Forest Carbon Partnership Facility (FCPF)
Carbon Fund

Emission Reductions Program Idea Note (ER-PIN)

Country: VIETNAM

ER Program Name:
SUSTAINABLE MANAGEMENT OF FORESTS THROUGH LOW EMISSIONS DEVELOPMENT PLANNING FOR GREEN GROWTH IN THE NORTH CENTRAL AGRO-ECOLOGICAL REGION

Date of Submission or Revision: 26th May 2014

1. Entity responsible for the management of the proposed ER Program

1.1 *Entity responsible for the management of the proposed ER Program*
Please provide the contact information for the institution and individual responsible for proposing and coordinating the proposed ER Program.

Name of managing entity	Ministry of Agriculture and Rural Development (MARD)
Type and description of organization	Governmental Institution
Main contact person	H.E. Dr. Cao Duc Phat
Title	Minister
Address	No. Ngoc Ha street, Hanoi, Vietnam
Telephone	(84 4) 7332263
Email	hungfipi@vnn.vn
Website	http://www.mard.gov.vn

1.2*List of existing partner agencies and organizations involved in the proposed ER Program*
Please list existing partner agencies and organizations involved in the development of the proposed ER Program or that have executive functions in financing, implementing, coordinating and controlling activities that are part of the proposed ER Program. Add rows as necessary.

Name of partner	Contact name, telephone and email	Core capacity and role in the proposed ER Program
	GOVERNMENTAL ENTITIES	
Vietnam Administration of Forestry (VNFOREST)	Dr. Nguyen Ba Ngai nguyenbangai@gmail.com	Leading the ER-PIN preparation process
Vietnam REDD+ Office	Dr. Nguyen Phu Hung phuhungdostic@gmail.com	Coordinating the ER-PIN preparation process and the design
FCPF readiness project	Dr. Pham ManhCuong manhcuongpham01@gmail.com	In charge of strategic and rational for the ER Program; providing information about the FCPF readiness project
Vietnam REDD+ Fund (will be officially established in 2010)	Mr. Pham Hong Luong luong_phamhong71@yahoo.com	The design of institutional arrangement for the ER Program
Ministry of Planning and Investment	Mr. Dinh Ngoc Minh	Member of the National REDD+ Steering Committee
National UNFCC Focal Point, Ministry of Natural Resources and Environment (MONRE)	Dr. Nguyen Khac Hieu ngkhachieu@yahoo.com	Member of the National REDD+ Steering Committee
Committee for Ethnic Minority Affair	Mr. Nguyen Van Xuan	Member of the National REDD+ Steering Committee
Ministry of Finance	Mr. Nguyen Manh Hoa	Member of the National REDD+ Steering Committee
Provincial VNFF, Thanh Hoa Province	Mr. Le Cong Cuong lecuongtccb@gmail.com	Provincial representatives
Forestry Department, Nghe An province	Mr. Nguyen Khac Lam lamnavina@gmail.com	Provincial representatives
Department of Agriculture and Rural Development, Ha Tinh province	Mr. Nguyen Xuan Vy nguyenxuanvyht@gmail.com	Provincial representatives
Forest Protection Department, Quang Binh province	Mr. Pham Van But butqb68@gmail.com	Provincial representatives
Forest Protection Department,	Mr. Le Van Quy	Provincial representatives

Quang Tri province	lequy1957@gmail.com	
Department of Agriculture and Rural Development, Thua Thien Hue province	Mr. Ta Van Tuan mtuan63@gmail.com	Provincial representatives
	NON-GOVERNMENTAL ORGANISATIONS	
Netherlands Development Organisation (SNV)	Mr. Steven Swann sswan@snvworld.org	Technical Advisor
WWF	Mr. Nguyen Ngoc Thang thang.nguyenngoc@wwfgreatermekong.org	Technical and Financial supports (stakeholder consultation workshops)
Winrock International	Ms.Katie Goslee KGoslee@WINROCK.ORG	Technical assistance
Vietnam Association of Forestry	Ms. Pham Minh Thoa Thoa.dof@gmail.com	Contribution to benefit sharing system
Vietnam Association of Forestry	Mr. Doan Diem doandiem0142@gmail.com	Contribution to drivers of deforestation and forest degradation
Centre of Research and Development in Upland Areas (CERDA)	Ms. Vu Thi Hien tranvuhientk@gmail.com	Stakeholder information sharing, consultation, participation
Centre for sustainable development in mountainous areas (CSDM)	Ms. Luong Thi Truong lt.truong@csdm.vn	Stakeholder information sharing, consultation, participation
	DONORS AND TECHNICAL PARTNERS	
The Forest and Delta Project	Dr. Christophe Dickinson CDickinson@snvworld.org	Technical and financial support for the development of technical issues
FCPF readiness	Dr. Pham Manh Cuong Manhcuongpham01@gmail.com	Technical supports
WWF	Mr. Nguyen Ngoc Thang thang.nguyenngoc@wwfgreatermekong.org	Financial supports for national and local consultation workshops
Vietnam Academy of Forest Sciences	Dr. Vu Tan Phuong phuong.vt@rcfee.org.vn	Technical support for development of based line and estimation of ER
Forest Inventory and Planning Institute	Mr. Vu Tien Dien dienfipi@gmail.com	Technical support for development of based line and estimation of ER
Forest Inventory and Planning Institute	Dr. Nguyen Dinh Hung Dinhhung28@yahoo.com	Technical support for development of the forest monitoring system
Forest Inventory and Planning Institute	Mr. Nguyen Quang Vinh vinhfipi@gmail.com	Technical support for development of the forest monitoring system
	PRIVATE SECTOR NETWORKS AND PARTNERS	
Handicraft and Wood Industry Association of HCMC	Tel: 08 3836 4788/66; Fax: 08 3836 4722 Website: hawa.com.vn; Email: hawavn@gmail.com Ms.Hieu (0944 736 530), Ms. Kim (0988 002 616)	Supporting FSC processes
Vietnam Timber and Forest Products Association VIFORES	Website Vietfores.org	Supporting FSC processes
Global Forest Trade Network GFTN-Vietnam Coordinator WWF-Vietnam D13, Thang Long International Village, CauGiay district.	Contact: Le Cong Uan Email: uan.lecong@wwfgreatermekong.org IPO Box 151. Hanoi, Vietnam Tel: 84-4-3719-3049 Fax: 84-4-3719-3048	Supporting FSC processes

2. Authorization by the National REDD+ focal point

Please provide the contact information for the institution and individual who serve as the national REDD+ Focal Point and endorses the proposed ER Program, or with whom discussions are underway

Name of entity	Vietnam Redd Office (VRO)
Main contact person	Dr. Nguyen Phu Hung
Title	Director of the VRO
Address	Room 409, B9 building, No. 2 Ngoc Ha, Hanoi, Vietnam
Telephone	+84 912094190
Email	phuhungdostic@gmail.com
Website	www.Vietnam-Redd.org

2.1. Endorsement of the proposed ER Program by the national government

Please provide the written approval for the proposed ER Program by the REDD Country Participant's authorized representative (to be attached to this ER-PIN). Please explain if the national procedures for the endorsement of the Program by the national government REDD+ focal point and/or other relevant government agencies have been finalized or are still likely to change, and how this might affect the status of the attached written approval. ER Program) must be located in a REDD Country Participant that has signed a Readiness Preparation grant agreement (or the equivalent) with a Delivery Partner under the Readiness Fund, and that has prepared a reasonable and credible timeline to submit a Readiness Package to the Participants Committee

The ER-PIN has been prepared by the VNFOREST, under the coordination of the Vietnam Redd Office (VRO). The ER-PIN is approved by the Minster of MARD and has been through consultations with the National REDD+ Steering Committee and national, local consultation workshops. In Vietnam the National REDD+ Steering Committee consists of representatives from line-ministries, chaired by Minister of MARD to direct the formulation and implementation of the National REDD+ Action Plan (NRAP), and any constituent sub-programmes and propose relevant policies on, and solutions to REDD+ issues and carbon credits.

2.2. Political commitment

Please describe the political commitment to the ER Program, including the level of support within the government and whether a cross-sectoral commitment exists to the ER Program and to REDD+ in general.

There has a been a long standing commitment from the Government of Vietnam to support REDD and address climate change, this is evident in a series of Decisions for Central and Line Ministries to follow and support climate change related activities and include:

- Decision 403/QD-TTg on approval of the national action plan on green growth in Vietnam for the period 2014-2020 March 2014;
- Decision 2139/QĐ-TTg, 5/12/2011, approved National Strategy on Climate Change; and
- Decision 799/QĐ-TTg, 27/6/2012, approved National REDD Action Plan (NRAP).

Strong political commitment has also been apparent on Payment for Forest Environmental Services (PFES) which is innovative and seen as a major break through for forest management and development and has established legislation and institutional frameworks and has the potential to generate substantial revenue for investment on forests in Vietnam.

The government has also shown its commitment by implementation of relevant policies and considerable investment in forestry, agricultural and rural development to address key driving forces behind forest changes, and provide support for REDD+ readiness preparation (regulations, Forest monitoring system (FMS), Benefit distribution system (BDS)).

3. STRATEGIC CONTEXT AND RATIONALE FOR THE ER PROGRAM

3.1 Brief summary of major achievements of readiness activities in country thus far
Please briefly provide an update on REDD+ readiness activities, using the component categories of the R-PP as a guide. If public information is available on this progress, please refer to this information and provide a link.

There are 23 REDD + related projects that have or are in the process of being implemented throughout the country . The largest of which is UN REDD II 2013 to 2015, funded by the Norwegian Government which has been active setting up the provincial REDD+ program in the six program provinces of Lao Cai, Bac Kan, Ha Tinh, Binh Thuan, Lam Dong and Ca Mau. The overall objective is to enhance Viet Nam's ability to benefit from future results-based payments for REDD+ and undertake transformational changes in the forestry sector. The main projects related to REDD+ are detailed below and further details can be found on the Vietnam country REDD+ website www.Vietnam-Redd.org

Following the R-PP Components

- Component 1 Organise and consult: Technical working groups and subgroups (TWG) have been set up, coordinating and consultation processes have been undertaken; training workshops are in progress at the provincial level and a number of activities have been undertaken as part of the UNREDD+ Phase II program;
- Component 2 Prepare the REDD+ Strategy: Summary assessment of deforestation and degradation drivers have been made as part of the ER-PIN process, the SESA and ESMF are yet to be completed but the number of activities that are supportive to the SESA process have been initiated such as gap analysis of the policy and legal aspects relating to REDD+;
- Component 3 Develop a Reference Scenario: An initial reference level has been established with assistance from the UNREDD program and JICA;
- Component 4 Design a monitoring system: The parts of the MRV system are being piloted by UN-REDD programme, and in the national forest assessment process and through SNV;
- Components 5 and 6 Schedule and budget and design a programme M&E framework: a detailed budget and workplan and consultation plan has been established.

3.2 Current status of the Readiness Package and estimated date of submission to the FCPF Participants Committee (including the REL/FRL, REDD+ Strategy, national REDD+ monitoring system and ESMF).

