood, bamboo etc.), NTFP extraction, tasks and responsibilities of community members and punitive measures (See Section 4.3.2).

As a head start to inform future implementation of the ER-P benefit sharing mechanism, the Global FCPF Indigenous Peoples Capacity Building program funded by the Participant Committee is currently funding a proposal in Vietnam, whereby a national level CSO is piloting the ACMA approach - beneficiaries of the project are the Thai and Hmong Ethnic Minority Villages in Trung Ly Commune, Muong Lat District, Thanh Hoa Province. This proposal is supporting capacity building on ACMA to include supporting the establishment of the Forest Management Councils using the ACMA approach; awareness raising and sensitization campaign on the ACMA approach focusing on ethnic minority groups, ethnic minority youth groups, local level forest communities and CSOs, PFMBs and local government officials. It is expected that results from this pilot will be replicated and up-scaled not just in the ER-P accounting area but elsewhere in Vietnam.

14.1.5 Potential ER-P program impacts and mitigation

There are a number of pragmatic measures promoted in the ER-P which work to strengthen individual and collective ethnic minority tenure rights and effectively safeguard ethnicity minority communities from negative impacts in terms of their access and use of customary lands and resources. The main focus of the intervention for the ER-P is investment in SUFs, SFCs and PFMBs (See Section 4) with some additional smallholder activities. A summary of the social issues of concern identified through the SESA's comprehensive analysis is provided in Table 14.1 below. Important potential social risks include: restriction to access to forest resources, land tenure, and food security. Legitimate concerns remain that effectively achieving REDD+ goals will also require the provision of livelihood support to smallholder farmers so they may be motivated to participate in REDD+/forest protection through improving their agricultural yields and/or incomes without expanding production into forest areas. Long term sustainability and viability at the landscape level necessarily involves an integrated approach at the farm-forest interface. This is highlighted in the actions and interventions around sustainable livelihoods to be implemented under the proposed ER-P. Important potential environmental impacts include conversion of natural forest to plantation and impacts on biodiversity and biodiversity connectivity.

Table 14.1: Potential social risks and potential environment impacts

ER-P activities to address drivers and enhance carbon stocks (based on ER-P intervention models SESA Section 3.3, Table 3.11)	Potential socio-economic risks	Potential environmental impact
Forest and plantation based activities 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	Generally positive
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	Possible initial minor habitat damage; fire; overexploitation of NTFPs; general longer-term benefits due to habitat improvements leading to improved biodiversity
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	Possible initial minor habitat damage; fire; overexploitation of NTFPs; potential short-term erosion and possible exotic species planted in SUFs
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 area already planted to Acacia	None expected as areas expected to be already planted to Acacia; possible loss of remnant natural forest
Afforestation Reforestation with pure Acacia 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 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
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	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;
Institutional and capacity building activities Improved forest governance and capacity building for SUFs, PFMBs and SFCs; Capacity building support for the Provincial REDD+ Steering Committee to improve LUP and cross sectoral planning; support for FLA	Potential for reduced access to forest and NTFP resources for forest dependent communities through improvements to forest governance	Improved forest governance should contribute to protection and maintenance of biodiversity; Improved landscape management; Possible loss of remnant natural forest
Livelihood support activities Includes livelihood support activities that target forest dependent communities and contribute to reducing the dependence on forest resources encroachment. Inputs from communities based on the ACMA process, RNA, SSR and improved management planning in the forest entity to reduce forest encroachment etc.	Possible gender and poverty issues; Selection of the livelihood support should be targeted to contribute to reduce forest dependency; Possible access to forest;	Limited possibility of negative environmental impacts if activities chosen by communities and forest management entities are not forest or biodiversity conservation supportive; Identification of conservation orientated livelihood models designed not to impact on natural forest in SUFs, PFMBs and SFCs

14.1.6   Mitigation of social risks

As noted, one of the most important social and livelihood issues for many rural communities is improved and secure access to land. The following Table 14.2 provides a summary of the additional social risks and mitigations included in the ER-P.

Table 14.2: Summary of approach to the mitigation of social risks through processes included in the ER-P

ER-P activity	Process included in the ER-P	Target population	Expected outcome
ACMA	Further local assessment work through the RNA, SSR and includes a social risk assessment, and improved management plan for SFCs PFMBs and SUFs	Communities living in and around SUFs, SFCs, and PFMBs	Improve relationships and support for forest entities, BSM on NTFPs etc.
FLA/ CFM land tenure	Supports GOV policy, including cooperatives, SFCs and CPC improve land availability; In conjunction with the ACMA, CPC helps in redistribution of land around forest entities	As above, land short communities, inside or close to forest management entities and targets EM, people interested in smallholder plantations	Improved land tenure security, improved opportunities to invest
Support for livelihoods	Design of local site-specific small-scale livelihood activities identified through the ACMA process and supported through the BSM processes; Improvements to land tenure security through reduction in land access conflicts, support for FLA; Support for sustainable forest management	As above, most at risk communities	Improved livelihoods, land tenure, security, and food security
Other policy support	Follow up to GOV policy and legal changes provided for in the new Forestry Law; Work with SFC, SUFs, PFMBs and CPCs to rationalize land holdings; Follow up on gender and the GAP	Land short communities, inside or close to forest management entities and those that are highly dependent on forest livelihoods	Improved land availability and further support for sustainable community forest management

14.1.7 Mitigations of environmental risks

Plantation development and the conversion of natural forests: 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 (see Section 3.2.4 and Figure 3.2 for further details), and includes 17 protected areas and 19 important international biodiversity areas. An important environmental concern is the perceived risk of plantation development leading to the clearing of remnant natural forests which may in particular impact on the connectivity of regional biodiversity corridors and high conservation value forest[117]. However, the risk to the corridors is currently being addressed through a number of international donor funded projects and while it is believed to be a moderate risk this is limited to a relatively small area in three provinces. Similarly, the risk of conversion of remaining remnant natural forest elsewhere to plantations is most likely specific and more likely to occur in the areas of predominately low soil fertility in the low and midland areas, and overall is likely to be moderate. As an indication of the scale of the potential impact, preliminary analysis of the period 2000-2010 (a period which included significant investment in new plantations) time series data indicates that conversion of natural forest to plantations accounted for only 21,920 ha in the NCC. This represents about 1% of the existing total natural forest in 2000. Two-thirds of that conversion was on poor evergreen forest. Since this period, stricter regulations on monitoring possible conversion of forests has been introduced, through Notice No. 191/2016 on measures to restore sustainable forests to respond to climate change 2016 – 2020. This emphasizes the actions to be taken to ensure the non-conversion of natural forests for other land use purposes, including degraded natural forests to plantations and a ban on logging from natural forests. This highlights that the risk while locally severe is not likely to be significant overall. More recently, the new Forestry Law further strengthens forest governance and tightens the law on and prohibits the conversion of and change of use of natural forest (Articles 9 and 14). The law also places more obligation of state forest managers to be more responsible (Articles 41, 74), involve local communities in forest management and protection and also provides clearer legal mandates and operational guidance to forest rangers (Article 104).

The following design features will ensure that the development of new plantations only takes place in areas which are designated as bare land/non-forest. There is still the possibility that some areas of remnant natural

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[117] In addition to the ER-P work the protection of biodiversity corridors is supported through projects funded by the ADB, WWF (KfW) and USAID.

forest will have a mixed mosaic comprised of natural forest (as well as bare/non-forest land), and therefore would have limited local potential risk of natural forest conversion. For this reason, the following mitigation approaches are to be applied at the stage of detailed intervention planning (during program implementation) and activity implementation and monitoring (ESMF Section 4.2):

- **Land use planning and design of program field activities**: site-level activities are expected to cover about 360,000 ha, of which the development of new plantations covers approximately 53,000 ha (about 7,000ha is included in the Forest Sector Modernization and Coastal Resilience Enhancement Project funded by the World Bank which has its own safeguards measures including non-conversion of natural forests). Plantation development (i.e. afforestation/reforestation (AF/RF)) activities under the ER-P will be primarily with smallholders (approximately 48,000 ha), with just over 5,000 ha for SFCs and a very limited amount of afforestation/reforestation at PFMBs. This design feature would be a safeguard as the main environmental concern is that the conversion of natural forests into large plantations of monoculture, such as Acacia by SFC or PFMBs has reduced biodiversity by 25% of species; birds, amphibians and reptiles also reduced from 40% to 60%[118]. Production forests allocated to households with standing natural forest will not be selected for AF/RF activities. There will also be no AF/RF activities at protected area sites or sites with HCVs, therefore helping to ensure that plantations will have minimal/no impact on high conservation values in forests and non-forest areas. In addition, the ACMA which is described in Section 15 serves as additional safeguards to prevent the conversion of natural forest. Furthermore, the ER Program will also work through the FMCs to ensure that plantation establishment follows SFM practices, and does not replace natural forests. This will 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.

- **Codes of practice for plantation development:** The ESMF Section 4.3.2 identifies the need for clear guidelines which can be used to support the development of plantations which promote good practice in the location, planning, establishment and management of plantations which can lead to improved plantation success and ensure the maintenance and where possible enhancement of HCV and environmental services. These guidelines will prescribe environmental impact management measures in nine main areas: site selection, species selection; management regime, plantation establishment; plantation tending; integrated pest control; fire prevention and control; access and harvesting; and monitoring and evaluation. Site selection is of utmost importance as the primary means for mitigating the threat of natural forest loss. As part of site selection, village-level landscape planning is stipulated.

- **Independent monitoring**: The ER Program will support a comprehensive M&E system which will included processes for qualitative and quantitative bottom-up data collection from the commune for forest cover monitoring and reporting (see section 14.2.3).

Applicable World Bank Safeguard Policies and Safeguard Instruments. The World Bank OPs/BPs as they apply to this Program are included in Table 14.3 below.

Table 14.3: Summary of World Bank Safeguards that apply[119]

World Bank Safeguard Policies	Triggered	Proposed approach
Environmental Assessment OP/BP 4.01	Yes	The Strategic Environmental and Social Assessment (SESA) has identified potential environmental impacts including: i) soil erosion on sloping areas, and from poor maintenance tracks; ii) loss of soil fertility due to removal of biomass in harvesting; iii) increased risk of pest and disease due to monoculture plantations; iv) health risks associated with the use of pesticides and herbicides; v) loss of biodiversity and habitat fragmentation due to conversion of natural forests into plantations of Acacia by SFCs or PFMBs; and vi) possible invasive plants if agroforestry or NTFP species are introduced without guidance. The Environmental and Social Management Framework (ESMF) will establish the modalities and procedures to address potential negative environmental and social impacts from the implementation activities identified in the ERPD (and PRAPs), including the screening criteria, procedures and institutional responsibilities. The specific process in the ESMF are to: (i) establish clear

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[118] National environment report, 2014 - Rural environment, MONRE 2014.
[119] This table updates the 2012 "Integrated Safeguards Data Sheet" prepared by World Bank for the FCPF Grant.

World Bank Safeguard Policies	Triggered	Proposed approach
		procedures and methodologies for the environmental and social assessment, review, approval and implementation of interventions to be financed under the program; (ii) specify appropriate roles and responsibilities, and outline reporting procedures, for managing and monitoring environmental and social concerns related to program interventions; and (iii) determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF.
Natural habitats OP/BP 4.04	Yes	This policy is triggered as the ER-P will work both within existing protected areas and other forest habitats of varying significance, although it is not expected to involve conversion of critical natural habitats. The ERPD includes activities in SUFs, and High Conservation Value Forests. The ESMF includes provisions to assess possible impacts prior to actions being undertaken on the ground. This policy will ensure that the interventions in the ER-P area take into account biodiversity conservation and critical natural habitats. During the implementation phase, monitoring activities will be established to ensure that biodiversity and critical natural habitats are not adversely affected.
Forests OP/BP 4.36	Yes	The overall program objective includes reduction of deforestation and forest degradation and interventions are expected to have significant positive impacts on the health and quality of forests. This policy is triggered due to the potential changes in the management, protection, or utilization of natural forests or plantations that could arise from REDD+ and activities may indirectly affect the rights and welfare of people and their level of dependence upon or interaction with forests. The ERPD include activities affecting management, protection, or utilization of natural forests and/or plantation forests. Potential impacts and proposed enhancement/mitigation measures will be included in the ESMF. Forest management plans are expected to be prepared during implementation.
Pest Management OP/BP 4.09	Yes	Agricultural and agroforestry practices supported by activities under the ER-Program may involve the use of pesticides for nursery management and possible crop intensification. Impacts and risks of any potential use of chemicals in forest management and agroforestry activities, if needed, will be analyzed and mitigated through actions contained in forest management plans. The ESMF will provide guidance on development and implementation of an Integrated Pest Management (IPM) which provides principles on prevention, early detection, damage thresholds, and design, mechanical and biological control methods rather than chemical pesticides.
Physical and Cultural Resources OP/BP 4.11	Yes	This policy is triggered as the activities proposed in the ER Program could indirectly affect areas containing sites with physical cultural resources. Ethnic minority (EM) people often have close connection with forest areas, including spiritual connections, it is possible that in isolated cases REDD+ activities could interfere with villager defined sacred forest sites. The ESMF will include 'chance find' procedures and guidance on development and implementation of a Physical Cultural Resources Management Plan
Indigenous Peoples OP/BP 4.10	Yes	The ER-P includes 13 EM groups that are mainly found in the largely mountainous districts and communes that have higher percentages of land classified as forest. High levels of poverty correlate with generally high EM populations in the upland areas, and overall with more forest cover. It included the engagement of mass organizations (Fatherland Front, Farmer Association, Women's Union, etc.), NGOs, and CBOs who work on EM and were involved the consultation process. Also important was engagement at all levels with the Committee for Ethnic Minority Affairs (CEMA). The implementation of the PRAPs with PFMBs SFCs and SUFMBs can be expected to affect EMs and other forest dependent communities; PRAP implementation may also catalyze restrictive land zoning processes throughout the area that may put EM livelihoods at some risk. The ESMF will include an Ethnic Minority Planning Framework (EMPF) that will guide screening and preparation of site-specific Ethnic Minority Development Plans (EMDPs) during the implementation of the ER Program. Site-specific EMDPs will be developed based on the result of the SESA and consultations and disclosed locally before Program interventions that the EMDP supports start implementation. The EMDPs will be disclosed prior to appraisal for the activities that will be identified prior to or by appraisal. The ER-P includes mechanisms that will help address the underlying problem of inadequate consultations with communities in specific locations including a REDD+ Needs Assessment (RNA), a Social Screening Report (SSR) and a locally prioritized management plan that require an assessment of impacts and possible mitigation measures to avoid or address potential undesirable effects.
Involuntary Resettlement OP/BP 4.12	Yes	OP/BP 4.12 on Involuntary Resettlement is triggered to ensure affected persons (including land owners, land users and forest dependent communities and/or individuals) are properly consulted and not coerced or forced to accept or commit to REDD+ activities or other forest management/reforestation activities involuntarily, and that best practice approaches as informed by OP/BP 4.12 are adopted. The SESA has identified and assessed the possibility of any involuntary land acquisition or restriction of access to natural resources that may occur,