The FCPF has experienced a number of implementation and procurement delays, however, work has begun in the three targeted provinces of Quang Binh, Quang Tri and a detailed updated work plan and procurement plan has been drawn up and the expected R-Package submission is likely to be available at November/December 2015. Milestones to reach the R-Package are shown below in the summary work plan as follows:

Table 3.1 Summary road map of projects and initiatives supporting REDD+ approach and status leading to the R-Package

Program or Activity	Key dates	Progress notes
UNREDD Phase I	2009- Nov 2012	Lessons learned 2012 report; Assessing the Effective-ness of Training and Awareness Raising Activities of the UN-REDD Programme in Viet Nam (2009-2011) June 2012
Community forest management	Pre 2010 but on going	Series of KfW funded forest projects and TFF Community forest Management pilot project that support CFM; learning experiences e.g. guidelines for CFM; 5-yr management plan, training approaches and support on pilot land tenure
Forest certification	Pre 2010 but on going	Successful FSC about 46,814ha in various provinces including Quang Tri and TT Hue; FSC supported in a number of initiatives and

Program or Activity	Key dates	Progress notes
		projects with funding from GIZ, KfW, and a number of NGOs including WWF, and World Bank Forest Sector Development project, five large private sector plantations.
PFES Policy and legislation passed	2011	Decree 99 mandated implementation of PFES nationwide 2011 after Long term PFES pilot project operational in Lam Dong and Son La from 2010
UN REDD Phase II	2012 onwards	Government approval started July 2013; output and experiences used in the ER-PIN
Forest mapping and calculation of Reference Levels	2012	Detailed study funded by JICA. Report on study on potential forest and land related to climate change and forest. Data used in the ER-PIN and for work on deforestation and degradation
VFD Project set up (project supporting REDD+)	2012	Implementing strategies for climate change into land use and climate change action plans, and support authorities in the development of Provincial REDD + Action plans Scoping work, includes an assessment of Project activity work on forest drivers, PFES in Thanh Hoa and Nghe An (plus 2 other non ER Program provinces)
Co management on protected area forest (SUF) and benefit sharing	2012	Pilot legislation on benefit sharing and co management in SUFs; lessons learned available for REDD+ and used in SESA
Policy and legal gap analysis work	2013 onwards	Analysis and report on the gaps and developing an approach on the follow up actions (information will feed into the SESA)
Relevant FLEG work	2012 – onwards	Documented approach to improve FLEG work from the WWF KfW, Carbi biodiversity climate change project
REDD+ Quang Binh program	2012-onwads	Analysis of drivers, socio-economic situation, FPIC and safeguard procedures support from GIZ; information will be fed into the SESA and also work on the deforestation and degradation drivers
FCPF readiness work starts	End of 2012 – onwards	Works begins in 2013 for formulating and carrying out the R-PP, workplans, budgets and procurement plans approved and set up
Draft communication and stakeholder consultation plan	April 2014	Guidelines on communication and stakeholder involvement strategy. Available April 2014 information and experiences used in SESA
Draft ER-PIN	May 2014	Under preparation
Independent mid term review	Expected to be complete November 2014	Now due end of November 2014
Stakeholder consultation and GRM	Expected to be complete June 2015	May 2014 on wards; Guidelines for the GRM set in the communications plan and will be updated after more field work, information available for SESA and implementation in conjunction with SESA work
SESA and ESMF	Expected to be completed June 2015	Strategic Environment and Social Assessment SESA for National REDD+ Action Program and preparation of an Environmental and Social Management Framework (ESMF) for REDD+ implementation, May 2014 onwards
Provincial REDD+ Action Plans (PRAPs)	September 2015	Detailed work on forest drivers, carbon stock and work with 2 SFCs, TORs available May 2014; FCPF PRAP and 1 draft PRAPs expected mid 2015
R-Package	December 2015	

3.3 Consistency with national REDD+ strategy and other relevant policies

Please describe:

a) How the planned and ongoing activities in the proposed ER Program relate to the variety of proposed interventions in the (emerging) national REDD+ strategy.

b) How the proposed ER Program is strategically relevant for the development and/or implementation of the (emerging) national REDD+ strategy(including policies, national management framework and legislation).

c) How the activities in the proposed ER Program are consistent with national laws and development priorities.

The Government has recently passed an innovative and comprehensive Decision 403 [1] on "green growth" which includes the implementation of efficient and effective use of energy to reduce green house gases (GHG), reducing emissions from transport, improving agricultural techniques also to reduce GHGs. On a broader front the Decision also recommends the revision of development strategies master plans and restructuring of the economy towards green growth activities, promoting sustainable development and encouraging enterprises to use sustainable approaches. Implementation is organised through an Inter-ministerial Coordinating Board for green growth implementation under the National Committee on Climate Change with Ministry of Planning and Investment being the focal agency for green growth and the various line ministries are tasked with carrying out detailed green growth orientated activities which for Ministry of Agricultural and Rural Development Include "Forestation, improving forest quality, and sustainable forest management/ restructuring, institutional improvement 2013-2020". Specific targets are set and include increasing the forest cover to 45% by 2020, improving land use on un-used land and bare hills and increasing the area of mangroves in coastal zones. For consistency with REDD+ the Decision supports "the formulation and implementation of programs on reducing emissions from deforestation and degradation".

The above brief outline on Decision 403 also links to the existing National REDD Action Plan (NRAP) and the activities proposed under that. A key tasks of the NRAP, for implementation in the period 2011-2015, is the 'development of action plans to implement REDD+ at the provincial level and mainstreaming REDD+ into forest protection & development, and land-use planning, as well as programmes and projects that aim at reduction of emissions in agriculture and other related fields…'. By 2015, MARD-VNFOREST (with support of the UN-REDD Programme) will have developed and endorsed a standard template and national guidelines for developing Provincial REDD+ Action Plan (PRAP) content and process. Application of these national guidelines will ensure that each province in the ER Program develops consistent PRAPs, yet specific in identifying localised drivers of DD, their underlying causes and the interventions needed to address them. Adherence to these guidelines by different ER Program partners (and their donors) in different provinces will ensure consistency and quality of PRAPs across the program, yet permit flexibility to tailor strategic interventions to each provinces local context and circumstances.

The activities proposed under this program are consistent with the NRAP, Decision 403 and with the national development priorities set in the National Forest Protection and Development Plan for the period 2011-2020 with the main targets to protect and develop sustainably 13,388,000 ha of existing forests (as of 31st December 2010) and 750,000 ha of regenerated forests; 1,250,000 ha of new planted forest, 1,350,000 ha of replanted forest; and increasing the forest area to around 15,100,000 ha by 2020.

4. ER Program location and lifetime

4.1 Scale and location of the proposed ER Program

Please present a description and map of the proposed ER Program location and surrounding areas, and its physiographic significance in relation to the country. Indicate location and boundaries of the proposed ER Program area, e.g., administrative jurisdiction(s).

The proposed ER program encompasses the entirety of the North-Central Agro-Ecological Region, an area of land totalling 5.1 million ha (16% of the total land area of Vietnam see Figure 4.2), of which 80% is hills and mountains and the remaining is coastal plains with agricultural land, accounting for 14% of the natural area. The region has a tropical monsoonal climate. Average rainfall is about 2500 mm with two seasons a year: the rainy season from June to December with tropical depressions and typhoons, and 85% of the rainfalls concentrating during September to

[1] Decision 403/QD-TTg on approval of the national action plan on green growth in Vietnam for the period 2014-2020; March 20th 2014.

November and the dry season from January to May. The region is administered as six provinces – Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue – and is home to 11 million people (12% of the total population). The region is bordered to the north by the North West and Red river Delta Agro-Ecological regions, and the Southern Coastal Agro-Ecological Region to the South. The region comprises a mountainous hinterland of the Northern Annamites, separating Vietnam from Laos to the West, and a narrow coastal plain along the margins of the East Sea. Along its total length, the proposed ER program area is mostly settled in the eastern coastal plain and more sparely populated forested areas in the mountains of the Northern Annamites.

The national FPD's annual forest cover monitoring data indicate that 44 % (2.3 million ha) of the proposed ER Program area was forested in 2012; nearly all (95%) of which, is natural forest. Over half (1.7 million ha) of the region's forestland is under the management of the state; nearly one third (0.9 million ha) has been allocated to individual households or village communities. (See Section 14 for more information on forestland tenure in the area of the proposed ER Program).

4.1.1 Biodiversity conservation importance

The landscape of the ER Program encompasses five internationally recognised conservation corridors (ranked 'high' or 'critical' global conservation priority – see Figure 4.2), comprising 20 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 Endangered or Critically Endangered species, including: Asian Elephant, Saola, Indochinese Tiger, and six species of endemic primates[2].

Figure 4.1 Map showing the north central coastal area

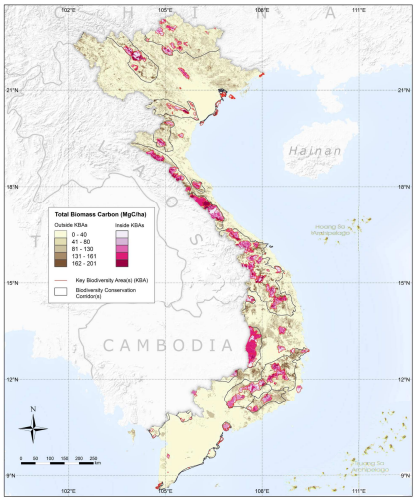


Figure 4.2 Forest biomass carbon, key biodiversity areas and conservation corridors

[2]CEPF (2012); IUCN (2013).

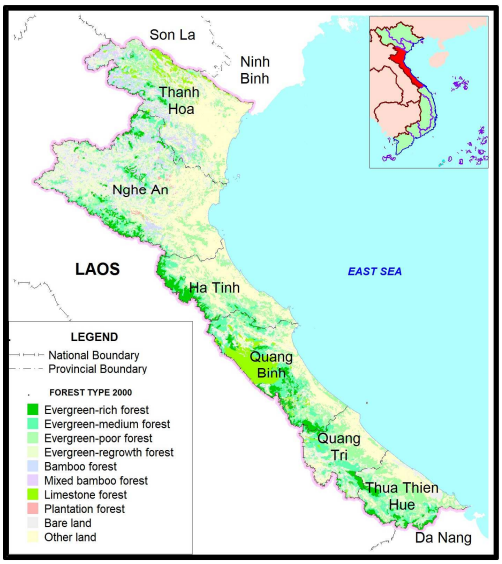


Figure 43: Map of 2005 forest area

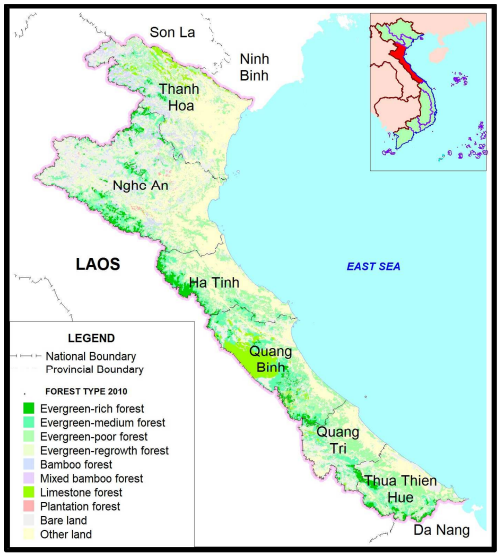


Figure 43: Map of 2010 forest area

4.1.2 Socio-economic status

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[3], and the poverty gap has increased 22% since the beginning of the century. The North-Central Agro-Ecological region has the lowest ranking household incomes in the country at USD 525 average annual income per household. One in four people in the region live in temporary housing; average journey times to school are 45 minutes on foot; and there are fewer motorbikes per capita in this region than any other in Vietnam[4].

H'mong, Dao and Thai ethnic minority communities inhabit the northern reaches of the landscape; south of Ha Tinh province, live unrelated Mon-Khmer speaking minorities. 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[5]. Economically and socially marginalised ethnic minority communities are also disproportionately more vulnerable to a changing climate because of:

- Insecure secure productive (agricultural and forestry) land tenure and access (this is discussed in more detail in section 14);
- Remote mountainous location and restricted access to markets and government extension services; and
- Limited participation in planning and targeting of appropriate government services[6].

Table 4.1Poverty headcount and composition, region and sector (from the 2012 VHLSS)

Region / sector	Poverty		Extreme poverty		Share of total population
	Index %	Contribution to total %	Index	Contribution to total %	
National	20.7	100	8	100	100
North central coasts	28.4	16.5	9.7	14.6	12.0
Rural	27	91.4	10.7	94.4	70.3
Urban	6.0	8.6	1.5	5.6	29.7

[3] Currently defined by GoV as <VND 450,000/month (USD 21/month) household income per capita.
[4] Centre for International Economics (2002); Nguyen Thang *et al.* (2006); Vu Tuan Anh (2008); Luong Thu Oanh (2012).
[5] Vietnam living standard survey (VHLSS) 2012 summary and figures.
[6] CARE (2013).

4.2. Expected lifetime of the proposed ER Program
Please describe over how many months/years the proposed ER Program will be:
a) prepared; and
b) implemented (including expected start date of the proposed ER Program).

The expected time for the preparation of a detailed implementation plan covering the six proposed program provinces and approximately 42 Districts would be nine months starting from the last quarter of 2014 and finishing mid 2015.

The normal government planning horizon in Vietnam is 5yrs and 10yrs so up to 2020, the ER Program will be coordinated and integrated into government programs so that it forms part of the mainstream of government policy and, for example, it fits with the National Forest Development Plan in the period 2011-2020 and The National Action Plan on Green Growth runs to 2020[7]both of which are implemented in the North-Central Costal region. The draft implementation for first phase would be five years from 1st January 2016 to December 31st 2020.

5. Description of activities and interventions planned under the proposed ER Program

5.1 Analysis of drivers and underlying causes of deforestation and forest degradation, and conservation or enhancement trends
Please present an analysis of the drivers, underlying causes and agents of deforestation and forest degradation. Also describe any policies and trends that could contribute to conservation and enhancement of carbon stocks. Please distinguish between both the drivers and trends within the boundaries of the proposed ER Program, and any drivers or trends that occur outside the boundaries but are affecting land use, land cover and carbon stocks within the proposed ER Program area. Draw on the analysis produced for your country's Readiness Preparation Proposal (R-PP) and/or Readiness Package (R-Package).

5.1.1 Background (pre-2000) to main causes to deforestation

De Koninck (1999) says the fundamental causes of rapid deforestation in Vietnam have been: "demographic growth; economic growth; an increasing demand for food and export crops; and an increasing demand for forest products-primarily wood for the pulp and paper industry, for construction, and for fuel". According to the Asian Development Bank the main causes of deforestation in Vietnam have been population-driven demand for forest products and agricultural land and logging of large tracts of forest by State Forestry Enterprises (ADB 2000).

In recent years, the dynamic growth of the agricultural sector through the development of forest lands for perennial crops (e.g., coffee, tea, rubber, and cashew nut) has substantially improved the incomes and welfare of the rural population (ADB 2001:2), urban centers and from large roads[8].

This observation is backed up by statistics and evidence of the VHLSS and SFDP surveys, which show that production forestry (with the exception of households specializing in tree crops supplying pulp and woodchip mills or growing coffee, tea or rubber) is a minor part of farming systems and provides a small proportion of family income (ADB 2000:53), however, forestry is important in upland areas and particularly for ethnic minorities, in large part reflecting the differences in location.

State Forest Companies (SFCs) continue to have a leading role in forest management, and this can be seen from the fact that forests can only be allocated to households if they are released by SFCs (Lang 2001:121). The process of forest land allocation in many locations is hampered by the SFCs' reluctance to give up management over forest areas to local households or organizations despite its incapability to properly carry out the job (Vu Huu Tuynh 2001:6) although this situation has improved in many provinces as the SCF have rationalized their land holdings the conversion of SCF land into community land is further discussed in Section 14).

The building of roads in remote rural areas has (often inadvertently) created the means by which otherwise

[7]Decision 403/QD-TTg on approval of the National Action Plan on green growth in Vietnam for the period 2014-2020; 20th March 2014.
[8]Typically where a new road is developed or improved to all weather status, ribbon development follows along the edge of the road this is where deforestation begins first and where rates of deforestation tend to be highest (until forests recede).

inaccessible timber has become transportable and marketable. There has been a booming demand for remote timber because of the elimination of more accessible timber stands. External illegal loggers often need local collaborators and sometimes subcontract their work to local loggers. Various government programs aimed at poverty alleviation Program 135 and 135 II and 30a have been investing mainly in rural infrastructure, however, Program 30a also funds forest protection contracts for households (See section 14 for details of forest protection contracts).

Elaborating on the nationwide assessment of drivers of deforestation and forest degradation presented in Vietnam's R-PP, consultation of ODA project literature, provincial plans and stakeholder workshops have identified three principal drivers in operation, to varying degrees across the North Central region, during the Reference Period of the proposed ER Program (2000-2010): a) conversion of forest for commercial and subsistence agriculture; b) conversion of forest for infrastructure resulting from a number of activities including roads, hydropower; multi-purpose hydropower irrigation; transmission lines, rapid urban and rural town expansion; and c) unsustainable, legal and illegal, logging. Table 5.1 (below) presents an overview of these main drivers in the landscape, their principal agents, and underlying causes. Table 5.2 breaks the cardinal historical driver, forest conversion into its constituent subtypes, and gives details on the scale and management/tenure types of forest impacted by this and the other two main drivers – infrastructure and logging. Each of the main drivers is discussed briefly below.

Table 5.1 Summary of the main drivers of deforestation and forest degradation in the North Central Agro-Ecological Zone

Driver	Agent	Underlying cause
Deforestation		
a) Forest conversion for commercial and subsistence agriculture	State, state owned companies, private investment and households	• Commodity demand (national/international market prices) • National/provincial agricultural expansion policies and plans • Ineffective un-integrated land-use planning • Ineffective (co-operation between State agencies in) law enforcement and judicial system • Undervalued forest goods and services • Persistent rural poverty (low agricultural and forestry productivity; limited alternative income opportunities) • Internal spontaneous economic migration, particularly to provinces growing coffee and pepper • Insufficient state investment in the forestry sector
b) Forest conversion for infrastructure development: including roads, expansion of urban areas (including rural towns); special economic zones; energy sector hydropower and multi-purpose hydropower irrigation schemes and associated infrastructure (including heavy duty transmission lines and access roads)	State, state owned companies and private investment	• National/subnational economic growth • National/subnational energy demands • Difficulty in controlling spontaneous economic development • Ineffectual EIA and mitigation measures in planning process • Weak accountability for planning and approval of development projects (lack of legal safeguards) • Limited understanding of environmental and social impacts of infrastructure development among state planners
Forest degradation		
c) Legal and illegal selective logging for commercial and subsistence purposes	State and private enterprises Households	• National and international demand for timber • Lack of local ownership of forest – leading to poor local protection and disinterest in illegal logging • Ineffective (co-operation between State agencies in) law enforcement and judicial system • Ineffective (tactical) monitoring of forest resources • Incomplete forestland allocation

Driver	Agent	Underlying cause
		• Ineffective stakeholder engagement in policy setting, planning and programming in the forestry sector • Unsustainable timber harvesting regulations • Ineffective (singular state) forest management and governance modalities • Persistent rural poverty (low agricultural and forestry productivity; limited alternative income opportunities) • Insufficient state investment in the forestry sector

Table 5.2 Scale and forest management/tenure types impacted by the main drivers of deforestation and forest degradation in the North Central Agro-Ecological Zone

Deforestation forest degradation driver	Underlying causes	Key agents	Area affected (ha) during Reference period (2000-2010)	Main forest management type	Main tenure type
Planned conversion to agricultural land (rubber, cassava)	National/provincial latex and starch production targets	Private and State Forest Companies	29,500	Production forests	State forest
Unplanned conversion to agricultural land (shifting cultivation)	Demand for latex and starch production targets	Households	27,800 ha and all existing natural forest areas	Production and protection forests	State and household forests
Planned conversion to forest plantation (*Acacia*)	National/provincial timber, latex and pulp production targets; demand from China	State Forest Companies	11,805 (according to provincial FPDs)	Production forests	State forests
Legal and illegal timber harvesting	Timber for household uses and for commercial purposes	Households and State Forest Companies	2,160,000ha (natural forest) and 712,000ha (plantations)	Production forest	State, community and household forests
Unplanned natural forest conversion to planted forest land (*Acacia*)	Demand for wood chips and small timber production targets	Households	Unknown (but affecting all natural forest areas)	Production and protection forests	State and household forests
Planed and unplanned conversion related to infrastructure	National and provincial development	State, state owned companies, private companies	Unknown, difficult to substantiate as forest areas would be designated non forest early in the planning process	All	State, private and households
Planned conversion for hydropower, multi purpose hydropower irrigation	National/provincial hydropower production/ irrigation plans	State, state owned companies, private company	Unknown, but at least 14 HEP and mixed HEP and irrigation schemes started in	All three forest management categories less in natural forest	State, community and household forests

Deforestation forest degradation driver	Underlying causes	Key agents	Area affected (ha) during Reference period (2000-2010)	Main forest management type	Main tenure type
schemes, transmission lines, access roads			period.		
Planned and unplanned conversion related to investment in transport	National and provincial expansion and upgrading of road network	State	Unknown; also attracts informal ribbon development along new or improved road	All categories	State
Planned conversion urban expansion including rural towns and new economic zone	National and provincial development of urban areas, new economic zones (6-7 new economic zones in the region)	State and provincial authorities	Unknown	Mainly degraded forest production and possibly some mangrove	State, private companies and households

It should be noted that in the period 2016-2020 conversion of forestland has continued, but largely on barren, degraded and planted forestland. In Quang Tri, for example, 4,233 ha of barren forestland, and 5,250 ha of planted production forest, have been converted for rubber planting; while only 205 ha of natural (special-use forest and protection) forest have been converted to non-forestry purposes.

5.1.2 Drivers of deforestation

Work on the drivers of deforestation in the program area is on-going with some detailed work being undertaken and some early results provided through the GIZ REDD+ study in Quang Binh and further detailed work under UNREDD+ Phase II in Ha Tinh and the Vietnam Forest Delta (VFD) project in Thanh Hoa and Nghe An. It is expected that this work should provide the ER-Program with good and up to date information.

a) Planned forest conversion to agriculture

Forest conversion in the North Centre Coastal region for agricultural purposes, mostly for rubber, has occurred at rates of 4,500-10,000 ha/year, depending on the province, during the Reference Period. High latex prices (currently VND 60 million/tonne in 2011, equivalent to USD 2,850/tonne) and more lately falling yields from cassava have driven the expansion of rubber in this region. Provinces continue to plan for further rubber expansion, despite increasing losses from typhoon damage. However, many farmers are continuing to plant rubber because of expected high profits, (even though the price of fresh latex is being down from VND 40,000/ kg to 15,000 /kg at this time), and rubber is expected to be continue to be a considerable driver of deforestation in this region in the future. The second highest rates of forest conversion in the region are from cassava for starch production (and more recently biofuel). It is widely grown in communes, and smaller amounts in shifting cultivation areas, puts price based risks occur for natural forests if the price of cassava is high. There is some limited conversion of degraded natural forest to hybrid acacia and *Acacia mangium* plantations which in coastal areas also suffer from typhoon damage, households also follow a risk averse path of early cutting to avoid typhoon damage. Perennial cash crops contributing to planned conversion of forest in the area include limited amounts of coffee, tea and pepper.Mangrove areas in this region are relatively small, but provide important non-carbon benefits, particularly coastal protection in the face of increasing frequency and intensity of typhoons as a result of climate change. Mangroves are threatened by aquaculture (shrimp farms),which have increased extensively since the 1990's. Many of these farms are short-lived in profit, with disease and other issues, causing the aqua culture to be profitable only in the short term. Aquaculture expansion continues into exiting mangrove areas, including newly planted forests.

b) Unplanned forest conversion to agriculture (shifting cultivation)

Shifting cultivation is variable in extent over the region, but is limited to the upland and mountainous western parts of the region, with 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 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 persistent cultural practices of ethnic minority communities, in the absence of viable alternatives, supporting extension services, lack of good agricultural land (particularly for young couples) and adequate market access. Shifting cultivation is of particular concern within the catchments of existing and proposed hydropower and multipurpose HEP irrigation scheme, as it may negatively impact upon ecosystem services and the longevity of the schemes.

c) Planned forest conversion to forest plantation

In this region the conversion of poor natural forest areas to forest plantation is planned as a rate of 235 ha/year (in the south) to 5,000 ha/year (in the north) depending on the province. There appears to be a mixture of private investment and government supported and run projects. Binh Dinh, which is a traditional centre for wood industry through trade an export of timber and wood products from central Vietnam and Lao, receives much of the current output from the region and which has seen rapid development of forest plantation agriculture and there have been some major investments from Japanese companies for joint ventures. In addition,Typoons the province has also seen the development and expansion of a number of smaller companies involved in plantation forestry; this expansion was particularly noticeable during periods of cheap credit up to around 2008/09. Some small companies were reported to have secured limited rented land deals with local farmers to grow plantation forest on their land. In some cases it was reported that these arrangements were terminated prematurely as the farmers decided to grow their own trees. In many districts the arrival of a forest plantation company has clearly stimulated interest and investment in smallholder plantations. Often the landholdings of the small to medium companies are quite small as it continues to be quite difficult for a company to secure a large land area and long lease to grow plantations and at least some companies have seen the importance of encouraging local small farmers to act as “out growers” for the main plantation and thereby increase the overall area of the plantation. In some of the project provinces it was reported that there have also been some changes to land tenure with the previous state forest enterprise (SFE) being converted into private companies and the land and forest area held by the company rationalised (e.g. TT Hue); and in some areas, part of the land has been made over to communes for smallholder plantations. The famers are then expected to follow the example or forest model introduced by the company and grow plantation forestry. Future development of plantations will probably need to take more account of the demand for FSC wood, the supply of which is currently constrained and companies with large orders often have to import FSC timber principally from Malaysia.

The initial Acacia plantings were promoted through government backed and owned companies and more recently the companies have expanded through the availability of cheap credit, (even though there has been some contraction in the numbers of companies operating more recently). In addition there was investment in high yielding Acacia clone planting material and the introduction of this was assisted by CSIRO from Australia. Some companies worked with local land owners to set up plantations and in other areas, companies managed to secure leases over previous SFE land or even in conjunction with SFEs. There has been a contraction in the number of SFEs and the land that was previous held by them has been rationalised into forest plantation agriculture, forest protection management boards and small areas have been made over to local communities for smallholder forest plantations.

d) Impact of Typhoons

The program area is subject to intense heavy rain from tropical depressions and typhoons many of the inland upland areas have very fragile with highly erodible soil on steep, sometimes very steep slopes, in very short narrow steep catchments which 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 land slides even with forest cover, where the protective forest cover is removed the erosion can rapidly develop. The loses resulting from typhoons are not easy to quantify on a regular basis, but an assessment of damages to the FSDP WB project plantations caused by the typhoons in 2009 indicate that a total of 5,720 hectares (or about 20% of the total plantation area of the project) was affected with about 1,100 hectares (or about 4%) severely damaged. Details are documented in Annex 02.

e) Planned forest conversion to infrastructure and hydropower

(i) Transport infrastructure

Investment in the transport infrastructure has been significant during the reference period. The transport activity over the past 15 years has tripled and the increase in passenger and goods transport has been 70% and 100% respectively between 1999 and 2005 and are indicative of the rapid growth in the demand for transport services. From 1995-2006, registered vehicles have grown from about 4 million to almost 20 million. In 2006, Vietnam registered 19.6 million vehicles of which 18.6 million were motorcycles and 970,000 cars [9], and will continue to grow at 10.1% per annum; the number of autos in Vietnam is estimated to reach 4.2 million in 2020, more than 4.5 times the current level.