World Bank Safeguard Policies	Triggered	Proposed approach
		and management processes are included in the ESMF. The new Forestry Law provides for the relocation of people (Article 54) out of the strict protection zone of a SUF. A Resettlement Policy Framework (RPF) has been prepared which lays down the principles and objectives, eligibility criteria of displaced persons, modes of compensation and rehabilitation, participation features and grievances procedures that will guide the compensation and potential resettlement of program affected persons. The RPF will guide the preparation of site-specific Resettlement Action Plan (RAP). There is high potential for an involuntary restriction of access (for example, NTFPs, fuelwood collection) to legally designated production and protection forest areas and protected areas (Special Use Forests) resulting in adverse impacts on the livelihoods of affected persons. A Process Framework (PF) has been prepared to guide procedures to identify, assess, minimize and mitigate potential adverse impacts on local livelihoods by restriction of access. The PF is to ensure adequate consultations with specific communities in specific locations for proposed interventions through the preparation of process plans when working with the management board entities and with a benefit sharing agreement mechanism for the natural resources use. Site-specific RAPs and Action Plans for Access Restrictions for activities will be identified during implementation as required. The ER-P includes mechanisms that will help address the underlying problem of inadequate consultations with communities in specific locations including the RNA, SSR and locally prioritized management plans that require an assessment of impacts and possible mitigation measures to avoid or address potential undesirable effects including a benefit sharing mechanism for natural resources use.
Safety of Dams OP/BP 4.37	No	This policy is not triggered as the program will neither support the construction or rehabilitation of dams nor will it support other investments which rely on services of existing dams.
International Waterways OP/BP 7.50	No	The program does not have any investments will be located on international waterways so this policy is not triggered.
Disputed Areas OP/BP 7.60	No	Neither the program nor related investments will be located in disputed areas as defined in the policy.

Some additional gaps and actions to address these in awareness raising, capacity and the establishment and process for ACMAs were identified during the SESA process and still need to be addressed, for example, a better understanding of upland farming systems, and helping in the development of location specific ways to improve the farming to help rural poor and particularly ethnic minority households benefit and be a meaningful part of REDD+.

The actions detailed can be expected to take from 6-12 months to be undertaken and will include the categorization ranking of the 69 forest management entities located within the ER-P area that are expected to participate in the ER-P and some actions can be expected to be taken in parallel.

14.2 Description of arrangements to provide information on safeguards during ER Program implementation

14.2.1 Implementation arrangements and national safeguards information

In addition to the World Bank requirements, Vietnam must also comply with the UNFCCC's safeguards principles and requirements. The ER-P's proposed safeguards will be developed in respect of the Cancun safeguards (see box below and more information on SIS in section 14.2.4) and to the extent possible the safeguard information system (SIS) currently under development and is expected to be completed in a phased approach over the next three to five years and will be consistent with national REDD+ safeguards approaches and the ESMF. The World Bank's safeguards policies are broadly consistent with the Cancun principles but have more detailed guidance on procedural requirements and Vietnam intends to develop a national safeguards approach which meets both UNFCCC and WB safeguard requirements. While the SIS is not a requirement of the Methodological Framework collaborative work has been on-going on the SESA, ESMF, and this has extended to include the SIS. VNFOREST issued the Decision No 246/QĐ-TCLN-VP dated 10/7/2017

Box 14.1: Cancun (UNFCCC) Safeguards Principles

When undertaking the activities referred to in paragraph 70 of this decision, the following safeguards should be promoted and supported:

(a) That actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements;

(b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;

(c) Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;

(d) The full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities, in the actions referred to in paragraphs 70 and 72 of this decision;

(e) That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivise the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits13;

(f) Actions to address the risks of reversals; and

(g) Actions to reduce displacement of emissions

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to establish a SIS and Summary of Information (SOI) working group. The working group contains 26 members from MARD and other line ministries. The main task is to deliver information and comments for the SIS and SOI's contents during the development process, to support VNFOREST in acquiring the approval from MARD for the SIS and send the SOI to MONRE prior to submission to the UNFCCC.

In recognition that REDD+ activities could potentially lead to various negative impacts on the environment and communities, according to the Warsaw Framework, countries aiming to receive results-based finance for REDD+ must: 1) Implement REDD+ measures in a manner consistent with the Cancun safeguards; 2) Establish a system to provide information on how the Cancun safeguards are being addressed and respected (the SIS); and 3) Provide a SOI on how the safeguards are being addressed and respected throughout the implementation of REDD+. The UNREDD is currently supporting the government to put in place a country approach to addressing safeguards to include the development of the SIS. See 14.2.4 below.

14.2.2 Overview of the ER-P M&E system including safeguard information collection

Progress towards achievement of the program development objectives including providing information on safeguards will be measured through a monitoring and evaluation (M&E) system that will be supported by the ER-P and will be an integral part of the program management and decision-making processes (ESMF Section 6.2). M&E at higher levels is already developed as a routine function of government agencies, rather than as

program-specific M&E. Site based program performance monitoring, and safeguard monitoring will also be undertaken to feed lessons learned into revising systems, safeguard guidelines and procedures, as well as the training program and, for example, awareness raising on safeguards. Performance monitoring will be used to determine the progress in program implementation against established targets (including safeguards) and milestones indicated in the program document and work plans. M&E will cover both program performance monitoring and effectiveness monitoring and MMR (handled separately - see Section 9) includes community forest monitoring.

The ER-P supports a process for bottom-up data collection from the commune for forest cover monitoring and reporting. Vietnam, with support from JICA, has been developing an improved Provincial Forest Monitoring System (PFMS). The aims to improve the process of measuring and reporting forest change within provinces, and addresses limitations of the existing PFMS on accuracy, credibility, transparency and quality assurance. Reporting and checking of forest cover change are conducted at each level of the government (communes, district, provinces), and at the village and forest management entities. Where forests are allocated to villages a Village Based Forest Patrolling Team undertakes forest patrols and reports to commune-based forest rangers. They 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 that will allow information to be sent to FORMIS.[120] It should also be noted that the new Forestry Law (2017) introduces forest survey, monitoring and requirements for a forest database (Articles 33 to 36).

Participatory M&E tools will be used at the village level, to encourage broad-based participation and to particularly target the poor and vulnerable, and participation will be monitored and disaggregated in terms of gender, ethnicity, and household socio-economic status. The following guidelines will be considered when developing the full M&E system which includes safeguard monitoring, updating the draft Results Framework and for identifying potential indicators: 1) Disaggregate information by gender, ethnic group, and household socio-economic status; 2) Involve villagers in designing the monitoring program, collecting data, and analysing the data; 3) Continue feedback meetings after fieldwork and incorporate recommendations into systems development; 4) Note successful and unsuccessful strategies for future reference in curriculum development, field implementation, and other program areas; and 5) Identify indicators and tools to measure the program's impacts on women, ethnic groups, and the poor.

The M&E system will provide safeguard information to the national safeguard information system when it is developed. The M&E system will include socio-economic and environmental monitoring and evaluation of the implementation and reporting of safeguard processes as detailed in ESMF Section 5.4. This will include monitoring and supervising compliance of all environment and social aspects and ensure coordination of subproject environmental and social safeguard implementation. Information related to the safeguard measures and performance would be periodically disclosed to the public.

14.2.3   Independent monitoring

An independent monitoring team will be procured by the CPMU to undertake periodic semi-annual environmental and social compliance monitoring during implementation of the ER-P. The role of the independent team will be to monitor and verify environmental and social compliance during implementation of ER-P and would work with the six provinces, districts, local officials, communities, civil society, NGOs and the private sector by providing authoritative and objective information on ER-P operations to validate and verify that safeguards have been implemented following the ESMF, RPF, EMPF etc. The team will include environmental, forestry and social specialists and will be tasked with undertaking a mixture of desk reviews of the environmental and social documentation and randomized field investigations in the provinces and districts, forest management entities, the management plans, ACMAs, implementation of BSMs and to generally review and document field activities to ensure field compliance with the environmental and social safeguards and in particular to review that only minimal conversion of natural forest is being adhered to. Information on the implementation of safeguards is summarized in the following Table 14.4 and will comprise information on:

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[120] In 2016 JICA has carried out Training of Trainers in the six ER-P provinces and continue to receive support from program partners (VFD, JICA and UNREDD) and ER-P financing through FCPF for the PFMS.

Table 14.4: Overview of the M&E system

M&E steps	M&E Process
Safeguards processes, inputs and outputs	This comprises information on the establishment of institutions for safeguards implementation and monitoring (e.g. ACMA entities and PPMU safeguards units), capacity building, allocation of budgets for safeguards implementation monitoring implementation of key program processes, specific safeguards procedures (e.g. environmental codes of practice, consultation processes, compensation provided, grievance redress procedures) as detailed in the ESMF, RPF, PF and EMPF and their associated outputs e.g. RNA SSR reports, MPs/ OMP (including benefit-sharing agreements), EMDP etc.
Environmental and social impacts/ outcomes	Participatory assessments of the conduct of the RNA and SSR and the resulting management plans (i.e. management plan will include a M&E plan for the forest entity) will provide a basis for impact/ outcome monitoring of SUFs, PFMBs and SFCs. In addition, SUFs and PFMBs would be assessed using a Management Effectiveness Tracking Tool[121]. Forest monitoring and simple proxies for biodiversity impact would be derived from information collected through the proposed MMR, including community-based patrolling (e.g. collection of information on forest cover/quality change). Baseline forest threat and social data is captured in the RNA and SSRs (e.g. major biodiversity threats, poverty, forest dependency, forest/land tenure, natural resource access and use).
Environmental monitoring of plantation development	The monitoring of the concern that plantation development may lead to the clearing of natural forests will include monitoring environmental impact mitigation measures in nine areas: site selection, species selection; management regime, plantation establishment; plantation tending; integrated pest control; fire prevention and control; access and harvesting; and M&E.
Monitoring of social safeguards at the program level	Monitoring will ensure that negatively affected households and communities are no worse off as a result of possible restrictions on natural resource use and includes, monitoring of compensation payments and livelihood restoration measures to ensure negative impacts are mitigated and program affected persons are compensated either on a land-for-land basis or cash compensation for loss due to impacts of the program. The CPMU includes a socio-economic and environmental M&E unit to undertake monitoring of the implementation and reporting of the RNA, SSR and ACMA processes[122]. The main responsibilities of the M&E unit will include: 1) overseeing compliance, including supervision and monitoring, of all environment and social aspects; 2) dealing with the subproject/ interventions related to the program safeguards; and 3) have overall responsibility for the coordination of subproject/ intervention environmental and social safeguard implementation. Information related to the safeguard measures and performance would be periodically disclosed to the public.
Monitoring of safeguards at the provincial level	The PPMUs a designated safeguards coordinator to whom implementation units would report will collect safeguards-related information. The RNA and SSR, contribute to the Management Plans and Operational Management Plans of the PFMBs, SFCs and SUFMBs and will include an assessment of their potential impact and risks, and this will feed into the M&E included in the MP and OMPs for the management of the effectiveness and help monitor the social impact of the ER-P and REDD+ activities, and record changes that impact on the livelihoods of people living either inside the PFMBs, SFCs, and SUFs (or in the buffer zone of the SUFs).
Independent monitoring of the REDD+ Registry	Following the requirements of the Methodological Frame the REDD+ Registry will also include and independent monitoring function (see section 18.2 for further details).

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[121] An international management tool that indicates pressures on the ecosystem, levels of forest protection and management responses to threats to the forest/ biodiversity of the area.
[122] To be described in the proposed Operation Manual for the ACMA process.

14.2.4   National safeguards information monitoring and reporting

Vietnam has begun work on designing a draft national SIS framework[123] providing information to the UNFCCC on how the Cancun Safeguards have been addressed and respected in the implementation of REDD+. A comprehensive review of the existing safeguards policies, laws and regulations was conducted in 2014 that resulted in a Safeguards Roadmap. This identified how Vietnam would meet the UNFCCC safeguard requirements. Follow-on work through 2016 has been supported by the UN-REDD Programme to assess institutional capacities to implement the safeguards and to propose a draft SIS framework, which was been submitted to the government in 2016. The ER-P safeguards monitoring will provide useful information to the SIS and for subsequent inclusion in the SOI. Vietnam will develop a national country approach to safeguards that would meet requirements (UNFCCC, World Bank). The FCPF will work closely with the government to help operationalizing the SIS (see below).

In the short-term, (2016-2020) the objective of the SIS is to provide information on how the country specific safeguards will be addressed and respected throughout the implementation of REDD+ that meets the UNFCCC reporting requirements including the SOI. Vietnam intends to submit a summary of information (SOI) by the end of 2017. The long-term (after 2020) objective would be to support monitoring of prioritised activities, such as PFES, contribute to the enhancement of governance in the forestry sector, by supporting the monitoring of policy implementation, and law enforcement in the forestry sector.

The scope of the National SIS would be in line with the policies and measures proposed in the NRAP and would include a description of the relevant governance arrangements (in particular the PLRs), and information to demonstrate how they are being respected. It would include information on how the governance arrangements are working in relation to the policy and measures. The SIS framework has identified information sources on how the safeguards would be addressed as well as a list of potential existing information systems. It also suggests institutional arrangements for the collection, compilation, aggregation and analysis and dissemination of safeguards information. Further work has been undertaken in 2017 (following the approval of the revised NRAP) to further define more specific information needs and to operationalise the SIS. It is envisaged that the ER-P ESMF would serve as a useful source of information on provincial level safeguard activities to be fed at the national level SIS and for subsequent inclusion in the SOI. It is expected the consultations on contents of SIS and SOI will take place in the first quarter of 2018 with the working groups as well as relevant stakeholders, to ensure necessary progress so that the SIS design framework and SOI shall be completed by June 2018.

14.2.5   Capacity building required to support safeguards monitoring

At the national, provincial and district level most staff that are likely to be involved with REDD+ on an ongoing basis are not very well versed in either the GOV, WB or Cancun Safeguards. There are some exceptions to the rule where districts have been involved with infrastructure projects financed by providers of ODA. But even here there is a limited understanding because typically only the sections that deal with land development, resettlement and compensation and the issuance of LURCs have at least a practical working knowledge of safeguard policies and processes. At the commune level there is an even more limited knowledge of safeguard policies and processes and in the management boards – PFMBs, SUFs and SFCs – there is little or no understanding primarily because these management boards have not been involved for the most part in ODA interventions that trigger safeguards (the only exception being several SFCs that are aware of ethnic minority safeguard issues as a result of complying with related safeguards due to their involvement with processes associated with Forest Stewardship Certification. Therefore, the Program will have to be involved in building the capacity at all levels (ESMF, Section 7) to better understand how social and environmental safeguard policies and their processes can be used to benefit both those ethnic minority groups directly affected by Program interventions and those indirectly affected.

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[123] This work has been supported by the UN-REDD Programme and SNV in partnership with the Vietnam REDD+ Office (VRO) and has been coordinated through the Sub-Technical Working Group on Safeguards (STWG-SG).

14.3 Description of the Feedback and Grievance Redress Mechanism (FGRM) in place and possible actions to improve it

14.3.1 The existing FGRM in Vietnam

The FCPF requires that an FGRM for the ER-P demonstrates legitimacy, accessibility, fairness, rights compatibility, transparency and capability on grievances or concerns submitted by affected stakeholders. Grievances/conflicts and disputes related to forest and REDD+ interventions can be divided into five main categories: (i) conflicts over the right to use forested lands; (ii) conflicts in the forest allotment; (iii) conflicts regarding the forest environmental services fund; (iv) conflicts over extraction and forest management and (v) potential conflicts related to the benefit distribution system. A joint FCPF/UN-REDD approach to grievance redress is currently under development with a view to finalization based on field piloting at 18 sites (including Ha Tinh in the ER-P area). In principle, the proposed approach follows existing mechanisms enshrined in Vietnamese customs and laws, especially:

- Grassroots Mediation: The majority of disputes and grievances are resolved at local levels through village level committees comprised of village leaders, customary leaders and other respected members of the community. This is effectively a customary system which is now acknowledged and written into Vietnamese law (Law on Grassroots Mediation 2013).

- Land Law (2013): Where disputes and grievances are related to land, the Land Law outlines procedures for raising and addressing grievances.

- Law on Complaints and Denunciations (1998): The Vietnamese legal framework also includes provisions for addressing other grievances, for example those related to the behaviour of State agencies officials.

Solving the forest and REDD+ related grievances involves different laws and agencies; most critically the Land Law for conflicts over land use rights and the Forestry Law (replacing the Law on Forest Protection and Development in 2019) on forest allocation and associated benefits and responsibilities. The Land Law and land administration has been reviewed through the Land Governance Assessment Framework (2013) and Land Transparency Study (2014)) for public provision of land information, dispute resolution and conflict management and information and services on forest land. The Government is committed to the requirements for public access, as mandated under the Land Law (2013) and the initiative on e-governance policies for the delivery of better quality and transparent public services, including the public provision of land information and dispute resolution and conflict management.[124]

In Vietnam, there are established grievance mechanisms that commence at the rural village or urban neighborhood level whereby all grievances wherever possible will be resolved at this level on an informal basis. If the aggrieved parties cannot resolve their grievance/s at this level, they can then take their grievance to the Commune People's Committee. The CPC has 15 days to respond and if it cannot resolve the grievance the aggrieved party/s next course of action is to lodge the grievance with the District People's Committee. As with the CPC the DPC is required to respond in 15 days. Should the grievance not be resolved then it can be lodged with the Provincial People's Committee, which has 30 days to respond. If the grievance has not been resolved by the PPC the aggrieved party/s can seek recourse in a Court of Law. It is required to hand down a judgment within 60 days from date of lodgment. Now depending on workloads at all levels of the GRM there may be some slippage but the rule-of-thumb is that all grievances should be resolved within 180 days of being initially lodged with the CPC. In the case state investments supported by ODA financing the investor whether public or private or where there is a partnership between the public and private sector is legally obliged to pay all costs associated with seeking grievance redress. Therefore, it is proposed in line with the joint FCPF/UN-

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[124] This is supported through the National Spatial Data Infrastructure (NSDI), the establishment and development of the national Multipurpose Land Information System (MPLIS) and Land Database and guidelines from the government on management and use databases and includes the incorporation of the existing pilot land information systems for the development of a land portal.

REDD+ Program for Vietnam that taking into account FRGM processes that are commonly understood in the Vietnamese context that there should be four relatively simple steps as summarized in Table 14.5.

Table 14.5: Summary of FGRM Processes:

FGRM step	Process
Receive and Register Grievance	The elected village representative from the aggrieved party where village level constituent is seeking grievance redress for grievances that can be linked to Program activities. This can be undertaken at the monthly meeting proposed or on an informal basis and where a written grievance is to be prepared the elected village representative or a literate member of a village level organization is to assist the aggrieved party if the latter requires a written grievance be lodged. Ideally all grievances where possible should be resolved at the village level but this might not be possible.
Acknowledge, Assess and Assign	This involves acknowledging receipt (this assumes it cannot be resolved at the village level) by the ACMA and it is the responsibility of the elected village representative to ensure it is received by this entity. Although given that a representative of the ACMA from the PFMB, SUFMB or SFC should be proactive and visit each village at least once every 4-6 weeks the aggrieved party at the village level could also lodge their grievance during this visit. In acknowledging receipt of the grievance, the ACMA must clearly state how the grievance will be processed, assess the eligibility of the aggrieved party to lodge the grievance (although this should be initially undertaken by the elected village representative), and assign organizational responsibility for proposing a response. For instance, if the grievance involves a land allocation issue and the subsequent issue of a LURC the ACMA must assign organizational responsibility to local authorities (legally existing forest management entities are not legally authorized to allocate forest land to any group). Similarly, if the grievance revolves around land conversion then the appropriate authority DONRE must consider the grievance because this is outside the purview of the ACMA.
Propose a Response	Involves one of four actions as follows: 1) direct organizational response or action, which may be to CPC, DPC or line agency such as DARD or DONRE; 2) stakeholder assessment and engagement, which would involve assessing the efficacy of the aggrieved party's grievance and then engaging with the stakeholder; 3) if not able to be resolved within the existing BSM, such as when involuntary resettlement impacts triggered by infrastructure projects are the cause of the grievance refer to that specific program GRM; or 4) based on the agreed criteria BSM decided whether the grievance is ineligible.
Agreement on Response	Either to agree to the party seeking grievance redress or implement the agreed response resulting in either the grievance being resolved successfully and closed to the satisfaction of the conflicting stakeholders or the grievance unable to be resolved. In this latter instance, the grievance staff will be required to consider whether the aggrieved party/s should revise their approach for reconsideration or the grievance closed without further action. Opting for the latter course of action should result in the aggrieved party/s being able to have their grievance if it is considered very important to them adjudicated on in the District Court, which would provide a judgment that would be legally binding on all parties to the dispute or grievance.

The FGRM needs to be readily accessible to all stakeholders including older ethnic minority people who are not competent in the use of the Vietnamese language, poorer village persons who cannot afford expenses associated with the cost of seeking grievance redress including litigation in a court of law, and on an individual, group or collective village basis. To ensure that the elected village representative is not co-opted by the ACMA to the detriment of the village-level constituents s/he is elected to represent if village-level constituents deem their representative to be generating poor outcomes they will have the right to replace this representative. However, the elected representative must be afforded the opportunity to assess whether constituents seeking grievance redress actually have a legitimate grievance.

Key activities to strengthen the existing FGRM system include: 1) Strengthening capacity of the mediation group at commune and village levels, especially capacity for classifying cases of grievance and referral; 2) The operation of legal and administrative support system is enhanced to support effective implementation of grievance mechanisms; and 3) Enhancing the monitoring and recording system of grievance and make it available for use by the public. (Also see Section 4.5.2). Pilots of the proposed FGRM process have been running since 2016 in several provinces, including the ER-P provinces, but implementation reports are not yet available.

14.3.2 FGRM and Safeguard Policies and Procedures

Most of the ER-P interventions revolve around the FMCs and they are being designed to ensure that they can also deal with grievances and complaints that may occur during the ER-P implementation. However, where there are grievances related to involuntary resettlement such as poorly undertaken IOLs or DMSs that are not accepted by affected persons and substantive issues arise relating to the payment or compensation for land or other assets acquired or restriction of access to existing natural resources, which need to be addressed. The FMC is not the legal vehicle to adjudicate on compensation, allowances or other income restoration measures affected persons are legally entitled to receive. Rather the FMC would need to assist affected people receive any payments as reflected in the Entitlement Matrix of the RPF prepared for the ER-P and reflected in any RAP. This assistance would need to extend to covering any costs involved – transport, accommodation, appellant fees – by affected persons seeking grievance redress as per the RAP or where relevant also the EMPF and also reflected in any EMDP. The FMC would not have to pay costs associated with complaints that do not trigger either environmental or social safeguards.

For details, see Annex 7- Feedback Grievance and Redress Mechanism (FGRM), Policies and Procedures.

15 BENEFIT-SHARING ARRANGEMENTS

15.1 Description of benefit-sharing arrangements

15.1.1 Introduction to the Benefit Sharing Mechanism

A Benefit Sharing Mechanism (BSM) for the ER-P has been designed and agreed upon by stakeholders at the national, provincial, and the commune level (a commune is made up of a number of villages or communities). The BSM is designed to ensure that carbon benefits (Monetary and Non-Monetary) are shared in an equitable and effective manner with all relevant stakeholders who will have a direct impact on generation of emissions reductions in the ER-Program area, including most importantly local forest-dependent communities.

The proposed BSM is implemented through the Adaptive Collaborative Management Approach (ACMA), which is a process that supports the interventions proposed through the ER-P including the BSM and is being operationalized by the proposed Forest Management Councils (FMCs). The ACMA is a collaboration between Forest Management Entities (FMEs), communes and communities and uses a community orientated approach to benefit sharing for sustainable management of forests and is used to integrate relevant benefits of the ER-P into improved local forest management and helps to target the forest dependent communities. The ACMA has focused on forested areas managed by Protection Forest Management Boards, Special Use Forest Management Boards and State Forest Management Boards and includes local representation, including villages, located inside and around the FME. Leadership of the FMC is committee based, and follows legal resolutions from the local District People Committees.

The main groups of beneficiaries have been extensively consulted and are expected to be the FMEs, provinces and communes (and hence communities) located in forested areas[125] (ref SESA Sections 2, 3 and the supporting Annexes which summarize consultations); however, consultations have not been carried out in the coastal and sand dune break forest areas as these were added at a late stage to the program. The ACMA has particular focus on working with the forest dependent communities and the ACMA facilitates the involvement of the communes and communities, by requirements for setting socio-economic baselines, contributing to developing more participatory, improved management plans and by encouraging FMEs to engage with local forest dependent communities.

The ACMA approach offers a forum for sustainable forest management, and for the discussion and selection of the different interventions that are supported through ER-P. Furthermore, it provides the potential for the carbon related benefits to trickle down to individual households; however, this will not necessarily be a direct monetary benefit. The BSM includes opportunities for the carbon fund payments to support a number of different types of mainly non-monetary benefits for example, as input support for the following activities:

- Improvements to agricultural crop productivity and diversification which contributes to less encroachment;

- Improvements to community forestry and sustainable forest management including planting native species, and adopting long rotations, forest certification; and

- Improvements to the sustainable management of NTFPs which helps to reduce further forest degradation pressure on the forest.