The estimated cost of the 2006-2010 program is VND 47.6 trillion (US$ 3 billion) or five times the expenditure proposed by the 2001-2005 public Investment program for rural roads. The major efforts of both government and donor activities in rural transport have been to provide 'basic road access to all communes'. Significant progress has been made and the number of communes lacking basic road access had been reduced to 359 by 2005. This investment includes improvements to the road network capacity and quality and to target the remaining 24% of the population without access to all-weather roads to achieve year round access for 90% of rural roads and to pave/concrete 55% of this network. There are significant gaps in the provincial road networks between rural and national road systems that need greater attention in the future.

Major roads built in the program area in the reference period include HCMC Highway 14; and ribbon development has taken place along this (and most other roads), and the route went through areas of natural forest including some protected areas. 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).

(ii) Rapid urbanisation

Rapid population growth and expanding urbanisation has been a feature in many areas of Vietnam including the north central coast and for this region this has included the designation and development of some major special economic zones (see Annex 03).

(iii) Hydropower and multi-purpose irrigation and hydropower

About 14 hydroelectric and multipurpose irrigation and hydroelectric plants have been built during the reference period with at least two more starting initial construction phase at the end of the reference period. Forest conversion for hydropower in the region during the Reference Period, has been relatively high: estimated[10] to be in the range of 13,600-21,700 ha.

Concerns over environmental and social impacts and poor safety, including sudden release of water, have given cause for the Ministry of Industry and Trade to review all pending hydropower projects in the national hydropower master plan part of the National Plan for Power Development[11],cancelling 424 projects nationwide[12] and requesting an investigation into safety and environmental impacts of hydropower projects to be concluded by March 2014. Currently, the Prime Minister can now only approve new hydropower projects [13].

[9]Cars etc. with 4 wheels.

[10] Based on an estimate of 10-16 ha natural forest cleared per MW for a HEP scheme.

[11]Decision 1208/QD-TTg Approval of the National Master Plan for Power Development for the 2011-2020 period with vision to 2030.

[12]The projects that are currently cancelled are mainly small hydro schemes, however, small hydro forms an important contribution to the national master plan for power development. See Annex 3

[13]Resolution 11/NQ-CP of Government at February 18, 2014 on the Action Program of Government to implement Resolution NQ62/2013 of National Assembly (on strengthening the management of planning of Hydropower projects).

5.1.3 Drivers of forest degradation

The driver of forest degradation are reflected throw unsustainable legal and illegal logging. The unsustainable timber harvest in the region is conducted by commercial legal SFCs, illegal organized logging operations and local Kinh and ethnic minority households for subsistence use (traditional house construction). Data on the number of illegal logging violations, and confiscated timber has decreased during the Reference Period. For example, in Nghe An province the number of administrative violations has reduced by 70% (4,524 cases in 2001, 1,308 cases in 2012) and the volume of illegally logged timber seized reduced by about half (5,394m^3 in 2001, 2,881m^3 in 2012). Legal timber logging from natural forest has also been halved during the reference period, from 200,000m^3/year to 100,000m^3/year, and no timber logging of natural forest from 2014 onwards. Aiming to restore natural forest quality, the recently approved logging ban in natural production forests aims to cease all extraction from production forests that are not certified to an international SFM standard. The ban on legal harvest is expected to create conditions for a resurgence in illegal logging, if protection and law enforcement measures are not suitably strengthened. Logging of plantations is not a driver of deforestation or forest degradation because the plantations, after harvesting, are normally rapidly replanted by landowners (companies or households)to meet the market demands for domestic and foreign wood chip and timber. Localised harvest of timber, NTFPs and firewood from natural forests for household uses, in addition to illegal sale, are an existing and future driver of forest degradation, which needs to be monitored closely. An important factor in illegal logging is the willingness of local communities to engage in the protection of natural forest (protection and production forest) and to engage in forest planting without improvements in the arrangements for forest land tenure. Currently in many natural forest areas (i.e. state owned and managed forest (under the management of SFCs or Protection Forest Management Boards and SUF Management Boards) the forest and NTFP resource is looked upon as "free goods" and a particular, but growing problem for many communities who are dependent on the forest is influx of "outsiders" who come to an area and undertake illegal logging and mass collection of NTFPs, for the Chinese market. Many forest dependent communities would like to see some form of legal right use the forest and in return they are prepared to work more closely with the Management Boards and work to protect the forest they are dependent on (this is also discussed in section 14 on tenure)[14].

5.2 Assessment of the major barriers to REDD+
Please describe the major barriers that are currently preventing the drivers from being addressed, and/or preventing conservation and carbon stock enhancement from occurring.

The major barriers that are currently preventing the underlying causes of deforestation and forest degradation drivers from being addressed in the North Central Agro-Ecological Region can be categorized and summarized as follows:

5.2.1 Commodity and service demand

- Sustainable forest management does not generate sufficient income and agricultural goods have high opportunity costs, income from rubber and other cash crops, particularly cassava is higher, can be more stable and offer a faster return on investment. Poor rural household income is largely (43%) dependent upon agriculture and forestry activities only make a minor (5%) contribution to household economies (although subsistence use of forest resources can be an important element in livelihood strategies, particularly for the remote forest dependent ethnic minority households).

- Undervalued forest goods and services, the total area of forestland allocated to households and local communities is limited.53.7% households (HHs) in the region have a forestland area of less than 1 ha and 30.7% of HHs have forestland from 1 to less than 3 ha only (Rural, agricultural and fishery survey 2011GSO). Many areas of natural forest allocated to local people, for example, under community forest management, are of poor quality and often require substantial regeneration times. Income from forestry plantations, until relatively recently, has offered low productivity and low incomes. Investment in forestry and

[14] There are a number of studies on the issue of dependency on forests, dwindling NTFPs, and increased pressure from illegal logging activities by "outsiders" for example Linking Livelihoods Issues with Biodiversity Conservation in Special Use Forests in Vietnam – Lessons Learned: Hans-Dieter Bechstedt 2010, Vietnam Conservation Fund. This includes summaries of detailed field work with forest dependent communities (mainly ethnic minority communities) in protected area buffer zones in the Central Region of Vietnam.

plantations is often long term, but with the introduction of the Acacia clones and improved *Acacia mangium* this has had a marked impact on both smallholder plantations and large company plantations and both have been used to successfully generate reasonable incomes for companies and smallholders. However, typhoon damage can be expected at least once in many near coastal plantation rotation cycle (7 years for wood chip or 12 years+ for saw logs – however damage to older plantations of *Acacia mangium* can be significantly less than a shorter rotation clonal acacia) and to avoid this, many small farmers tend to cut early in the rotation (sometimes as early as 5 years), reducing benefits, but hopefully avoiding losses from typhoons.

- More appropriate technology is required to mitigate the losses to typhoons.

- Forest ecosystem services are currently insufficiently internalized into domestic energy (HEP) and tourism sectors. International climate change mitigation (carbon) financing has yet to be tapped. Yet, relatively high transaction costs for REDD+ interventions, and anticipated low carbon prices, could make REDD+ less attractive to the local stakeholders, if carbon financing is not integrated into government planning and programming for broader sustainable productive landscapes and green growth in land-based sectors.

- Regional and national energy demands are forecast to continue to rise (see Annex 03).

5.2.2 Un-integrated land use and sector development planning

- All provinces have land use plan, however, many of these tend to be involve top down planning often with ineffective local stakeholder engagement in policy setting and needs to be improved in planning and programming in all productive land-use sectors; land use (and sector) plans tends to be compartmentalized, orientated towards one sector (or even one or two commodities e.g. industrial crops have tended to dominate national/provincial agricultural expansion policies and plans[15]) planning approaches, and discourages co-operation between forest and other land-use sectors (see section 14 for discussion on tenure and traditional forest uses and the efforts through legal and policy change the government is introducing to address this) and relevant government and provincial departments (MONRE, MOLISA, MPI) necessary for integrated socio-economic development planning in the complex forest-agricultural mosaic landscape found in the central coastal region. There are good examples participatory land use planning [16] , however, full compliance with good guidelines can become a budgetary issue.

- Limited understanding of environmental and social impacts of infrastructure development among state planners, combined with ineffectual use of environmental and social protection and mitigation regulations in planning processes, and for example, in the planning for expansive hydropower and multipurpose irrigation HEP scheme development across the country, including this region, has not often effectively engaged with the forestry sector, as well as rural communities, in processes such as EIAs.

- Weak follow up on environmental or social protection measures, lack of implementation of supporting legal safeguards.

[15]While the success of Vietnam in becoming a major world leading force in the export of a number of agricultural and fresh seafood commodities including, coffee, pepper, rice, starch, rubber wood chips, shrimp (prawns) etc. is well documented, this has also been at some cost to the environment, for example, with large areas of natural forest and degraded forest in the central highlands being converted to coffee and pepper or the conversion of mangroves to relatively short lived shrimp farms.

[16] Quang Binh revealed provincial guidelines (Land use Planning and Land allocation, Forest Protection and Development regulations, Village Development Planning) approved as legal Decisions which show a high level of compliance with and strong emphasise on participatory planning and decision- making procedures which are seen as a strong competitive advantage for Quang Binh province compared to the general national PLRs. However, during actual implementation in the field overlapping mandates of relevant authorities and insufficient state budget often hamper a full compliance with respective guidelines with especially elements of participatory decision-making processes often only complied with under ODA project supported implementation. GIZ REDD+ Social and Environmental Safeguards Project November 2013

5.2.3 Unsustainable use of forest resources

- Insufficient state investment (financially and technically) in the forestry sector – for forest protection, biodiversity conservation and forest landscape restoration activities in particular. Only one third (2.2 million of a total 6.7 million ha) of Vietnam's protection and special-use forests are contracted out to households or village communities to provide on-the-ground forest protection services.

- Unclear statutory land tenure – from incomplete forestland allocation to forest owners. Default 'management' of forest areas by Commune People's Committees results in an open access regime due to lack of incentives for protection and/or sustainable use, coupled with insufficient management capacities on the part of the Districts and CPCs.

- Ineffective (singular state) forest management and governance modalities - community forest management (CFM) is not well recognized by local authorities, because it is difficult to give a registered title to a village community under the Land Law 2003, (see section 14 for discussion on the tenure aspects) Consequently, there are no national sustainable forest management planning guidelines for households and communities, although provinces may have detailed guidelines as a result of an ODA project. There are a number of pilots and quite large area forest projects, which have successfully supported CFM, but the approaches have yet to be translated into national widespread use.

- Ineffective (tactical) monitoring of forest resources.

- Ineffective law enforcement and judicial system – co-operation between the law enforcement agencies and authorities remains limited due to a lack of: (i) dedicated co-operation and information mechanisms between responsible agencies; and (ii) dedicated state budget allocation to finance collaborative activities.

- Complicated and unsustainable timber harvesting regulations.

5.2.4 Persistent rural poverty

- Low agricultural and forestry productivity of soils – forestlands are mostly degraded with poor soil conditions, land with more fertile soils are reserved for agricultural production, resulting in low productivity of plantations in Vietnam, and for example even acacia clones require reasonable soils and where these are planted on poor soils, more traditional *Acacia mangium* trees out perform the clone hybrids[17].

- Limited alternative income opportunities - according to the 2010 nationwide Vietnam Household Living Standard Survey (VHLSS) 2012 of the government's General Department of Statistics (GSO), although rural per capita incomes have increased in recent years, this region remains one of the lowest incomes per capita areas of Vietnam - VND 900,000/month (USD 43/month).[18] The poorest households (VND 300,000/month; USD 14/month)New regulation cites that poor rural HH is with monthly income per capita less than VND 450,000 per capita are largely dependent upon agriculture, which contributes 43% of rural poor household incomes.

- Spontaneous economic migration can be a considerable problem in many areas and include: (i) migration to coffee and pepper growing areas (mainly the central highlands); (ii) large numbers of economic followers arriving at large construction sites, for example, even at the relatively small Truong Son HEP site in Thanh Hoa Province, the project anticipates at least 2-3,000 economic followers into a rural setting with very basic services; and (iii) job seeking movement from rural to urban areas.

[17]However, it should be noted that research by Japan and CSIRO on acacia clones and *Acacia mangium* has shown very high growth rates, exceeding comparable trials in Japan and Malaysia. For, acacia clones planted on very poor soil ,*Acacia mangium* then outperforms the clonal material. Yield Prediction for *Acacia mangium* Plantations in Southeast Asia Matsumura, Naoto Formath Vol 10; 2011.

[18] The lowest per capita incomes being in the Northwest region (VND 740,000/month; USD 35/month), and highest in the Southeast region (VND 2,160,000; USD 103/month.

5.3 Description and justification of planned and ongoing activities under the proposed ER Program
Please describe the proposed activities and policy interventions under the proposed ER Program, including those related to governance, and justify how these activities will address the drivers and underlying causes of deforestation and forest degradation and/or support carbon stock enhancement trends, to help overcome the barriers identified above (i.e., how will the ER Program contribute to reversing current less sustainable resource use and/or policy patterns?)

The proposed ER program for the North Central Agro-Ecological Region adopts a sustainable landscape approach to achieving national and provincial green growth targets through low-emissions development planning (LEDP) for land-based sectors (agriculture, forestry and energy). The LEDP approach, through PRAPs (as mandated by the NRAP), is advocated as the means to establish an enabling environment for the specific interventions in each productive sector (agriculture, forestry and energy). Interventions that will reduce emissions from land use to harness carbon financing as one source of revenue to achieve this sustainable landscape, as articulated below in the program's goal and objectives:

Goal: *The North Central Agro-Ecological Region is demonstrated to be a sustainable landscape, benefiting the economy, environment and society, across key sectors driving deforestation and forest degradation as a paragon of green growth for Vietnam and the wider ASEAN region.*

Objective: *National and provincial green growth targets are achieved, through catalytic carbon financing for sustainable forest-agricultural frontier in the NCAR - to achieve transformative: (i) green economic reform in land use; (ii) poverty reduction and rural livelihood development; and (iii) and biodiversity conservation and enhanced ecosystem services - through carbon, and other, innovative financing streams.*

To achieve this objective and contribute to the long term vision of the proposed ER Program's goal, four strategies (and their constituent interventions) are proposed to address the four principal underlying causes driving deforestation and forest degradation, which are summarized in Table 5.3.

Table 5.3 Summary of sectorial strategies comprising the proposed Emissions Reduction Program in the North Central Agro-Ecological Region

Strategy	Proposed intervention	Drivers addressed	Underlying causes addressed
1. Enabling environment	a) Provincial REDD+ Action Planning (improved multi sector planning)	All	Ineffective (unintegrated) land-use and forest planning
	b) Institutional strengthening	All	Ineffective (unintegrated) land-use and forest planning
2. Agriculture sector strategy	a) Inclusive business value chain strengthening	Planned and unplanned conversion to agriculture	Persistent rural poverty
3. Forestry sector strategy	a) Production forestland allocation; wider use of innovative forest use rights and co-management approches	Planned and unplanned conversion to agriculture; unsustainable forest management; Illegal logging	Unclear land tenure and forest use rights
	b) Sustainable production forest certification	Unsustainable forest management	Insufficient incentives to adopt sustainable production practices
	c) Payment for Forest Environmental Services	Unplanned conversion to agriculture; illegal logging	Persistent rural poverty; undervalued forest ecosystem services
	d) Strengthened co-operation on law enforcement	Illegal logging	Ineffective law enforcement and judicial system

Strategy	Proposed intervention	Drivers addressed	Underlying causes addressed
	e) Improve advice for typhoon resilient forestry	Increasing numbers of typhoons and strong tropical depressions resulting in direct plantation forest losses and indirect loss due to rapid rotation of plantation timber	Un-tested (in Vietnam conditions) technology
4. Improved energy sector strategy	a) Improve energy efficiency at all levels, including industrial wood and paper pulping (high energy demands) needs to become more efficient	Reduced energy demand, forest degradation and deforestation reduced	High opportunity cost of the energy sector
	b) Promote renewable energy and use of biogases		
	c) Improved environmental planning through use of PRAP		EIA process is not efficient; cooperation between forest and energy sectors

5.3.1 Enabling environment strategy

The enabling environment strategy is fundamental to the sustainable landscape approach of the proposed ER Program, and comprises two interventions: (i) Provincial REDD action plans (PRAP) which would be a multi-sector planning approach describing what interventions will be implemented, where and by whom; and (ii) associated institutional strengthening (ensuring state and non-state actors have the capacity to implement the plans to achieve emissions reduction results).

a) Provincial REDD+ action planning

Mandated by the NRAP, PRAPs are the operational level of planning for the national and this proposed ER Program. PRAPs present a vehicle to mainstream multi-sectorial land-use planning into a culture of hitherto sector and commodity based planning, to achieve carbon and non-carbon benefits from a sustainably productive landscape. In addition to ensuring the ER Program is operationally integrated into the NRAP, PRAPs also allow for province-specific tailoring of interventions to meet local priority divers of deforestation and forest degradation, which are highly variable in intensity across the landscape. PRAPs will also identify existing (government and ODA) Programs and sources of financing that could cost-share implementation of interventions. A step-wise process is emerging for PRAPs under pilot readiness interventions[19] in Vietnam that will be refined and applied under the proposed ER Program:

Stage I – PREPARATORY ANALYSIS

1. Stakeholder analysis;
2. Desk-based synthesis analysis of drivers, barriers and underlying causes; and
3. Spatial analysis of emissions reduction and non-carbon benefit potential[20]

Stage II – PARTICIPATORY PROCESS

1. Participatory analysis of drivers, barriers and underlying causes;
2. Participatory identification of interventions to address of drivers, barriers and underlying causes;
3. Participatory environmental and social impact assessment of proposed interventions; and
4. Participatory indicator selection for intervention monitoring and non-carbon impacts

[19] JICA, SNV, UN-REDD.

[20] Including optional scenario planning and commodity siting tool application.

Stage III – ECONOMIC VIALBILITY

1. Carbon (emissions reduction/enhanced removal) potential assessment of proposed interventions; and
2. Economic cost-benefit analysis of proposed interventions.

Stage IV – REDD+ ACHITECTURE

1. Strengthen existing feedback and grievance redress mechanisms;
2. Identify multiple benefit incentive mechanisms and associated benefit sharing arrangements; and
3. Strengthening existing monitoring system for carbon and non-carbon indicators.

b) Institutional strengthening

Institutional capacities will need to be developed within responsible government agencies, forest and farm owners, and wider local communities to implement PRAPs effectively and achieve emissions reduction results. Priority areas where capacity development is indicated include:

- Participatory forest monitoring (carbon and non-carbon indicators);
- Sustainable forest management practices, e.g. (RIL; ERL);
- Community forest management planning; and
- Selected cash crop best management practices (including waste-to –fuel value chains).

An important opportunity and challenge is to establish an enabling environment that is flexible and devises livelihood opportunities for bare and degraded forestlands that are sufficiently attractive and durable to deter interest in ecologically destructive livelihoods. Effective implementation of community forestry will likely be important in providing such livelihood opportunities and could include:

- The widening of the development of potential for using forests for poverty alleviation and improve the compatibility of poverty alleviation and plantation afforestation[21];
- The importance of improving the benefits available from sustainable NTFP[22]management and possibly production in combination with, various types of community forest management and plantation schemes and including improving the value chain on these products; and
- Systematic collaboration and planning between and among the relevant ministries.

c) Community forestry and benefit sharing

The introduction of wider community forest management still faces a number of institutional barriers at the Province, District, Commune and village-level institutions for implementing community forestry and benefit sharing including land tenure (see section 14 for a discussion on these issues), forest protection and the challenge of implementing new models of forest management. For example, giving greater importance to NTFPs. One solution to many areas of degraded forest is to turn the resources over to outside commercial forest interests, but the challenge is then to ensure that local communities are not marginalised. This can be avoided with careful, improved, participatory forestland planning. There are a number of examples where communities have benefited from the release of land from SFCs, or where plantation companies have brought new technology (new clones, improved

[21]In the program area,the Forest Sector Development project (FSDP) implemented in Binh Dinh, Quang Ngai, Quang Nam, TT Hue, Nghe An and Thanh Hoa and the KfW funded forest projects (KfW 6 in Quang Ngai and Quang Nam) have done much to improve the returns to investment and improve the availability of credit to forest farmer groups. The FSDP has also succeeded in introducing FSC at the local level and KfW 6 and together with plantation forestry has introduced Community Forest Management approaches.

[22]Currently there is an ever increasing demand for different NTFPs particularly for medicinal purposes and prices have increased rapidly on a developing scarcity of some herbs and medicinal orchids (various reports including SNV, WWF, VCF) in particular GIZ funded a series of value chain studies including some work on NTFPs.

nurseries, improved planting techniques etc.) and the local communities can act as out growers[23] and can also benefit from easy access to a marketing chain.

d) Payment for Forest Environmental Services

PFES is an innovative approach for forestry in Vietnam and has strong political commitment, from a start up in2010 of one national umbrella fund, this had grown by 2013 to include one national fund and 31 provincial funds[24]. However, the wider up take and success of PFES includes requirements to make the process more transparent, improve the monitoring processes and encouraging service users to pay.

5.3.2 Agricultural sector strategy

Strengthening high-income generating cash crop value chains, through inclusive business approaches, to reduce unplanned deforestation and forest degradation in areas where illegal logging and shifting cultivation persists as a significant driver. Technical and financial (access to capital) assistance will be extended, through district agricultural and forestry extension services (through Vietnam Agriculture and Rural Development Bank or the Vietnam Bank of Social Policy), to increase yields of cassava, bamboo and *Acacia* on bear or unproductive plantation forestlands. Where appropriate and feasible, expansion of existing agroforestry models will be adopted[25]. Rubber planting will be supported only in line with MARD guidelines for rubber planting on bare forestlands, together with additional risk assessments for market (with rubber prices consistently falling) and climatic (increased typhoon frequency and intensity) viability.

5.3.3 Forestry Sector Strategy

a) Production forestland allocation

In support of the regional FPDP targets to regenerate 164,000 ha of degraded natural forests, and to plant 35,000 ha of new planted and replanted forest 32,000ha by 2020, production forestland allocation will be the principle intervention under the forestry sector strategy of the proposed ER Program. The significant area (750,000 ha) of bare or degraded forestland, without dedicated statutory forest ownership will be allocated to forest owners, with priority going to local communities and ethnic minorities dependent on forests and with traditional practices of community forest management. Attention will be focused on reforestation efforts on newly allocated barren land and assisted natural regeneration of degraded forests for rapid carbon stock enhancements. A success of Forest land allocation (FLA) has been to encourage the protection and restoration of forest cover in uplands areas, and the rationale of this devolution was that villagers would be more interested in forest protection and management if they had formal rights to forest land (Sikor 2001), FLA is formally intended to maintain natural cover and to provide income through forestry activities FLA is further discussed in section 14 on tenure). Allocation of additional plantations (under extended rotation lengths) will be made to poor and ethnic minority households with limited alternative income generating opportunities from other on-farm livelihood strategies. As with agricultural value chains, technical and financial (access to credit) assistance will be provided through the Vietnam Bank for Social Policy or the Vietnam Agricultural and Rural Development Bank with assistance from the district agriculture and forestry extension centres.

[23]For example FSDP project areas (but not FSDP project interventions) including Phong My commune, Phong Dien District in TT Hue and Dak Mang Commune in Hoai An District, Binh Dinh Province.

[24]Currently there are 247 PFES contracts (hydropower 161, water supply 50, tourism 36); in 2012 total revenue from hydropower was 1,154 Billion VND, water supply 16.9 Billion VND and tourism 0.9 Billion VND; PFES presentation Sept 2013

[25] For example, cassava-bamboo-*Acacia* model in Nghe An province: cassava harvested within one year (VND 2.5 million/ha; USD 120/ha); bamboo harvested after 4-5 years (VND 6.0 million/ha; USD 285/ha); and *Acacia* after 5-7 years (VND 10.8 million/ha; USD 512/ha (all figures gross, exclusive of labour) (SNV 2010). FSDP forest farmer group household plantation forest incomes are higher, but differences can be explained though use of high quality planting material (clonal acacia hybrids and improved *acacia mangium*) and the locality, for example, a short term *acacia mangium* wood chip 1ha 7 year rotation income after all costs and labour varies from US$412 on poor soil to US$5,072 on good soil; where the plantation is grown for saw logs (different management techniques) the income is higher US$1,216 on poor soil and US$8,732 better soil.

b) Sustainable production and forest certification

In conjunction with the nationwide logging ban in all production forests, except for those with international SFM certification, technical and financial assistance will be offered to production forest owners to achieve certification. Priority will be given to State Forest Companies and village communities implementing CFM. A mixed (timber; NTFP) goods and services (domestic PFES; foreign carbon payments) business model will be sought. RIL techniques will be introduced to certified natural production forests. The developing market for FSC timber products (as required by Europe and N. America), has been difficult to meet from local provincial timber supplies with companies reporting that they have had to source material from other provinces and even overseas (Malaysia). A typical premium that the companies pay for local FSC wood is normally at least 20%[26]. The FSC premium can be expected to progressively influence smallholder thinking as the FSC timber becomes of marketable age on their plantations and knowledge of the prices and cash return for the timber becomes more widely known. There has been an unfortunate tendency for smallholders to cut early in the rotations, at years 5 or 6, mainly in response to a combination of: (i) peer pressures (a group of house holders wanting to sell their trees for woodchips and the buyer wishing to cut more than one small block), (ii) shortage of cash, and wanting to clear the loan and risk averse behaviour in the face of the risk of damage from typhoons – cut today to reduce the potential of losses in the near future. The financial returns from cutting plantations early at years 5 or 6 can be poor or very poor particularly if the forest plots are on poor soil or land with suitability problems. The feasibility of encouraging smallholders to consider changing from woodchips to saw logs and even without a FSC premium, the option of growing saw logs is financially attractive. In many cases rotation lengths can be extended from the current 6-7 years, to 12- 15 years, for planted production forests to promote larger sized timber production with higher values (compared to the low value of existing small timbers for wood chips).There are also advantages of growing forest plantation in a mixed system, particularly where the farmer has some additional agricultural land, where they can plant the timber on relatively poor land (which otherwise may not be used), and reserving the better land for short term agricultural crops, and after plantation establishment, the labour demands of a small plantation are very low and can be undertaken at almost any time leaving other time for seasonal crops. Support will also be given to forest owners to develop licensed small-scale wood and non-wood processing facilities to create higher value timber and NTFP products increasing the revenue for forest owners.