15.1.2 The Potential Categories of Beneficiaries

Vietnam has been developing benefit sharing mechanisms for some years as national policy and the government has already piloted and incentivized BSM approaches that involved benefit sharing of forest

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[125] Numerous consultations with potential beneficiaries took place from 2014 - 2016 and these are summarized in the SESA 2016. However, consultations have not been carried out in the coastal and sand dune break forest areas as these areas were added at a very late stage to the ER-P in mid-2017.

resources and a pilot monetary approach for REDD+ where it was agreed that approximately 94%[126] of the carbon monetary benefits will be available for sharing and utilization and the remaining 6% is proposed to cover the management and M&E costs. A particular focus of the ACMA is that it targets collaboration between ethnic minorities and the FMEs and encourages them to work together as interdependent beneficiaries meaning that they have shared goals and benefits as the FME stand to benefit from improved forest management and forest cover and the communities have direct and indirect benefits of improved crop production and greater role in management of the local forest resources. The majority of the benefits from the BSM under the ER-P will be shared by stakeholders in the FMCs, and will focus on:

- Forest dependent villages and the poor households who make up the most important forest users and are often the most vulnerable to food security issues; and

- Other local stakeholders, including: 1) the managers of the forests (PFMB, SUF and SFC); 2) Provincial, District People's Committees and Commune People's Committees; and 3) Mass Organizations[127] which play a role in the management of the commune and the use of the land and forest resources.

To ensure that the FMC addresses drivers of deforestation and degradation and also targets the poorer and more vulnerable groups that are more likely to be forest-dependent than the non-poor and less vulnerable groups, the BSM will include a small grant mechanism of US$10,000 to support livelihoods per FMC per annum. About US$44.6 million of the results-based payments from Components 2 and 3 are proposed to be used for implementation of participatory and collaborative management of forest resource in and around deforestation/ forest degradation hotspots and reforestation with native tree species. This will include the operationalization of the ACMA and support to the livelihood development of poor and ethnic minority households and deforestation free value chains of the ER-Program (see Section 6 of the ER-P). Funding for the grants, until ER payments commence in 2-3 years, after verification could be provided by an advance payment that Vietnam is requesting from the Carbon Fund. This funding will be sourced from the approximately 94% (this figure could be subject to change) of ER payments to be made to the National REDD+ Fund and eventually the FMCs. (See Section 6.2 ER Program and Budget Financing Plan) and is expected to flow from Carbon Fund payments to the National REDD+ Fund. The legal approval to establish the Fund has been granted by the Government and this also is confirmed in the NRAP (2017). MARD will lead this process of setting up the Fund in close collaboration with the Ministry of Finance, and in coordination with other relevant ministries and agencies[128].

The fiduciary requirements of the fund have not been established and fund is not operational as yet and these will be the subject of follow up supporting legal Decision. The National REDD+ Fund will be administered through MARD and by the Vietnam Forest Protection and Development Fund (VNFF) which is the official management unit responsible for the Forest Protection Development Fund (see Figure 15.1) the structure of which has been approved in the VNFF's Operational Guidelines and with policy support from the Vietnam REDD+ Office (Decision 419/QD-TTg April 2017 on the revised updated NRAP). This approach has been discussed at a number of provincial and national workshops, as part of the NRAP and additionally in work undertaken as part of the UNREDD programme.

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[126] As proposed in the 25th December 2015 Decision: 5399/QD-BNN-TCLN "Issuing regulation on piloting REDD+ benefit distribution under the framework of UN-REDD Viet Nam Phase II" this implemented in six pilot provinces including Ha Tinh Province (part of the ER-P) and will run until June 30th 2018. As this is a three-year pilot, the figures 94% and 6% (and others) in the Decision may be reviewed after the pilot is concluded and as lessons learned are reviewed, and would be a useful addition of lessons learned for the development of the final Benefit Sharing Plan.
[127] These are at the commune level and include the Fatherland Front, Vietnam Women's Union, Youth Union, and Farmers Union and local NGOs
[128] Decision 419/QD-TTg April 2017; Section 6.2 [confirms] establishes Viet Nam's National REDD+ Fund; and Section 6.2.1 provides for MARD to issue regulations on the organization and operation of the National REDD+ Fund in accordance with Vietnam's laws and international regulations and practices. The proposed organizational structure comes from the Assessment Report of the VNFF: Operating the Forest Protection and Development Fund (2008-2015).

Box 15.1: Adaptive Collaborative Management Approach (ACMA)

The BSM works through the ACMA which supports a collaborative process that is managed by a Forest Management Council (FMC) which is tasked to develop sustainable forest management. This involves and is supported by the local Forest Management Entities (FME), District and Commune People's Committee and village communities that live within and around the boundaries of the FMEs (Special Use Forests - protected areas in Vietnam, Protection Forest Management Boards and State Forest Companies).

There is a strong legal basis for the ACMA which has developed over time and is supported by VNFOREST through a series of Decisions and Decrees, experience of the operation of the ACMA includes three formal pilots based on (Decision 126) and an additional 63 SUF sites, nation-wide, over a period of about three years. The ACMA is set up to specifically involve poor forest dependent communities, establish baselines on the status of the communities. The information is collected through:

- A REDD Needs Assessment (RNA) which reviews forest inventories, forest resource use and identifies forest degradation hot spots;
- A Social Screening Report (SSR) which helps set a socio-economic baseline, encourages the FME to develop an understanding of needs of the forest dependent communities and in turn this contributes to developing a collaborative approach towards forest management which leads to an improved sense of local ownership, responsibility and accountability;
- An updated participatory developed management plan is an output from the RNA and SSR process and helps set management priorities with the forest dependent communities and focusing actions on hotspots of degradation and deforestation;

The FMC implements the BSM with funding from the ER-P through the VNFF Provincial REDD+ Fund through small grants and locally developed bespoke forest benefit sharing plans, which combines sustainable approaches to forest resource management, pro-poor support for livelihoods and choices of investment that are sensitive to natural forest conservation and biodiversity;

The ACMA process is funded by the ER-P through funds managed through the BSM arrangement which receives funds from the National REDD+ Fund (as specified in Decision 419, Section 6.2.1) and disbursed by the VNFF and is also supported by pre-existing government investment Decisions that support forest dependent communities around SUFs; Detailed Operational Guidelines on how to implement the ACMA working through the FMC will be developed, based on the previous experiences and lessons learned;

Categories of beneficiaries are easily identified and prioritised through the RNA/SSR process for the FMC and FMEs and through individual registration of interests in forest use (all has been tested in the formal pilots under Decision 126 and 63 participating SUFs; and

Monitoring of the BSM is comparatively straightforward and is focused on the performance of the FME and the FMC and can be performance orientated as was previously developed under the three pilots in Decision 126 and the additional 63 participating SUFs.

It is expected that grants will be made available through the National REDD+ Fund for livelihood improvement activities either inside or outside the forest[129]. Details for the operation of these and the activities that can be supported will be developed in an Operational Manual for the ACMA. The grants are designed to bring about a modest reduction in poverty and thus will ensure that poorer households do not become poorer as a result of the ER-P. In addition, as necessary, they will serve to help restore incomes of poor households that might be affected by the FMC decision to reconvert agricultural land into protection forest land.[130] The FME will also be supported with USD15,000 as a one-time payment to resolve land and boundary issues.

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[129] This would be based on the Operational Manual which would provide guidelines that have already been tested as part of the WB FSDP, implementation of Decision 126. Interventions considered most suitable would be pro-poor and support household livelihoods and could include improvements to pond fish, artichoke tea, local pigs, fodder, mushrooms, ginger other NTFPs etc.
[130] Based on consultations at the provincial and district level, land that was originally converted from forest to agricultural land is rather unlikely to be reconverted to protection forest land. However, the ACMA is based on the premise that whether this occurs or not is dependent on decisions made by specific FMCs, which of course include elected ethnic minority village representatives.

Figure 15.1: Proposed Structure of the VNFF to operate the National REDD+ Fund
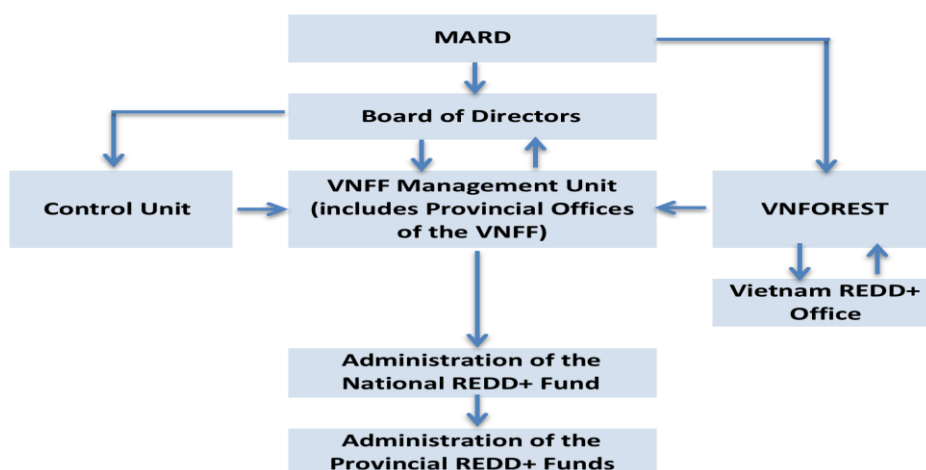
15.1.3   Monitoring the Benefit Sharing Mechanism

The BSM is a performance, results based approach and only those directly involved in achieving these results will be the beneficiaries. The performance of management of the forest will be monitored through the provincial forest monitoring system (PFMS) and Measurement, Monitoring and Reporting (MMR) forest monitoring process, however, detailed performance criteria have not yet been established. The BSM will be monitored as follows:

- The government will ensure that the BSM complies with relevant laws, decrees and circulars as per routine governmental monitoring for projects and programs that focus on natural resource management principally at the provincial level but also supported through the district administration in collaboration with the FME management and at finally at the commune level (the lowest legal level). An independent monitoring team with experience in the implementation of BSMs will be appointed to provide independent and periodic annual reports on the BSM and the safeguard requirements. The independent monitoring team will also undertake spot monitoring on a random basis of the FMCs and will provide feedback and recommendations to both the FMC and the government (also see Section 14). Local village beneficiaries as part of the processes associated with the FMC will also be encouraged to undertake their own participatory monitoring of the BSM as a commune responsibility;

- The FMC has a role in monitoring local benefit sharing arrangements as defined in the local management plan for the FME, this is also supported by the PFMS which works at the village and commune level and provides forest data to the province and then to the Forest Management Information System (FORMIS); and

- For the overall ER-P BSP, this is based on the FMC performance that would be monitored by the CPMU and PPMU M&E system, including safeguards, and with supporting information coming from the PFMS and the proposed MMR system (see Section 9.2 and 9.3 of the ER-P, and Section 3 of the SESA.

15.2 Summary of the process of designing the benefit sharing arrangements

Discussions on the design of the BSM process for the ER-PD have been on-going since 2014 and these have included discussions at program, provincial and national workshops, and field consultations with different FMEs, communes and communities (ref SESA Section 3 and Consultation Reports 2015). In addition, lessons learned have been used from PFES and UNREDD and previous benefit sharing and the proposed performance

based mechanisms used the MMR approach (see Section 9.2 of the ER-P). The management plans of the FMEs will also include monitoring targets for the FME and communities to introduce changes to forest management practices at the community level. For example, this could include combating forest degradation hotspots, resolving boundary issues and encroachment. In preparing the BSM a concerted attempt has been made to place less stress on the monetary benefits that might be derived from the Carbon Fund for two important reasons. The first reason is that in accordance with good development practice it is considered necessary not to unrealistically raise beneficiary expectations that ER-P will provide substantial monetary benefits on an individual basis. Secondly, it is still unclear as to what are likely to be the indicative amounts available for distribution under any benefit sharing arrangement that is agreed.

The ACMA approach includes provisions for the distribution of small grants as part of the BSM approach to facilitate and encourage improvements to livelihoods particularly through improvements to agricultural practices and crop diversification that will have less impact on natural forest. It will be up to the FME, in accordance with the ACMA Operational Guidelines and processes (which will set standards and conform with Indicator 30.1 of the Methodological Framework), to decide what activities best fit to the local area and conditions and how the monetary benefits from the sale of carbon credits will be distributed. It should also be noted that ethnic groups in the ER-P vary as to how they think payment for providing forest environmental services should be made: some ethnic groups think all villagers irrespective of their contribution should benefit (especially older or physically impaired villagers).

While households targeted for investments are benefiting from carbon derived monetary benefits (from the National REDD+ Fund through to the FMC via the VNFF) by being able to participate in livelihood activities that are designed to address the underlying reasons on why they are involved in activities leading to deforestation and forest degradation (especially the over-harvesting of NTFPs), they could be paid a combination of performance and input based benefits (even if payments are made in-kind). Thus, performance based and input based benefits for ER-P participants at the village level are not mutually exclusive. Similarly, if the same villagers or other villagers agree to provide forest environmental services, it is most unlikely, based on the FCPF-REDD+ consultations in the ER-P area to date, that villagers either individually or collectively will be prepared to provide such services unless some input based benefits can be derived (these issues would be addressed in detail in the Operational Guidelines for the ACMA).

ACMA and FMC Structure and Processes

| **Forest Management Council** |
representatives from the District, FME, FPD, CPC
Draws up regulations and these are approved by the District, set up sub council at the village level to act on behalf of the FMC work with Forest Rangers and local villagers

Register for Local Benefit Sharing Mechanism
Registration of interest by village communities for a BSM three types of registration as (i) village community, (ii) household (iii) individual

Local Benefit Sharing Plan and Agreements
Undertake field work to assess status of forest resources etc. then prepare the BSP and approved by ministry; draw up standard agreements on the regulation and forest use by (i) Village community, (ii) households, (iii) individuals

Figure 15.2: Summary of the structure of the FMC

The ACMA and FMC structure (see Figure 15.2 for the summary of the structure of the FMC) is not designed to replace the existing management structures of the FMEs but will complement them by facilitating greater levels of involvement and collaboration between forest managers and users of forests than generally exists at present. The six PPMUs in the ER-P will work with FMEs to develop their understanding of the role and functions of the FMC and what processes they need to follow to ensure that the principles of the ACMA will be embedded in improved forest management and follow the BSM (they will be guided by the Operational Manual for the ACMA). The prescribed eligible activities (and reasons for choices) will need to be discussed and explained, and the basis for this will be the RNA (in summary this is a forest resource use and threat assessment) and the SSR which undertakes a socio-economic assessment of the local communities, provides a baseline and identifies forest dependence and hotspots of forest encroachment, leading to forest degradation and deforestation. Agreed permitted activities would include forest resource surveys and these would contribute to forest use agreements, participatory boundary demarcation, community communication activities, awareness-

raising activities, village-based forest protection teams and small-scale, demand driven pro-poor livelihood improvement activities that address the major drivers of deforestation and forest degradation.

The BSM through the use of the ACMA and FMC is designed to take account and reflect the local conditions, threats and pressures on the forest resource that have developed and these in turn are addressed in the FME management plan which in turn is based on the RNA and SSR baselines.

Figure 15.3: Summary of the structure of the FM

Implementation of the ACMA | Results from ACMA approach

Inputs
Funds and resources to provide collaborative approach
Baseline REDD Needs Assessment (RNA) and Social Screening Report (SSR) combine to set a forest use and dependency socio-economic baseline that can be used for design and choice of BSM supported activities, monitoring and enforcement of forest resource use

Activities
FMC set up support for forest governance, protect natural forest, capacity building for FMEs and encourages work with local people, interests in forest use are registered development of collaborative approach, monitoring of activities and safeguards, improved land use planning, improved local regulatory framework, FMEs address boundary issues, multi-stakeholder coordination and dialogue

Outputs
SSR baseline for forest use RNA identifies natural forest areas and contribute to a management plan that aims to improve protection, reduce forest degradation, make local communities more aware of values of forest and improve local "ownership" and accountability, uses local knowledge on how to manage natural and plantation forest with collaborative support from local communities,

Outcomes
Improved land use management, strengthened land tenure security, register of peoples forest interests, contributes to clear dispute free carbon title, implementation of sustainable practices contributing to emission reduction, strengthened local management capacity for forest use and management, collaborative support between forest management entities and local communities, improved incomes and improved provision of environmental services

Impacts
Reduced emissions from land use deforestation forest degradation and through collaborative forest management and sustainable land use
Increased ecosystem resilience improved land tenure security and contribution to improved livelihoods and poverty alleviation for forest dependent people
Carbon title 'ownership' supported through involvement of local communities

15.3 Description of the legal context of the benefit-sharing arrangements

The legal context for benefit sharing is supported through the following:

- A strong legal basis for benefit sharing and collaborative management approaches has developed over recent years to support the actuality on the ground, and is based on a succession of Decisions[131] a summary of most important legal basis for the ACMA in relevant regulations is as follows (for further details see Annex 7): i) Prime Ministerial Decision 126/2012/QD-TTg in 2012 on Pilot Benefit Sharing in the Management, Protection and Sustainable Development of SUFs this clearly outlined implementation plans for both collaborative management and benefit sharing. The Decision was limited to three National Park SUFs: Xuan Thuy, Hoang Lien Sapa, and Bach Ma although by the end of 2013 there were 63 similar sites throughout Vietnam. Decision 126 allowed for the inclusion of participatory processes envisaged by the ACMA; ii) Prime Ministerial Decision 07/2012/QD-TTg also 2012 introduced policies related to the co-management of forests and benefits that would be shared by all forest managers and users and identified the three principles for benefit sharing that included the direct and voluntary agreement among stakeholders; iii) Prime Ministerial Decision 17/2015/QD-TTg in 2015 issued regulations on Protection Forest Management that are apply to all PFMBs. These regulations included provisions for contracting forest protection activities, implementation of stable and long-term co-management of forests with local village communities and benefit sharing mechanisms. iv) Decision 17 provides for the PFMB receiving the value realized from the sale of NTFPs and sharing these benefits with individuals, households and village communities who co-manage the forests; and iv) The most recent decision 419/QD-TTG issued in April 5, 2017 Approval of the National Action Program on the Reduction of Greenhouse Gas Emissions through the Reduction of Deforestation and Forest Degradation, Sustainable Management of Forest Resources, and Conservation and

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[131] For example Decision No 106/2006/QD-BNN dated 27/11/2006 of MARD on Management of Village Community Forests; Decision No 186/2006/QĐ-TTg dated 14/8/2006 of Prime Minister, The Decree 117/2010/ND-CP dated 24/12/2010 on organization and management of special-use forest system, Prime Ministerial 2012 Decision 57/2012/QD-TTg on Forest Protection; and Prime Ministerial Decision 24/2012/QD-TTg on the Policy for Development Investment for SUFs for the period 2011-2020.

Enhancement of Forest Carbon Stocks (REDD+) by 2030 that the Government of Vietnam supports collaborative approaches to stakeholder engagement in REDD+ based activities.

- Setting up and management of the funds for REDD+ is supported through the Prime Ministers Decision 419/QD-TTg April 2017 – the updated National REDD+ Action Programme which allows for the setting up of and management of the REDD+ Fund;

- Supporting legislation and regulations relating to managing and distribution funds is provided through Decree No. 99/2010/ND-CP September 24, 2010 on government policy on payment for environmental forest services; Decision 114/2008/QD-BNN November 2008 establishing Vietnams' Forest Protection and Development Fund; Decision: 5399/QD-BNN-TCLN December 2015 Issuing regulation on piloting REDD+ benefit distribution under the framework of UN-REDD Vietnam Phase II.

- The new Forestry Law (2017) introduces and update clear support to the use of benefit sharing mechanisms that includes local communities (Article 3, 4, 86) and also provides clear support for the involvement of and communities in sustainable forest management by requiring state forest managers to collaboratively work with communities and prioritize the involvement of ethnic minorities. It also introduces a communal approach to sustainable forest management (Article102).

16 NON-CARBON BENEFITS

16.1 Outline of potential Non-Carbon Benefits and identification of Priority Non-Carbon Benefits

Forest-dependent communities look towards non-carbon benefits generically related to a sustainable improvement in their existing livelihoods. The poverty rate among such communities as discussed in the SESA and other supporting earlier specific studies is in excess of 80% (which partly reflects the new multi-dimensional poverty criteria to be adopted by the GoV). The non-carbon benefits identified by most of these communities includes 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 (this is now strengthened in the new Forestry Law (2017), and infrastructure improvements in health, education, rural water supply and connectivity (roads and bridges).

Generally, the forest-dependent communities with little or no access to productive agricultural cropping land (typically less than 1 hectare of irrigable land per household) are also seeking either long-term leasehold or similar long-term security of tenure of land suitable for production forestry mixed with subsistence agriculture. 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.

The ER Program recognizes three broad categories of non-carbon benefits - socio economic, environmental and governance as shown in the following Table 16.1, and this identifies the main NCBs, indicative scale of potential impact, and the most immediate beneficiaries, anticipated from ER Program interventions. The table also notes the priority NCBs that will be included in the proposed program M&E system, the list may be added to as the program develops. (Note some interconnectivity between the NCBs and also the safeguard monitoring requirements).

The ER-Program interventions are likely to yield, directly and indirectly, multiple NCBs. They are selected for their NCB, as much as their emissions reduction (enhanced removal), potential.

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Table 16.1: Non-carbon benefits

Type of Benefit	Future	Investment Modality	Potential Beneficiaries
Socio-Economic NCBs			
Maintaining Sustainable Livelihoods, Culture and Community (Priority NCB)	Forest-dependent users are (i) more aware of their rights and of the policies, legislation and regulations that impact on their livelihoods and (ii) horizontal linking of stakeholders with shared interests (owners/managers/users) of the forests and establishing relationships of trust, reciprocity and exchange; and, (iii) adding to the social capital of local communities by acknowledging their identity, their sense of honor and commitment to belonging to the community.	The ACMA (through the FMCs) because it will link managers and users of the forests in ways that are not possible at present will facilitate the enabling environment for the more effective accumulation of human and social capital.	All village communities that are linked to the ACMA but especially groups hitherto excluded from existing human and social capital bases (notably most ethnic minority women, ethnic minority households living in poverty and physically and intellectually vulnerable members of community).
Cultural Services and Traditional Knowledge Resources (This would be mainly picked up as a SG issue – rather than as a priority NCB)	Forest managers and technical specialists learn to appreciate the cultural perspectives of upland ethnic minority groups related to the management of forest resources and engage in social learning with these groups. On the other hand, the upland ethnic minority groups are afforded the opportunity to integrate their traditional knowledge bases with the scientific and technical knowledge bases of the forest managers and technical specialists.	Via the social learning processes associated with the ACMA and FMC process.	All stakeholders participating in the ACMA.
Valuing Forest Resources (Priority NCB)	Forest users (e.g. village women who collect NTFPs on a regular basis) have a good idea as to the value of forest resources but are unable to translate this knowledge into the public domain that other stakeholders accept.	The SERNA, which is the prelude to establishment of the ACMA, and the FMCs will provide the enabling environment for the inventory to be used for an assessment of the Total Economic Value (this includes qualitative cultural valuations)	All current legal users of the forests and those that will be legalized via the ER-P. It also benefits the management entities because it enables them to engage in evidence driven dialogue with local village users
Income Generation and Employment (priority NCB)	(i)Transparent and equitable Forest Protection Contracts to Individual Households, Groups within Villages or on a Village-by-Village Basis; (ii) Additional Income Derived from Climate-Smart Investments in Agriculture.	Investments will be made (i) via ACMAs in providing FPCs and Support for Climate-Smart Investments in agriculture and	Potential number of beneficiaries depends on (i) agreed basis for provision of FPCs; (ii) at least 25 poorer households in identified hotspot villages; and (iii) funding

Type of Benefit	Future	Investment Modality	Potential Beneficiaries
		(ii) leveraging of existing GoV programs.	available from existing GoV programs.
Environmental NCBs			
Promotion of Climate-Smart Agriculture (Priority NCB)	Introduction of climate smart agriculture including agro-forestry, drought-tolerant crops, reduction of post-harvest losses, reduction in use of toxic insecticides and pesticides and home gardens to enable women to meet some of the household's food security requirements closer to their physical residence than hitherto has been occurring.	GoV programs, ER-P and ACMA and FMCs will act as a conduit.	All households that rely on land-based livelihood activities associated with agriculture and agro-forestry. Additionally, female members of households will benefit from reducing time met in providing non-cereal based foodstuffs.
Conservation and Protection of Biodiversity (Priority NCB)	Improved stewardship and accountability of the SUFs and "ownership" by local communities in and around the SUFs.	SERNA, ACMA and FMCs.	14 Protected Areas (SUFs) and contiguous of HCV Forest.
Protection and Maintenance of Ecosystems Services (Priority NCB)	In 5/6 ER-P Provinces some communities affected by HPP investments receive PFES for environmental services aimed at protecting remaining natural forest in the affected watersheds.	ER-P will assist forest management entities and local communities secure more transparent, timely and equitable PFES payments.	All forest management entities and local communities that currently receive PFES or are entitled to receive PFES will benefit.
Protection and Proliferation of Medicinal Plants and Curative Practices	Identification of medicinal plants that should be protected and clear linkages established with known and potential curative practices.	SERNA will collect and establish the necessary data base the ACMA and FMCs will manage the data base.	Potentially all collectors of NTFPs in the ER-P will benefit as will users downstream who value the use of non-pharmacological drugs.
Water Regulation and Watershed Management	Contributes to quantity and quality of water and probable contribution to climate change mitigation, especially in degraded watersheds.	ACMA will provide support to improve those watersheds that are identified as SERNA as degraded.	Not only villagers and other stakeholders in the physical watershed but also downstream users including urban and peri-urban localities.
Governance NCBs			
Strengthening of Village Level Socially Inclusive Governance (Priority NCB)	Many ethnic minority forest-dependent villages possess less social capital than they did in the past based on the SESA analysis and as a result are less resilient than lowland ethnic Kinh villages.	Because each village will elect several representatives to the ACMA and FMCs relationships between management entities and local communities will be less asymmetrical in nature.	All village communities, but especially women and poorer and more vulnerable members will be able to benefit from fewer benefits being captured by "village elites". Management entities will also

Type of Benefit	Future	Investment Modality	Potential Beneficiaries
			benefit from a reduction in conflicts over forest use with local communities.
Forest Governance and Management (Priority NCB)	Contributes to sustainable forest management in ways that are not possible at present and represents a significant improvement in "business as usual" via the ACMA. Additionally, surveillance and patrolling will improve the capacity to protect the forests and apprehend those involved in illegal logging and other negative practices.	ACMAs and FMCs will be better resourced than at present and this will enable a greater focus on existing degraded hot spots. However, for effective surveillance and patrolling it will be possible to achieve better coordination between policing forces (economic and criminal), forest rangers and FPD.	All management entities that agree to participate in the ACMA and local communities.
Improved Provincial Forest Management Service	Forest-dependent communities are more involved in participatory forest assessments that include data collection and reporting to the Province and eventually to FORMIS.	ER-P will provide the resources for this activity.	All governmental institutions at the sub-national level (province, district and commune).
Improved Land Tenure Regime (Priority NCB)	Opportunities to (i) improve land tenure through newly established cooperatives; (ii) continued access to funding for LURCs established through the Plantation Revolving Find; (iii) improved forest tenure; and, (iv) contribution to resolution of boundary disputes.	Existing GoV programs including the Plantation Revolving Fund and ER-P financing.	All stakeholders participating in the ACMA.
Participatory Land Use Planning (Priority NCB)	Improved district land use planning because of the involvement in the planning processes of actual land users to contribute to climate-smart agriculture.	DONRE and DPC working in conjunction with the ACMA.	All current and potential land users and especially villagers hitherto have made no input to the planning processes.