There are a number of projects in Vietnam that have included capacity building for FSC including FSDP[27] which has worked at introducing FSC in five communes in four provinces and GIZ which as worked with SFCs in the central highlands. The area of land under FSC is 46,8145 ha and includes four private sector companies and local communities in Quang Tri and TT Hue. In Quang Tri FSC timber has been supported by a KfW and SECO/WWF project [28], and the sale of saw logs has been supported by Global forest and trade network – Vietnam (GFTN-V)

c) Payment for forest environmental services

Expanding, operationalising and renovating payment for forest environment services will be required to ensure previous harvesting from now closed production forests is not displaced into natural protection and special-use forests. Innovative monitoring (see Section 9.4) and incentive (see Section 15.1) mechanisms, with options for bundling/stacking payments for results, and non-monetary benefits linked to agricultural and/or forestry production, will be introduced. Two broad modalities are available to the ER Program:

- Contracting of households (operating as co-operatives or forest farmer groups of households) and village communities to perform forest protection services for state forest management boards; and

[26]In Quang Tri it was 24% for saw logs with 19cm diameter from Group Forest Certification for Smallholders in Vietnam: An Early Test and Future.

[27]FSDP is support FSC at commune level in four provinces (Binh Dinh, Quang Nam, Quang Ngai and TT Hue) and five districts and communes has certification for about 784 ha.

[28]Mixture of *Hopea odorata* and *Acacia mangium*, ratio of 9:1, in 2010 was the first group FSC certified with trees planted from 1998, '99, 2003, '04, and '08; Companies paid a premium of up to 24% for the FSC Acacia saw timber (≥19cm diameter) and importantly non FSC wood up 13cm was only sold for wood chips, where as other FSC timber 10 to 14cm was accepted as saw logs. 'Group Forest Certification for Smallholders in Vietnam: An early test and future prospects'; M. R. Auer; Human Ecology. 2012.

- Pilot co-management of natural forests to share forest goods and services benefits with the local communities in return for adoption of forest protection responsibilities (see section 14 for further discussion on this).

An additional focal priority for this intervention will be planting and protecting coastal protection forests of mixed hardwood, pine, *Casuarina* and mangrove species (if not included in other investment projects). The potential for developing the coastal forests is relatively moderate in terms of area, compared to the upland hinterlands, but is needed as a typhoon mitigation measure. Consequently, carbon benefits are limited, however, the non-carbon benefits of storm mitigation in a changing climate are the principal motivations for inclusion of near coastal forests in the Program.

d) Strengthened law enforcement

Within the Accounting Area, the proposed ER Program will address the three long-standing qualitative features of the existing law enforcement effort in Vietnam which limits its performance namely: (i) reliance on reactive rather than proactive responses; (ii) a related reliance on suppression efforts rather than prevention; and (iii) an inward, domestic orientation (the ER Program will strengthen both domestic and foreign illegal trade as a key measure to mitigate displacement of emissions from Program interventions)[29].Support for local authorities and law enforcement agencies in a more strategic and tactical enforcement performance under four sub-strategies includes the following:

(i) Reorienting enforcement efforts towards prevention rather than suppression, through:

- Institutionalizing costed multiple-objective forest management planning and zoning;
- Incorporating asset protection measures in forest management planning and implementation; and
- Strengthening human resource capacity of the FPD in extension support to forest owners in management planning, implementation and monitoring.

(ii) Strengthening criminal justice responses, including the possibility of engaging civil society monitors, to forest crime (from timber seizures to investigations, arrests and prosecution), and institutional corruption within criminal justice and forestry agencies:

- Implementing key elements of Vietnam's evolving Legality Definition and Timber Legality Assurance System under the anticipated FLEGT VPA with the European Union[30]; and
- Strengthening human resource capacity of frontline enforcement agencies to implement the law – FPD rangers, customs officials, and police in identification wood types, collection and preservation of evidence, interview techniques and appearance in court.

(iii) Adopting more intelligence-based enforcement to replace current reaction-based approaches, through:

- Focusing enforcement efforts on the point of sale of illegal forest products – sawmills, wood processors, and markets and restaurants selling wildlife products, and at export points;
- Modernizing forest violation reporting systems as a tool for targeting enforcement effort, including greater use of remote sensing surveillance products and standardized data collection and management protocols across relevant agencies (FPD, Environmental Police, the General Department of Customs, Anti-Money Laundering Information Centre); and

[29] World Bank (2010) Socialist Republic of Vietnam Forest Law Enforcement and Governance; UNODC (2013) Criminal Justice Response to the Illegal Trade in Timber in Vietnam.

[30] Vietnam expects to complete VPA negotiation with EU in October 2014 and to implement VPA in the next two years (2014-2016).

- Improving inter-agency coordination at both local and central levels – particularly between the FPD, police (the various section include economic, environment and traffic), General Department of Customs and Supreme People's Procuracy – in addition to the formation of an inter-agency investigative Task Teams targeting select high-level illegal timber trading operations.

(iv) National policy dialogue to inform policy makers of the realities of effective forest law enforcement and the need for an enabling political environment at the highest level, including:

- Elevating forest law enforcement on the political agenda of senior leaders, politicians and criminal justice officials;

- Developing national criminal justice strategies for responding to sophisticated organized forest crime; and

- Promoting national legal reformative agenda to close loopholes in the national legal framework and ensure consistency with Vietnam's existing and emerging international policy commitments (UNTOC; UNFCCC; FLEGT VPA).

e) Improve forest advice to become more resilient to typhoons

Typhoon losses can be reduced by introducing windbreak technology (use of larger trees in some area and or dense plantations to protect other plantation areas) and through the introduction of more heavy wind resistant species in the most vulnerable areas. Acacia hybrids and *Acacia mangium* are known to have poor wind resistant qualities as they are quite slender (and tall), therefore the program area needs to consider mitigation options particularly as many households are likely to experience at least one typhoon in a full a 7 year rotation.

5.3.4 Improved energy sector strategy

Forest conversion for hydropower requires strengthened environmental and social impact assessment regulations and improved environmental management practices and improved support on legal safeguards. The forestry sector needs to be engaged in future HEP planning as a key stakeholder; any forest conversion from HEP development needs to be incorporated into provincial forest master plans on protection and development planning. Affected local people have the rights to participate in the EIA process and FPDP process and should be compensated according to the laws (Land Law 2013 and Forest Protection and Development Law 2004). The proposed ER Program will support local authorities to prepare realistic forest conversion plans for HEP in line with the Law on Environmental Protection. Technical support will be given to improve EIA practices for proposed HEP projects, and forest conversion planning (and expected wider impacts),impact mitigation, environmental management plan monitoring approved ones.

a) Improve efficient energy use

A series of studies have been completed to help review and improve energy efficiency in the government private sector one of the industries pick out for its high energy demand and relative inefficient use of energy is timber processing to wood chips (required to be blown dry for export) and pulping operations for MDF processing[31]and energy consumption in large scale plants (at least two are expected in the program area, Quang Tri[32], Thanh Hoa provinces) and energy savings is now supposed to be taken into consideration.

b) Renewable energy and biogases

Renewable energy is slowly developing with some investment wind turbines[33] etc., biogas has had wider support and has been promoted nationally. Vietnam is endowed with a relatively large amount of renewable energy resources distributed throughout the country. Biomass from agricultural products and residues is available at

[31]Asia Sustainable and Alternative Energy Program: Vietnam Expanding Opportunities for Energy Efficiency, March 2010
[32]US$65.8M MDF plant 120,000$m^3$ through put to be finished 2015.
[33]GIZ renewable energy project.

equivalent to 10 million tons of oil a year. Biogas energy potential is approximately 10 billion m3 a year, which can be collected from landfills, animal excrements and agricultural residues. The technical potential of small hydropower (<30MW) is larger than 4,000MW (and so it is possible that small hydropower schemes may continue to be developed in the future). Solar energy is abundant with average solar radiation at 5kWh/m2 per day throughout the country. Vietnam's geographic orientation with approximately 3400km of coastline also provides abundant wind energy at an estimated potential of 500-1000 kWh/m2 per year. These alternative sources of energy can be harnessed to meet Vietnam's rapidly increasing demand for energy. While there has been some early success, deployment of renewable energy has not reached the country's potentials yet.

c) Improved planning through the PRAP and SEDP

Multi-sector land use planning in the PRAP should dovetail with the 5-year Socio-economic development plans (SEDP)at the provincial level and these are required to include a strategy for a 20% reduction in provincial level emissions.

5.4 Risk/benefit analysis of the planned actions and interventions under the ER Program
Please explain the choice and prioritization of the planned actions and interventions under the ER Program identified in 5.3 taking into account the implementation risks of the activities and their potential benefits, both in terms of emission reductions and other non-carbon benefits.

The emphasis is on supporting the development of a policy and market environment that supports investment in tree growing by smallholders, accelerating forest land allocation to communities and households, and providing support to plantation and mixed forestry-agriculture crop establishment and management. Land allocation under the program will be a demand-driven approach in response to applications by individual households (although the cadastral survey work is normally conducted systematically to improve the cost effectiveness), and in the case of communities for community forest management in the program areas, after extensive community consultation and agreement on land use and on boundaries.

Table 5.6 Risk/Benefit analysis of the planned actions under ER Program

Intervention	Non-carbon benefit potential	Risks	Risk mitigation and management measures
First priority			
Community forest management and protection of potential forest areas for ER funding;	Additional incomes from efficient forest protection results; Promotion of sustainable forest management and harvesting and sustainable use of NTFPs	Risk of no payment, if carbon stock cannot be reduced; Payment rate is still not clear and thus not attractive to the local communities and may cause additional DD;	As apart of provincial FPDPs; Select suitable forest areas for high ER; Program support to increase yield of potential agricultural crops for forest protection group members; Build up community forest protection groups; Support of forest rangers for improved community forest protection
High income generating cash crops planting to avoid unplanned deforestation and forest degradation with sustainable agriculture	High values crops	Deforestation could increase, if demand cash crops increases; Risks of rubber and acacia planting in near coastal areas of typhoon prone region	Program support to increase yield of potential agricultural crops; Technical support for rubber planting
Support households to plant forest on barren land and replanting of	Higher incomes for saw log timber planting;	High investment (VND 15-20 mill/ha); No incomes for a long	Technological support of improved nursery and careful selection of planting material to

Intervention	Non-carbon benefit potential	Risks	Risk mitigation and management measures
long rotation species (saw log timber)	Intercropping and thinning is possible to increase incomes; Reducing reliance on natural forests	period if saw log timber species planted and may not be suitable for the poor households with small areas of forestland and land suitable for agriculture	plant acacia forest (where it is appropriate[34]) and support to protect forest in particular for poor households and households with less forestland
Support local authority to prepare proper forest conversion plan for infrastructure development (Hydro power, mining, road construction) and for agricultural development in line with social and environmental safeguards of WB;	Active participation of the forest sector in planning process and advises and comments to the leaders for any investment plans, which are not in line with WB regulations on and environmental safeguards and forest sector regulations/ plans;	High opportunity costs of infrastructure development and agricultural cash-crops can lead to government decisions to convert the forests, because forestland has been considered by local authorities as less effective compared to the other land uses; Social and environmental impacts are not considered sufficiently by decision makers;	Participation of forest sector in preparation and appraisal of infrastructure projects to reduce negative impacts due to oversight of social and environmental impacts to the forests and local people;
Capacity building for foresters and local communities in community forest management, RIL techniques and carbon monitoring and income generating activities;	Capacity building for sustainable forest management and utilization	High costs for training of local households and communities; Need technical support from outsiders at least at the beginning; Successes depend much on the technical and financial support of international and national donors	Cooperation with related government programs and donor's supports
Second priority			
High efficient cooking stoves	Save firewood Promote local jobs	Requires initial investment by households	Demonstration support only
Green mining in Protected Areas	Possibility to restore the forest after mining; Role of mining sector as a driver	Lack of staff and capacity	Study is needed by other TA projects

6. Stakeholder Information Sharing, Consultation, and Participation

6.1 Stakeholder engagement to date on the proposed ER Program
Please describe how key stakeholder groups have been involved in designing the proposed ER Program, and summarize issues raised by stakeholders, how these issues have been addressed in the ER Program to date, and potential next steps to address them.