16.2 Approach for providing information on Priority Non-Carbon Benefits

The program includes the development of a comprehensive monitoring and evaluation system that will systematically collect data on the implementation of activities including non-carbon benefits that will go to the program beneficiaries. The M&E system will be based around formal semi-annual and quarterly reporting and will include the develop of different data capture forms (these will include paper based and digital formats). The M&E system will include evidence-driven information on the prioritization of non-carbon benefits and will include both quantitative data collection and qualitative socio-economic information and will be based on consultations with target stakeholders (i.e. ethnic minority groups, women, poor and near poor and other vulnerable persons) and this can be compared to the baseline information collected as part of the SESA qualitative and quantitative socio–economic information to help assess the implementation of the ACMA, benefit-sharing arrangements and safeguard measures that are proposed to be utilized by the Program.

These issues have been discussed at the commune, district, provincial and national level, and triangulated with the Program's findings discussions with other providers of ODA in the forestry sector, CSOs and NGOs and this will continue to be undertaken as a program implementation activity and the M&E system is developed. Participatory subnational planning and decentralized forest sector interventions, principally through the collaborative processes embedded in the ACMA, improved governance will be a focal NCB of the proposed ER Program, noting that governance failure is an underlying cause of other NCB (sustainable livelihoods; biodiversity and ecosystem services, etc.) loss and this will need to be coupled with the monitoring of livelihood activities to ensure that negative impacts are mitigated.

There will be meetings and workshops at the national and provincial level to identify how enhanced forest governance will control the conversion of natural forests to other uses, especially rubber and agricultural crops. Real-time information will be provided through the use of the mass media and aggregated data collection stored in FORMIS and other information portals There will be a role for local communities to play in data collection because they will be involved in participatory forest resource assessments (REDD+ Needs Assessment), whereas in the past generally they have not been involved in such undertakings. Local communities will be accessed, especially during the SERNA but also on an iterative basis once the FMCs are established and fully operational to assess whether they understand why the ER-P is clearly supporting the non-conversion of natural forest for other uses. Thus, information dissemination by the program and joint participation by all stakeholders will lead to more information on priority NCBs.

17   TITLE TO EMISSION REDUCTIONS

17.1   Authorization of the ER Program

The Minister for MARD is authorized to act on behalf of the Prime Minister for the Government of Vietnam for the ER-P and as such, signed the LOI in January 2015. This authorization is supported by the Prime Minister's Decision 1775/QD-TTg 21 November 2012 [132].

"Article 1; V Project Implementation Arrangement Section 4. The Ministry of Agriculture and Rural Development shall assume the prime responsibility and coordinate with the relevant ministries and sectors to study and develop and promulgate documents guiding the localities, agencies, organizations and enterprises associated to carry on business of carbon credits obtained from forest on the market outside the Kyoto Protocol."

The state is the constitutionally defined owner of forests and land and is constitutionally mandated to manage forests and land on behalf of the nation or the people.

Name of entity	Ministry of Agriculture and Rural Development
Main contact person	
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Website	www.mard.gov.vn/en
Reference to the decree, law or other type of decision that identified this entity as the national authority on REDD+ that can approve ER Programs	Approval of the revised National Action Plan for Reduction of Green-house Gas Emissions through Efforts to Reduce Deforestation and Forest Degradation, Sustainable Management of Forest Resources, and Conservation and Enhancement of Forest Carbon Stocks; Prime Minister's Decision 419/QD-TTg 5 April 2017[133]; On Approval of Project Greenhouse Gas Emission Management; Management of Carbon Credit Business Activities to the World Market Prime Minister's Decision 1775/QD-TTg 21 November 2012

17.2   Transfer of Title to ERs

How carbon ownership will be defined has not been finally decided yet, but to follow the precedent of the Land Law and the new Forestry Law, it would most likely be viewed as an asset attached to the land. For example, a plantation forest is viewed as an asset and managed through the forest law in combination with the land law. As part of the work for the ER-P, an assessment of the land and resource tenure of the six provinces was undertaken (October 2016), and as summarized in Section 4 of this ER-PD, this assessment reviewed the forms of land tenure and land administration processes and provided detailed information on the current status of issuance of the different types of LURCs and land tenure for different entities including households and SFCs in the six provinces. As noted in that section, the state is the owner of land in Vietnam, and as such, it is assumed that the government is the overall owner of the carbon resource and hence the owner of a carbon title which transfers Title of emission reductions (ERs) to the Carbon Fund to allow use or trading of the carbon resource. For the purpose of the ER-P, it is proposed that a carbon covenant of use, which would set what activities, can and cannot take place on the LURC and this would be included into the LURCs, however, the carbon covenant does not confer the emission reduction title to the LURC. By including the carbon covenant into the LURC, in the land title registry this would allow the LURC holders to be eligible to receive benefits under the benefit sharing arrangements introduced through the ACMA.

Carbon title and carbon covenant

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[132] On Approval of Project Greenhouse Gas Emission Management; Management of Carbon Credit Business Activities to the World Market Prime Minister's Decision 1775/QD-TTg 21 November 2012.
[133] Relevant section includes Article 1 Section IV, 2 Responsibility of related Ministries, 2.1, h) MARD to "Mobilize international funds to implement REDD+ Programme, and is authorized by the Government to negotiate and sign financial support agreement with international sponsors who are committed to make contribution to Vietnam REDD+ Fund in compliance with the law."

Carbon is a new (yet to be established) interest in land and is associated with plantation/ natural forest tree cover, which is considered as an asset attached to the land and is managed through a combination of the forest law and land law. No carbon title has yet been established, and therefore, the government will need to establish a statutory basis[134] for the ownership and protection of carbon rights, and the carbon title to facilitate trading of the carbon title (i.e. the title to ERs) to the Carbon Fund.

As a carbon right is an interest in land, it would be expected to be dealt with in similar ways to other interests in land, i.e, it can be transferred, surrendered or extended and the details of this would be included in management regulations in the form of the "carbon title". The carbon title will be issued by MARD in collaboration with MONRE who would be responsible for recording the title and recording any carbon covenants that would be applied to existing and new LUCs that may be located within the areas of the carbon titles. This approach follows the Law on Forest Protection and Development and Land Law that jointly deal and regulate assets that are attached to land. Both laws assign exclusive management and decision-making rights to the state. This includes the right to regulate any benefits and profits generated from natural forest. Just like the state owns all land and manages this for and on behalf of the people and, provides a clear and indefeasible title under the Land Law, the government will issue a similarly indefeasible guaranteed carbon title in accordance with the new Prime Minister's Decision (see below). As the state issues the carbon title, this can also be transferred by the state.

The carbon title (i.e. the registration of a carbon right) would relate only to ownership of the benefits and liabilities of carbon sequestration from the land, and any guarantee of the value of the carbon may have i.e. the value of the carbon, would be based on the contractual agreement of the ERPA and the agreed market price set in the ERPA. The transfer of carbon title, therefore, would not confer ownership of land.

Rights given by the state in a carbon title are intended to function as tradable forest and land interests. By recognizing the carbon right as a land interest rather than a totally separate contractual right, this gives the title holder a stronger, more durable right, that can be registered with supporting regulations (a carbon covenant and definition of this will be included in the Prime Minister's Decision) against the land title (the LURC for SFCs and smallholders or companies, or a gazetted Provincial Decision in the case of PFMBs and SUFs).[135]

To secure the carbon title, it is proposed that a carbon covenant of use (this will provide regulations to control or modify certain aspects of land use, aimed at protecting the carbon resource) will be included into the LURCs (land use title). Such carbon covenant would set out how the land is to be used or managed over a period of time, and would be intended to ensure preservation of the trees or continuation of land management practices that sequester the carbon (for example, it could encourage longer rotations for plantations, SMF, planting or keeping native species). The land owner who has entered into a carbon covenant would have obligations to the owner of the carbon right (the state) even if the title is transferred by the state and this would, for example, include fire protection as is already required in all cases of the forest management entities. The regulations of carbon covenant would be added to the LURCs (including any LURCs the SFCs have) and would effectively be additional lease conditions currently administered by the General Department of Land Administration (GDLA) through the land administration land registration system. This would be a straightforward normal process of land administration and is done quite easily at the District and Provincial Level Land Registration Offices, as relatively few LURCs would be affected.

Proportion of the Accounting Area that a carbon title would be issued over

It is not proposed to issue a single carbon title over the whole of the ER-P, rather the main areas under the title would be centered on the forest management entities (SUF, PFMBs and SFCs) with a buffer zone of participating communes around the forest management entities where forest carbon is also present in the high-quality forests. The buffer areas may include areas of plantation forest with LURCs holders who would be

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[134] Carbon Rights as New Property: The benefits of statutory verification S. Hepburn, Sydney Law Review Vol 31:239
[135] It is further proposed that the carbon title is a government title, and therefore it would be expected that no tax would be payable on the creation of the carbon title or for any subsequent transfers or other dealing, although administrative charges may apply.

identified through the ACMA, SERNA, SSR and management plan process. This approach of issuing the carbon title on the land managed by the forest management entities (SUF, PFMBs and SFCs) and identifying and recognizing the households with an interest (in the buffer zone), would avoid the necessity of excising existing LURCs from the carbon title, and would ensure an inclusive approach and form an important part of the BSM process.

In the upland forested areas of the ER-P, it is not always clear where boundaries are and therefore who owns the forest and many remote forest users lack formal use rights and this, in turn, can lead to boundary or encroachment conflicts, and even a potential extinguishment of local community's informal user rights. A carbon covenant may also place new additional restrictions on land use on people living inside a SFC or PFMB[136], if the area they use and occupy is not excised from the main LURC of the SFC (or boundaries of the PFMB). The ACMA process (including SERNAs), and FMCs and Management Plan, will help address such potential restrictions and the potential extinguishment of existing rights to land and forest use by requiring all forestland users in a community to register their interest/rights of use (including "absentee" forest users, as discussed in Section 15), including the newly created carbon title and carbon covenant (see below for more information on registration requirement).

The approach is shown in Figure 17.2 below, and this shows the different forest management users and the government owned land over which the carbon title would cover. There will be a number of households living legally with LURCs within and on the borders of the forest management entities, and these households would have an interest in the carbon right and title and would need to be included (as an internal process for the state) in the carbon title where possible. The state would need to record their interests and these would be identified through the SERNA, SSR, ACMA / FMC process and localized benefit sharing plans would be developed with the forest management entity. Basing the carbon title on the forest management entities and the ACMA process provides further advantages and include:

- The process contributes to developing a general synergy between the different forest management entities, in that the PFMBs, SUFs, and SFC are generally in close proximity leading to ease of issuance of a large contiguous carbon title (as can be seen in Figure 17.2) and involvement of the local communities in and around the entities; and

- By issuing a defined but broad carbon title area tied to the forest management entities and communities participating in FMCs, this helps to limit the institutional, management issues and resources required to manage the carbon right and carbon covenant and reduces the potential area of land use conflicts.

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[136] People and communities living inside SUFs already face a number of restrictions due to the status of the protected area.

Figure 17.1: Main forest users in Thua Thien Hue Province

THUA THIEN HUE - MAIN FOREST OWNERS
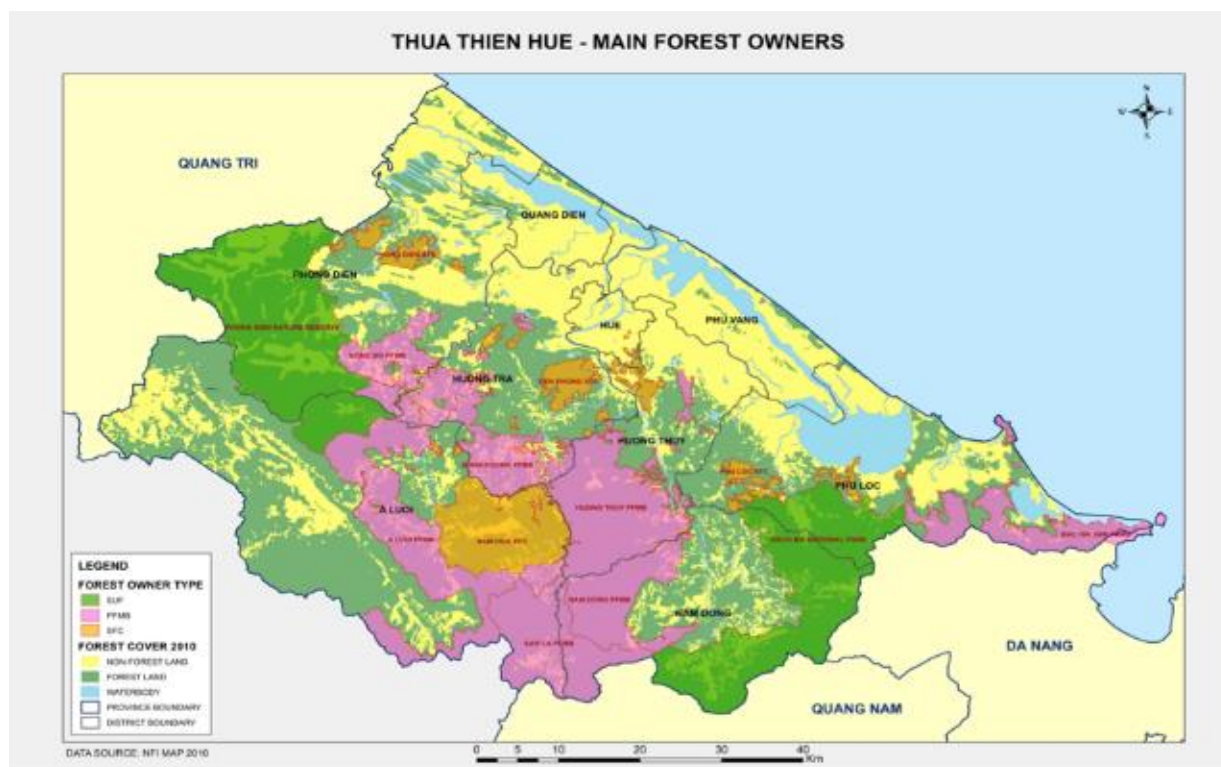
Registration of carbon title and carbon covenant

As with all land titles, interests, assets, and dealings, the carbon title and carbon covenant will be required to be registered, i.e. entered into the Land Title Registry.[137] The procedures for this would be included and set out in the Prime Minister's Decision and as an update to the Circular on the regulations for registrations (see below).   This registration process will minimize any chance of duplication or double counting, as compulsory registration prevents the unregistered, or 'made up' carbon sequestration rights being issued and dealings with un-registered land interests. The registration of the carbon covenant also reduces the chance of the covenant being ignored.

The registration of the carbon covenant can be done retroactively and would become a land encumbrance as it is treated as a constituent of the underlying carbon right. The proprietor of a carbon title with a carbon covenant would not have a right to own the specified land, but may be given a license to enter, for example, to inspect the land use and the management, as owner of the carbon right has an interest.

Issuance of the Prime Minister's Decision to introduce the carbon title and carbon covenant

Vietnam's legal system allows a straightforward approach to accommodate changes to laws, such as the process of introducing a new carbon right and title, as the Prime Minister can provide authorization, through a legal Decision, to change the laws for an extended period[138]. This process is expected to take about 11 months. A change in the laws may eventually occur when the affected laws are updated and the National Assembly approves the legal changes.

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[137] The precedent of registering all people who have an interest in forestland and resource use is set in Decision 126 and that was successful in operation and deals with such issues as customary forest using rights. In the ER-P, these would be identified by the SERNA and the SSR site level assessments and also when drawing up a localised benefit sharing plan (See Section 15 for further details).

[138] A legally binding Decision can remain in place for 10 years or longer.

It is proposed that the carbon title and the carbon covenant will be introduced in the form of a Prime Minister's Decision. The process of obtaining a Prime Minister's Decision is relatively quick and straight forward, provided that the necessary consultation and consensus building takes place at all levels of government and with relevant government, private and community stakeholders. For the purpose of the ER-P, this would include all ministries (i.e. MARD, MONRE, MOF, MPI, Ministry of Justice etc.), all six provinces in the ER-P, selected districts, and the different types of holders of LURCs and forest users in the ER-P Provinces. Provided that documentation is complete and sufficient explanations are provided to support the Decision and the proposed change or modification to laws is not against any existing law, a Decision will be approved by the Prime Minister. While the two main laws involved (the Forest Protection and Development Law and Land Law) do not mention carbon titles, the policies[139] of both MARD and MONRE ministries are supportive of reducing deforestation and reinforcing the value of existing carbon sequestration through the carbon rights as tradable titles attached to land interests.

A Prime Minister's Decision has enough authority to direct the various Ministries to act. The Prime Minister's Decision will formalise the form of the carbon title and carbon covenant, and would include, among others, any legal changes and instruments that may be required to make these rights legal, and implementable and would include details on the format of the certificate of title and the procedures to integrate the carbon title and carbon covenant into the Land Title Registry and the carbon covenant would include regulations on activities that can and cannot be undertaken. It is also expected that an inter-ministerial Circular will be issued, providing detailed administrative regulations, and guiding implementation, or requiring that the various ministries develop their respective specialised regulations/guidelines to meet the objective. A summary of the roadmap for the Prime Minister's Decision to approve the carbon title and carbon covenant is shown below in Figure 17.2. The drawing up of the regulations that would be required to enable the functioning of the REDD+ Registry would need to closely follow and link with the Prime Minister's Decision to ensure that the regulations of the REDD+ Registry match with the carbon title and covenant. This is discussed further in Section 18.

Figure 17.2: Roadmap for carbon title and carbon covenant

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Initial work with VNFOREST to define requirements of the Decision and initial consultation with other ministries	Review different laws and hold consultations with the ministries Provinces, FMEs, and other stakeholders including communities and private sector	Report back on consultation to VNFOREST and draft Decision then sent to the PM Office of the Government for review	Final round of consultation with ministries and updates to draft Decision for PM	To Ministry of Justice for compliance review and update of the draft Decision	Finalising within MARD and final draft Decision and proposal to PM	Final submission to the PM for consideration and approval Decision includes regulations on the how to implement the carbon title, description of the carbon covenant and the ability to transfer the title
Feb to May 2018	June 2018	Jul to Aug 2018	Sept 2018	Oct 2018	Nov 2018	Dec 2018

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[139] See Section 2

18 DATA MANAGEMENT AND REGISTRY SYSTEMS

18.1 Participation under other GHG initiatives

The government has approved the building of a national GHG inventory system with the aim of creating a legal foundation for GHG inventory accounting in the country.

The system, which is expected to be put into operation next year, also aims to enforce the country's current regulations relating to climate change response, meeting the requirements and obligations under the UNFCCC.

There also exists a national office for UNFCCC and KP under MONRE to coordinate the implementation and reporting of national GHG inventory to the UNFCCC. A government decision was issued in 2012[140] providing the guidelines on management and trading of emission reduction credits. To date, emission reduction credits are mainly generated by the energy sector. Vietnam now has 254 CDM approved projects with about 137 million tonnes of CO_2.

MONRE is responsible for organizing and coordinating actions with other ministries and environmental organizations responsible for undertaking GHG inventory tasks as part of the creation of national reports on climate change. MPI co-operates with MONRE in guiding other ministries and local authorities of all levels - including the city, provincial People's Committees and business enterprises - to provide adequate data and relevant information for the compiling of the GHG inventory. Every 2 years, MPI will then sum the data to provide to the coordinating agency of the system.

The national greenhouse gas inventory system working plan for 2016-20 includes reviewing and revising policies and documents relating to the GHG inventory, completing the GHG inventory and creating technical reports on GHG inventory for 2014 and 2016.

The plan also includes the development of a database on GHG inventory and an assessment of the effectiveness of the National Greenhouse Gas Inventory System.

The system will be completed in 2020, and the management and supervision of GHG emission will be strengthened. The system will measure, verify and report the country's GHG emission reduction to serve the implementation of Vietnam's Intended Nationally Determined Contribution for the UNFCCC. The Prime Minister has recently approved the Vietnam Renewable Energy Development Strategy to 2030, outlook to 2050[141].

18.2 Data management and Registry systems to avoid multiple claims to ERs

There is no optimal model for REDD+ registry systems across countries due to different legal context and management regulations. The approach to develop a REDD+ registry in Vietnam is to link to existing management systems for land and forest resources, land registry and GHG inventory and reporting. This will allow the state to manage REDD+ credits and avoid double counting and also help implement benefits sharing of the REDD+ benefits.

Currently there are two laws governing land and forest management: they are the Land Law (first issued in 1993, revised in 2003 and 2013) and the Forestry Law (2017) (replacing Law on Forest Protection and Development in 2019). Under these laws, MONRE is the governmental management agency responsible for all issues of land management, including the land registry and land database. MARD takes responsibility on behalf of the central government for forest resources management. Under MONRE and MARD, departments

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[140] Decision 1775/QD-TTg dated on 21 November 2012 on approving project for management of GHG and trading of carbon credits with international market.
[141] Decision 2068/QD-TTg from the Prime Minister Approving the Vietnam's Renewable Energy Development Strategy up to 2030 with an outlook to 2050.

exist across all levels of the government (provincial, district and commune level) to implement land and forest management (see Figure 18.1).

Figure 18.1: Institutional arrangement for land and forest management across levels
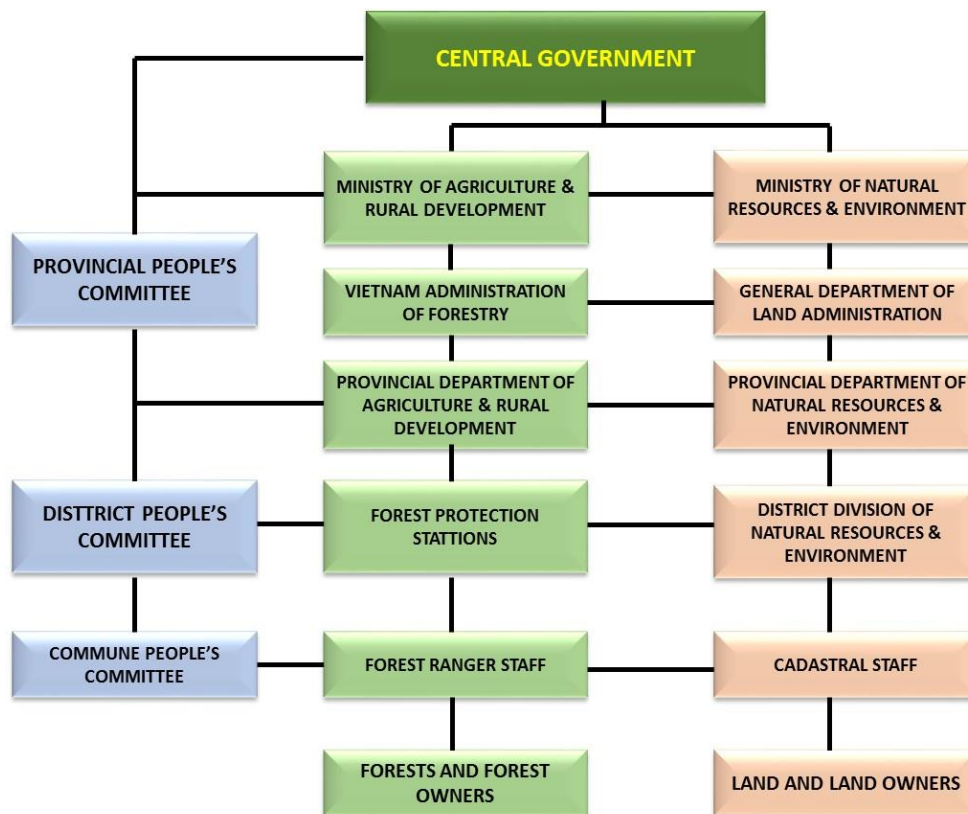
To avoid double claims on REDD+, a national REDD+ registry will be developed and operationalized by MARD and this will link with the existing forest management and land management and registration system. The Ministry of Information and Communication will provide oversight, assist with coordination and on the setting up, quality control and use of the national REDD+ Registry data base. MONRE has been developing land information systems and to further improve the efficiency and transparency of land administration services in the Provinces MONRE is developing a national Multipurpose Land Information System (MPLIS[142]) which will standardize data from the different land information systems and imported into the MPLIS. The General Department of Land Administration (GDLA) under MONRE has been running the land registration for many years and this system is available from the central level down to the district level. Land registration secures use rights of land users through the land use right certificate (LURC) and this is managed using the land registration database under the GDLA. As of January 2015, land registration has been completed for 8.4 Mha of agricultural land, 12.3 Mha of forestland, 0.64 Mha of residential land and 0.6 Mha of special use purposes[143].

The government will create and run an emission reduction and carbon title system. It is most probable that the eventual emission reduction carbon title will be attached to the land as an asset as in a number of countries that use a land title Registry, then it would need to be entered into the land Registry and as part of the land

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[142] The development of MPLIS is US$160.39 million component of total project investment of US$180 million with funding through the World Bank and includes land database, digitization of existing maps and records on land use rights; updating and integration of cadastre data (both cadastre map users and land use information and land database, land price data, land use plan data, and land statistics and an inventory to improve the completeness and accuracy of the existing land information. The MPLIS will also establish national virtual Data Centres that would store and make available land information and will include the development and pilot of electronic transactions at Land Registry Offices

[143] Luu Van Nang. 2015. Vietnam Land Administration and Land Registration. General Department of Land Administration, Hanoi.

attached assets to the parcel of land and carbon covenant, regulating land use that can and cannot take place would be added to the LURC and this information would eventfully be available through the MPLIS.