6.1.1 Design of the ER Program

a) Inputs from FCPF project to the ER program

[34]As noted elsewhere use of acacia clones has provided some impressive results on good soil, but productivity drops off very rapidly on poor soils where *Acacia mangium* provides a much improved rate of return. Similarly, many near coastal areas are also not particularly suitable for acacia, as they do not tolerate heavy winds well and may also be prone to waterlogging.

The FCPF has undertaken a series of inception workshops in the project Provinces in Dec 2012 Dak Nong; Quang Tri, and Quang Binh to discuss the selection of pilot districts and the following districts and communes wish to participate.

Table 6.1 District, Communes and villages participating the FCPF project

Province	District	Commune	Issues at the Commune	Village	Concerns raised at the village level[35]
Quang Binh	Quang Ninh Le Thuy	Truong Son Lam Thuy		Co Trang Khe Cat Ban Moi XaKhia	
Quang Tri	Dakrong Huong Hoa Hai Lang	Huc Nghi Huong Son Hai Lam Hai Ba	Huc Nghi in and near to Da Krong Nature Reserve (NR) SUF;	Thon Cup Thon Moi Truong Phuoc Phuong Lang	Thon Cup: Cup village 240 villagers (100% Van Kieu ethnic minority) live within the boundaries of DaKrong NR (core zone);Land tenure unclear; Food security issues 3-4 months per year; Local population highly dependent on forest and SUF. Village use rights to the SUF forest. Possible mitigations: benefit sharing, alternative livelihoods.

All provinces were required to report[36] on their forest protection activities for 2013 and Quang Binh reported over 1,324 and 1,072 forest violations, respectively and Quang Tri recorded over 500 cases, but included confiscation of illegal timber and wildlife from Lao.

Outputs from workshops and reporting on known issues in the forest areas and issues facing the provincial FPD and local village communities contribute directly to developing proposed interventions.

b) ER-PIN preparation

A working team was established by MARD, and consists of members from different Government agencies independent experts, NGOs and international partners and were invited to contribute their knowledge and comments on developing a consultation process. The working team is also responsible for taking lead in the preparation of the ER-PIN.

Intensive consultations on aspects of ER Program and REDD+, have been conducted, topics included site selection, institutional setting, coordination mechanism, REDD+ activities and GRM. The target audiences and have included relevant stakeholders and stakeholder representatives at national provincial and district levels were involved with national entities and also with international development partners, for example, GIZ REDD+ Quang Binh, USAID VFD project, EU, SNV (part of the ER-PIN team), UN-REDD and WB forest and climate change orientated projects. A step-wise and phased approach, starting from information sharing, to joint-decision making through workshops and meetings at national and local levels based on from previous consultations for the NRAP and R-PP. Feed back from the various workshops, meetings with project staff, shared information etc. were used to identify the main intervention components (these were presented at a national level workshop in April) and also to ensure that the interventions took account of the of the findings from the various project (which have been working longer and a deeper level than the ER-PIN team were able to do in a relatively intense preparation time) were complementary, to existing and proposed project approaches and not duplicating efforts and activities in the proposed program area.

[35]The issues raised by the ethnic minority communities serve as a 'snap shot'

[36]Newsletter No. 1 The FCPF project on Support for the REDD+ readiness preparation in Viet Nam May, 2014 (from www Vietnam-org).

Three consultation meetings (Dec 2012, Mar 2013 and May 2013) were held at national level in conjunction with the events for NRAP and UN-REDD Phase II implementation with the participation of representatives from line Ministries. The last consultation meeting was organized within VNFOREST and the MARD leadership in Jan 2014.

A final round of consultation meetings were held April 15 in Hanoi and 29 April in TT Hue on the ER-PIN to discuss the findings of the ER-PIN with representatives from the provinces, NGOs and government departments.

c) Experiences from UN REDD Vietnam Programme Phase I

Experiences and lessons learned from UN REDD Vietnam Progamme phase I have also been used [37] to provide local level feedback in the design of the ER-PIN and, for example, in 2011 UN REDD held 19 awareness raising workshops and about half were held at the local level including six commune level workshops on benefit sharing mechanisms. The UN REDD program has held additional consultations and inception workshops and in 2013/14 including Ha Tinh (a program province).

6.2 Planned outreach and consultation process

Please describe how relevant stakeholder groups will participate in further design and implementation of the proposed ER Program and how free, prior and informed consultation leading to broad community support for the ER Program and key associated features, including the benefit-sharing arrangement, will be ensured. Please describe how this process will respect the knowledge and rights of Indigenous Peoples and local communities, by taking into account relevant international obligations, national circumstances and laws.

Public consultation is seen as an important input to the final design of the ER program, as noted in section 6.1 above, the FCPF, in conjunction with District and Provincial authorities, has selected a number of communes and the concerns of the local communities at village and commune level will be taken into consideration through further participatory meetings, small focus groups and further documented. To take account of the wider six province program, additional consultations and meetings will be held in upland Districts of TT Hue, Thanh Hoa, Ha Tinh and Nghe An.

A draft detailed communications strategy and stakeholders consultation plan[38] which includes a time bound work plan coupled to the procurement plan, has been drawn up by the project which details of the consultation process and includes: (i) the identification of all relevant stakeholders, (which include relevant ministries, research institutes and universities, international donors, international NGOs, local NGOs, and detailed consultations at the Province, District, Communes and villages); (ii) the issues to consult on, consultation and outreach methods, (iii) guidelines for the conduct of the consultations; (iv) analysis and dissemination of the results; (v) setting up of a grievance mechanism; and (vi) monitoring and evaluation complete with draft M&E forms.

The communications strategy includes steps on how to undertake an eight step FPIC process based on UN-REDD experiences and the GIZ Quang Binh experiences [39] and includes the expected requirements for the qualities of the interlocutors of FPIC implementation.

The proposed program area includes ethnic minorities and the work plan includes the approach that should be used at local village level:(i) language in communication materials should be basic and simple, and not full of technical phrases which can make interpretation difficult;(ii) where possible, awareness raising materials are expected to be delivered in the ethnic language of the communities so that translation of the content should make profound impact on the success of communication campaigns. The program needs to ensure the meaning of the messages stays the same.

Women, and in particular ethnic minority women, are important forest users; therefore the plan also includes requirements and details on consultation with women and the need to fully involve them in the consultation process. For example, any meeting needs to consider time availability of women and venues where they would feel comfortable to increase the number of participants. The program is also required to make sure their records are used or planned to inform other design features such as BDS, MRV system.

[37] Assessing the Effectiveness of Training and Awareness Raising Activities of the UN-REDD Programme in Viet Nam (2009-2011) June 2012.

[38] Communications Strategy and Stakeholders Consultation Plan, FCPF, April 2014.

[39] Social and Environmental Safeguards REDD+ Quang Binh, GIZ, April 2014; FPIC Guidelines REDD+ Quang Binh, GIZ, April 2014

Ethnic minorities live in many of the upland forested areas, and are long-term forest users and will need to be consulted and involved in the detailed development of the program. Special consideration will need to be given meeting with ethnic minorities and ethnic minority women in the consultation plan including allowing them adequate notice for a meeting, and importantly allowing the adequate time to consider outcomes or decisions. The detailed work will review and take account of which safeguards may need to be applied and also what special considerations may be required. For example, many ethnic minority families in upland areas, as noted in section 6.2 can be heavily dependent on forests for food security and livelihoods, and their land tenure situation can be quite complex (both internally as a community, and their relations with other near by communities, and also with the different types of state forest management boards which may manage forest in the area e.g. Forest Protection Management Board or Special Use Forest Management Board or a State Forest Company).

Improved forest management and governance of these areas may create opportunities for local people, but may also impact their use of natural resources. Special measures need to be taken to ensure that program activities are culturally appropriate to the needs of local communities. This would be expected to be undertaken in two ways: (i) through the use of social screening criteria for any program activity; and (ii) though a Process Framework (as part of the ESMF)[40], and this will need to assess and address any restrictions or changes in access to natural resources faced by local communities, and provide for remedies to these restrictions on a case-by-case basis. The detailed ER program activities would be carried out in accordance with the final ESMF which would include a process of engagement between the forest management board authorities (Forest Protection Management Boards, or Special Use Forest Management Boards, or SFCs)and local communities in negotiating acceptable forest use agreements[41] (the tenure aspects to this is discussed in more detail in Section 14). .

As noted the proposed program area includes large areas of natural forest and five internationally recognised conservation corridors (ranked 'high' or 'critical' global conservation priority – see Figure 4.2), comprising 20 protected areas, 19 important international biodiversity areas, and two UNESCO[42] sites. A detailed assessment will be forthcoming in SESA and in the EMSF, but the potential environmental impacts of activities identified during the ER-PIN process include the potential loss of residual biodiversity as a result of continued conversion of forest to plantations (acacia or rubber or other industrial crops). The program as a whole deals with sustainable forestry development, improving forest governance and which would particularly benefit the number of Special Use Forests, a number of which include habitats of international importance are located in the program area. The final EMSF should include detailed and specific mitigation and management plans including approaches to monitoring.

7. Operational and financial planning

7.1 Institutional arrangements
Please describe the governance arrangements anticipated or in place to manage the proposed ER Program (committee, task force), and the institutional arrangements among ER Program stakeholders (i.e., who participates in this ER Program, and how, including the roles of civil society organizations and forest dependent communities).

7.1.1 Executing agencies and main stakeholders

The Viet Nam REDD+ Steering Committee, chaired by the Minister of the Ministry of Agriculture and Rural Development (MARD) was established (January 2011) under authorization of the Prime Minister, to coordinate REDD+ implementation between all government agencies, private organisations, civil society, NGOs and international partners. Immediately, the Viet Nam REDD+ Office was established to act as the standing office for the

[40]The ESMF provides for the development of safeguards plans to mitigate and manage such environmental and social risks or impacts in compliance with national standards and legislation and the applicable World Bank safeguard policies.
[41]There already exists pilot legislation for the mitigation of this type of access to resource issue (Decision 126 QD- TTg Pilot policy on benefit sharing mechanism (BSM) in management protection and development of special use forests 2nd February 2012) and the government now has a number of years of experience of the implementation this type of arrangement as formal pilots and also as part of a projects which supported additional sites.
[42]The Western Nghe An UNESCO Man and Biosphere Reserve and the Phong Nha-Ke Bang National Park UNESCO World Heritage Site.

REDD+ Steering Committee within the VNFOREST, the key agency within MARD responsible for the management and development of the forestry sector.