This national REDD+ registry system will include carbon title Registry, and data required following the Methodological Framework: (i) The entity that has Title to ERs produced; (ii) Geographical boundaries of the ER Program; (iii) Scope of REDD+ activities and Carbon Pools; and (iv) The Reference Level used – this would be similar to some elements of the existing Registration system together with similar levels of record keeping, a separate computerized registry system open to public view would be required. The data required for this is largely already available from the different Ministries and departments involved in land administration and forest resource management and MARD will develop the necessary linkages and a number are already in place (see Figure 18.2). The MPLIS and the land database support of the Government's initiative on development of e-governance and delivery of better quality public services will be implemented nation-wide with initial investments being made in 33 target provinces (including in the ERPD area). A further, 53 districts in an additional 30 non-target provinces, where digital cadaster data is available, will be standardized into the MPLIS system. The investment will also finance tools that will enable public and inter-agency engagement in land information services, including a Land Portal with different interfaces for the Government, private sector and the general public to facilitate access to and sharing of land information. The Land Portal is consistent with the government's IT and e-governance strategies. This approach will also trigger significant institutional development involving capacity building, efficiency and service delivery gains, an improved environment for business in Vietnam and provide a solid foundation for further development of the National Spatial Data Infrastructure in Vietnam with MPLIS providing the core land-relation foundation databases of the NSDI.
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Figure 18.2: Planned REDD+ registry arrangement
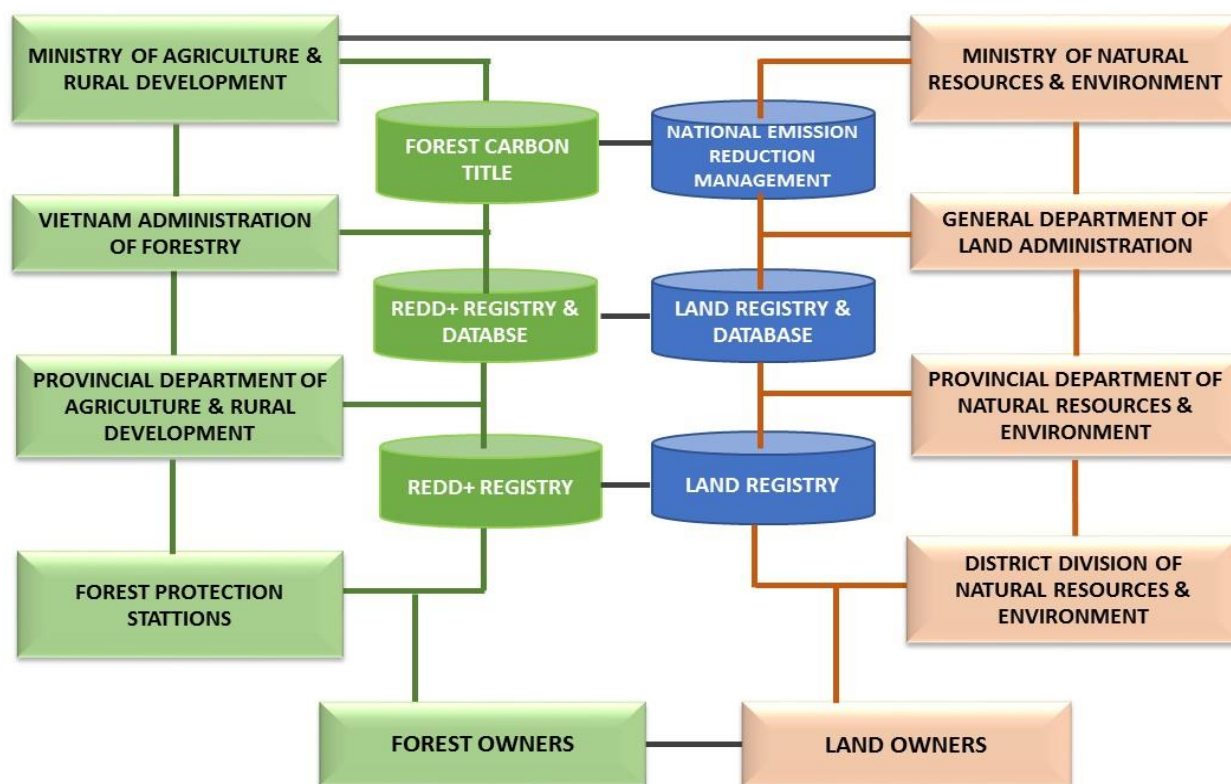
Prime Minister's Decision no. 714/QD-TTG dated May 22, 2015, on the development of a priority database in Vietnam also defines roles and responsibilities of all concerned agencies including arrangements for institutional coordination through a national database management authority, provision of support and guidance on Information Technology and allocation of funding. In addition, Government has increasingly emphasized the use of Information and Communication Technology (ICT) in providing better governmental

services to the public. MARD will provide details of design and functional requirements of the national REDD Registry database and technical solutions, applying the standards and regulations to the Ministry of Information and Communications (MIC) for monitoring and summation. MARD will have overall responsibility for the management of the REDD+ registry management system (see Section 17.1 for the various government authorizations and approvals) and will coordinate with the other ministries involved. The institutional arrangements required to run and manage this system are as follows:

- MONRE is the national focal point for implementing UNFCCC, responsible for coordinating national GHG inventory and trading of emission reduction credits generated by all sectors in Vietnam. An open access database on emission reporting and trading will be developed;

- MARD, on behalf of the government, holds the forest carbon title for forests across the country. The monitoring and reporting of forest carbon credits and emission reduction generated from REDD+ activities will be linked to the national emission reduction management system of MONRE.

- MARD will provide details on: the objectives, scale, scope and entities of the national database; the definition and relationship between basic information components; an appraisal of the feasibility and efficiency of the establishment of the REDD+ Registry database.

- MARD will establish operational processes and methods for monitoring and maintaining the national database and will adopt standardized measures for ensuring the authentication and protecting data integrity, retain audit tracks of creating, changing or deleting data. It will carry out the periodical inspection of implementation of solutions and/or measures for protecting security of the database; comply with the national standards and technical regulations for information safety and security in conformity with characteristics, features and value of stored information.

- VNFOREST and the General Department on Land Allocation will run and manage the database on REDD+ and Land registries. A linkage of those databases will be arranged to ensure that the REDD+ registry is linked and compatible to the land registry.

- DARD and DONRE and other local organizations take responsibility for REDD+ and land registries to ensure compatible datasets for reporting and for database development.

In case of overlapping information, the national database management authority of MIC shall carry out discussions and seek agreement with the agency (MARD) in charge of managing that existing national database on the preliminary design and data model of its national database, and if necessary report to the Prime Minister for consideration for decisions on any unsolved matters.

The expected information for the REDD+ registry requires full documentation of land and forest information, including but is not limited to:

- Administration boundaries (commune, district, provinces);

- Land parcel/plot data (including a unique number/ reference);

- Data on land user and the owner of land-attached assets, including: (1) Full name of the organization according to documents on the establishment, accredited or registered business certificate of the organization; (2) For foreign invested enterprise, implementing investment projects in Vietnam, it is expressed the full name of the legal entity implementing investment projects under the investment license or business licenses of such legal entity; and (3) For the community, showing name identified by community certified by the commune People's Committee;

- Data on the legal status of land use rights, land management rights, ownership of land-attached assets (i.e forests);

- Forests information ((spatial data is preferred): (1) forest owners and area of forest by owners; (2) geographical boundaries of REDD+ areas; (3) Forest status; and (4) Emission reduction and/or removals by forest owners and forests areas; and

- Data on changes in the land use right and ownership of land-attached assets.

Development, operation and reporting of the Registries contributing to the REDD+ Registry

The different registries that are functioning already have operational guidelines and are required to produce operational reports. Data input and exchange protocols and standards exist in all these systems already and these include in house data verification and approval of information before it is entered by the registry operator.

Figure 18.3: Participation, coordination and design of the REDD+ Registry

Participation, Coordination and Design	Enabling Factors	Outputs	Impact	Outcome
MARD MONRE MPI MIC	Policy documents	Technical assessment	Improved knowledge and of natural resources and their services	Comprehensive environmental and carbon accounting information
Technical committee and Technical Working groups	Satellite forest mapping	Statistical information	Mainstreaming of carbon economic accounting	Improved institutional coordination
Representatives from the technical departments	Carbon stock and emission reduction data	Management indicators	Improvements to polices and valuing of forests	Stronger links to existing data bases
	Regulations	Registration		
	Information from FORMIS			
	Land ownership information			

The operational approaches of the different information sources would need to be reviewed and approved by the overall competent national authority i.e. MARD, which will set the rules and operation guidelines of the REDD+ registry to meet REDD+ expectations and will, as necessary, require additional kinds of reporting requirements include internal reporting, government compliance reporting, and external auditing.

MARD will also be required to make and send annual reports on the management, operation and use of the REDD+ Registry database to the Ministry of Information and Communications for review, and will carry out regular inspections of the compliance with regulations of the laws on the establishment, update, management, operation and use of the national database.

Land Registration Offices are national, standardized, well organized and carefully monitored and they have the functions of registering land and other land-attached assets; compiling, managing, updating and uniformly revising the cadastral dossier and land databases; making land statistics and inventory; providing land information to organizations and individuals at their request under legal regulations. The land Registry is administered by MONRE and would provide the ultimate administration of the indefeasible carbon title[144]. The experience and fully legalized administrative set up that MONRE brings to the program makes it highly unlikely that duplicate carbon titles could be issued.

The main REDD+ registry would also be able track payments made to and by the REDD+ fund which is managed by the VNFF (managed and controlled by MARD) and then to beneficiaries also reducing the

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[144] Vietnam follows a Torren's title system and so operates on the principle of "title by registration" and the State guarantees the title.
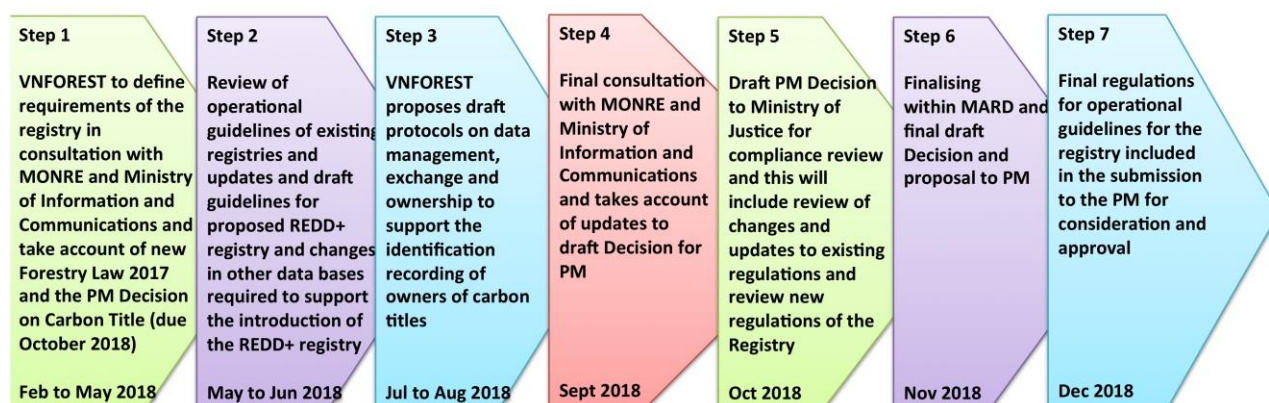
possibility duplication of payments. National guidelines and procedures will specify the entities authorized to request the recording of information in the registry, registration of subnational activities and the creation of electronic accounts. The scale of the initial operation will be based on the ER-P area and CF requirements.

Independent audit of the REDD+ registry

MARD will include a requirement for an independent auditor in the operational management of the REDD+ Registry for undertaking verification of data and operations and the audit report will be made public. This will promote greater transparency in relation to the quality and accuracy of the information recorded in the registry and is in line with the Government's initiative on the development of e-governance and the delivery of better quality and more transparent public services (ref Land Governance Assessment Framework (2013) review and Land Transparency Study (2014) as land information and ownership information of forestry is included this would fall with the remit of this improvement initiative and the e-governance policy). It is expected that the independent auditor will undertake verification of the REDD+ registry operators activities and this will complement the data evaluation process by, for instance, carrying out spot checks and double-checking samples of some of the information in documents such as the geographical coordinates of the project against its project database and cross-referencing electronic information with that provided by authorized land registry environmental authorities.

The timeframe for the design of the operational systems to support the REDD+ Registry would need to be closely linked to the development and drawing up of the Prime Minister's Decision on the carbon title and covenant as shown below also see Section 17 Figure 17.2.

Figure 18.4: Roadmap and time for the development of the regulations to allow for the setting up of the REDD+ Registry

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
VNFOREST to define requirements of the registry in consultation with MONRE and Ministry of Information and Communications and take account of new Forestry Law 2017 and the PM Decision on Carbon Title (due October 2018)	Review of operational guidelines of existing registries and updates and draft guidelines for proposed REDD+ registry and changes in other data bases required to support the introduction of the REDD+ registry	VNFOREST proposes draft protocols on data management, exchange and ownership to support the identification recording of owners of carbon titles	Final consultation with MONRE and Ministry of Information and Communications and takes account of updates to draft Decision for PM	Draft PM Decision to Ministry of Justice for compliance review and this will include review of changes and updates to existing regulations and review new regulations of the Registry	Finalising within MARD and final draft Decision and proposal to PM	Final regulations for operational guidelines for the registry included in the submission to the PM for consideration and approval
Feb to May 2018	May to Jun 2018	Jul to Aug 2018	Sept 2018	Oct 2018	Nov 2018	Dec 2018

19 ANNEXES

The Annexes are separate documents to provide details data and information on the priority area for field based interventions, reversal set aside in the buffer, consultation, activity data development, emission factors, reference level and adaptive collaborative management approach, Feedback Grievance, and benefit sharing mechanism. Below is a list of annexes attached to the ER-PD.

Annex 1: Priority areas for site-level interventions in the ER-P Accounting Area

Annex 2: Determination of reversal set-aside in the buffer

Annex 3: Stakeholder Consultations

Annex 4: Activity Data Report

Annex 5: Emissions Factor Report

Annex 6: Reference Level Report

Annex 7: Feedback Grievance and Redness Mechanism, Policies and Procedures

Annex 8: Adaptive collaborative management approach (ACMA) and benefit sharing mechanism (BSM)