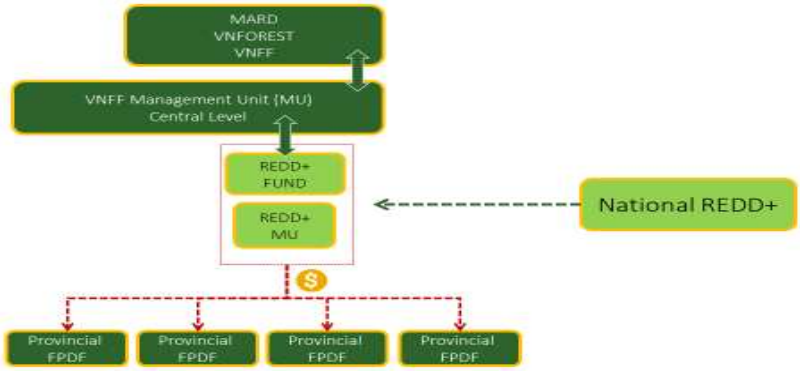


Figure 7.1 Governance management structure of the program

Table 7.1 Summary of main government institutions involved in management and governance of the proposed ER program

Institution	Function	Composition
National REDD+ Steering Committee (NRSC)	Under authorization of the Prime Minister, chaired by Minister of MARD to coordinate all efforts and activities among government agencies at central level to implement REDD+ and provides strategic direction to the ER Program; direct the formulation and implementation of the NRAP, and any constituent sub-programs and propose relevant policies on, and solutions to REDD+ issues and carbon credits in land-based sectors	The Office of the Government; Ministry of Natural Resources and Environment (MONRE); Ministry of Planning and Investment (MPI); Ministry of Finance (MOF) Ministry of Science and Technology (MOST); Ministry of Foreign Affairs (MOFA); National Ethnic Committee (CEMA).
Ministry of Agriculture and Rural Development (MARD)	The governmental agency performing state management functions in the fields of agriculture, forestry, salt production, fishery, irrigation/water services and rural development nationwide,	24 departments/units;
The Vietnam Administration of Forestry (VNFOREST)	The agency responsible for the overall management and development of the Forestry Sector. Responsible to carry out the implementation of the ER program, coordinate and ensure activities smoothly from central to local levels VNFOREST is authorized to be the focal agency for the REDD+ and is responsible for coordinating all efforts and activities among government agencies, private organizations, NGOs, CSOs and international development partners in the REDD+ implementation The VNFOREST reports to the National Steering Committee on the progress of the REDD+ activities.	8 departments, 6 national parks, 1 research institute; administers the Law on Forest Protection and Development
Ministry of Environment	Focal point ministry for GEF, climate change; land administration and land use planning	Administers the Land Law, Environmental Protection

Institution	Function	Composition
and Natural Resources (MONRE)		Law and Law on Biodiversity etc.; responsible for land use planning
Vietnam REDD+ Fund (will be established in 2014)	- To effectively mobilize and receive financial resources from multiple sources, including cooperation support, contributions in trust, and other contributions from countries, organizations, individuals and other sources dedicated to REDD+ goals in Viet Nam; - Effectively manage REDD+ financing, in accordance with international best practices and fiduciary standards, in trust from international and other donors, as a trustee dedicated to REDD+ goals in Viet Nam; - Implement accountability in the management and use of financial resources in the REDD+ framework as guided by the UNFCCC and other relevant international rules and standards (including execution of reporting procedures, and social and environment standards) and Viet Nam law	Not yet known
The Vietnam REDD+ Office (VRO)	Established in 2011 to coordinate and manage the process of developing tools to implement Viet Nam's National REDD+ Program. National supervising unit, as it is responsible for day-to-day management of the NRAP. This includes the MRV functions and ensuring that certification of verified emissions reductions and enhanced removals are managed appropriately and that capacities and systems towards certification are in place It is accountable for all programmatic aspects of the NRAP. The VRO is located within VNFOREST.	1 director and 5 staff
National REDD+ Network	- Prepare an action plan, including a road map, for the design and implementation of all elements of an effective national REDD system for Viet Nam. - Co-ordinate the inputs of international development partners, and ensure that bilateral and multilateral funding is directed to support implementation of specific components of the action plan in a way that is consistent with the comparative advantages of the international partners and meets the financial needs of each component - Undertake regular reviews and assessment of the status of implementation of the action plan, and design and implement measures to address any shortcomings in implementation - Ensure that all activities in support of the development and implementation of REDD measures in Viet Nam full under, and are consistent with the action plan - Carry out other tasks assigned by the Chairs	Governmental agencies, NGOs, CSOs, Universities, research institutes,
Sub-technical working groups	To work on thematic matters of REDD (governance, MRV, BDS, local implementation, safeguards, and private sector engagement)	Representatives of VNFOREST, REDD National Focal Point (VNFOREST), FSIV, FIPI, Forestry University, Department of Meteorology and Climate Change (MONRE), FSSP CO, UNDP, FAO, JICA, GIZ, ICRAF, and other specialists from VNFOREST
Provincial REDD+ Steering	Responsible for day-to-day management of the Provincial REDD+ Action Program. In each province, the Provincial Peoples' Committee will direct the Provincial REDD+ Steering Committee	

Institution	Function	Composition
Committee	to manage REDD+ activities. The unit will implement ER Program under the authority of the PPC and according to the VRO's the guidance.	
Provincial departments of agriculture and rural development	Agencies at the provincial level coordinate (in cooperation with the FPDF's) the program activities, develop annual implementation plans; to collaborate with relevant Departments concerned to implement the program; annually review implementation plans and progress reports made to the provincial People's Committee; propose measures to solve problems beyond their competence work with Provincial and District FPD	Agriculture and forest management and protection at the province and district levels
State Forest Companies and Forest Management Boards	State forest companies, mixture of plantation management and forest industry processing companies Forest protection management boards responsible for management of the Protection Forest and watersheds	Forest management boards in the region involved and responsible for protection forest
Private sector	Independent companies, joint venture companies investing in and development of forests, as well those working in the other sectors, which might create a pressure to forests (agriculture, shrimp farming etc.) can be potentially influenced by the REDD+ implementation Vietnam timber and forest product association (VIFORES) supporting FSC and companies in timber processing and export centre of Binh Dinh Province have all supported the introduction of FSC with a number of the companies now hold FSC certificates and some FSC plantations. Due to a lack of FSC timber in Vietnam many companies import it from Malaysia.	
Communes, local communities, villages and ethnic minorities	This group includes land users, forest dependent ethnic minorities who may be directly affected by the REDD+ implementation and must be involved in formulation (and eventual implementation) of the specific projects and activities, as well as in their implementation; Without the support of local communities any efforts are unlikely to be sustainable	
Civil society	A number of international and national NGOs e.g. SNV, WWF, Centre for Sustainable Rural Development (SRD);Centre of Research and Development in Upland Areas (CERDA); Centre for Sustainable Development in Mountainous Areas (CSDM) are supporting REDD+ and related initiatives.	

7.1.2 Financial management

Vietnam REDD+ Fund:(will be established mid-2014) is a trust fund under the Forest protection and development Fund in Viet Nam (VNFF) established pursuant to the regulations of Decree 05/2008/ND-CP dated on 14/01/2008 of Government to receive and manage finances to implement REDD+. The Vietnam REDD+ Fund operates openly and transparently, under the supervision of the donors, the international organizations, and the authorities of Viet Nam.

Provincial REDD+ Fund is part of the national REDD+ system, under the leadership, direction and management of the authorized level of organization and financing under the guidance, management, inspection and supervision of technical, professional and REDD+ funds provided by the Central Government. The provincial fund will receive, manage, and make use of the funds paid from the National REDD+ Fund, and allocate those funds to the organization/communities/households to implement REDD+.

7.1.3 Technical and strategic guidance

a) Technical working groups

The diverse technical and strategic guidance comes from the VNFF Management Unit in close cooperation with the National REDD+ Network, the National Technical Working Groups (TWG) and six Sub-Technical Working Groups (STWG).
The TWGs act as a platform for discussion on the more technical aspects of REDD+. Currently there are six sub Technical Working Groups have been established and are actively working on: Governance, MRV, Benefit Distribution System, Local Implementation, Safeguards and Private Sector Involvement. Although these may appeal more to those organizations already working on REDD+ proactive efforts to encourage widespread participation, particularly amongst the national groups.

b) NGOs and Civil-Society Organizations (CSOs)

The NGOs working at all levels should be involved in the implementation of the Program and activities and they can also effectively provide services for ensuring communication with the local communities as well as play an important role in coordination of the involvement of ethnic minorities, land users and reach poor communities not necessarily in the mainstream of provincial development plans. A number of the NGOs have been very successful in introducing REDD+ related activities and programs.

c) Expand role of private sector

The forest industry companies have a role to play in passing on new technology and this can be seen where they have invested in plantations and local communities are quick to take the technology and invest in their own hhs plantations as out growers (see previous references for examples in Binh Dinh and TT Hue Provinces). The private sector could potentially work with communities over a wider area and the private sector also has a role to encourage the investment in FSC timber and transfer the knowledge on how to establish and maintain a FSC plantation.

7.2 Linking institutional arrangements to national REDD+ implementation framework
lease describe how the institutional arrangements for the proposed ER Program fit within the national REDD+ implementation framework.

The ER Program is operating under the National REDD+ Action Program. It is estimated that in the period of 2016 - 2020, Vietnam will be ready to demonstrate of result-based payment in those provinces with potential of REDD+ implementation. The selected provinces are in the readiness projects to implement REDD+.

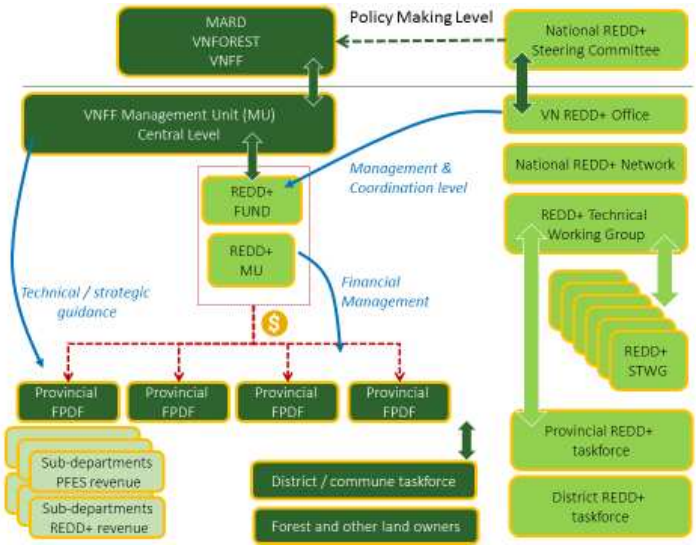


Figure7.2 Links between MARD and VNFF with the national REDD+ program

The Figure 7.2 describes how the existing national REDD+ framework such as National REDD+ Steering Committee, VRO, REDD+ network and STWGs to be fitted in the governance management design of the ER Program.

The Ministry of Agriculture and Rural Development, VNFOREST and the VNFF at the central level as well as the provincial Forest Development, FPD and Forest Protection and Development Funds [43]have the full capacity to handle the proposed ER program. The VNFF's general orientation is:

- To mobilize resources of the society for forest protection and development, contributing to realizing the guideline on forestry socialization;
- To raise awareness about, and responsibilities for, forest protection and development for those benefiting from forests or involved in activities that have direct impacts on forests;
- To increase forest owners' capacity and efficiency in forest protection, use and management, contributing to implementing the forestry development strategy; and
- Ensuring publicity, transparency, efficiency, use for proper purposes and compliance with national law and international donors requirements.

The management methods of the fund are divided in the organization of a central level fund (VNFF) and the Forest Protection and Development Funds (FPDF's) at the provincial level:

(i) Organization of the fund at the central-level is as follows:

- The central-level fund under the VNFF is established under the decision of, and managed by, MARD;
- The Fund is composed of a Fund Management Council, a Control Board and a Management and Administration section, as in the existing Trust Fund for Forest (soon to be replaced by the VNFF) the VNFF will include an additional member representing international donors; and
- The MARD shall approve the regulation on the Fund's organization and operation.

(ii) Organization of the fund at the provincial level is as follows:

- A Fund at the provincial level under provincial VNFF is set up under the decision of the president of a provincial-level People's Committee when satisfying the conditions related, the fund is attached to the provincial-level People's Committee or provincial-level Agriculture and Rural Development Department; and

- The fund management apparatus is decided by the president of a provincial-level People's Committee or the director of a provincial-level Agriculture and Rural Development Department.

7.4 Next steps to finalize the proposed ER Program implementation design (REL/FRL, ER Program monitoring system, financing, governance, etc.).Provide a rough timeline for these steps.

The initial activities to support the detail planning and finalisation of the ER Program will concentrate on three main processes: (i) further more detailed data collection to support the six proposed intervention activities under the program; and (ii) collecting socio-economic information on the approximate 41 Districts (and an unknown number of communes); and (iii) complete the final design process of developing detailed activities a timeframe and resourcing of the activities (financial planning).

Table 7.2 Major steps required to develop the ER Program

Tasks	Key activities	Leading agencies	Outcomes	Date
SESA and ESMF	Finalise the SESA circulate. Finalise ESMF circulate Continue to work on addressing	MARD	ESMF and supporting documents; Update on policy and	2015

[43]FPDF's; set up under the Government's Decree No. 05/2008/ND-CP of the 14th of January 2008).

Tasks	Key activities		Leading agencies	Outcomes	Date
	administrative and legal gap issues			legal gap analysis	
Design of the proposed interventions required to support the ER program	PRAP, enabling environment	Socio-economic data collection on the main parameters; Finalisation of the approach	MARD, Provinces	6 draft PRAPs	2014-2015
	FLA	Update the details on the land tenure of the program area (about 41 Districts)	MONRE; FPD, Provinces, Districts	Update of current tenure, required for costing of the FLA activities	2014-2015
	SFM	Identification of potential areas and numbers of participating communes	MARD, FPD, Provinces, Districts	Potential areas for CFM	2014-2015
	Conversion of forest to rubber	Identification of potential areas	MARD, Provinces, Districts	Threat maps for provinces	2014-2015
	PFES	Collect details of all potential PEFS payers (already complete for Thanh Hoa and Nghe An leaving four provinces)	MARD, Provinces	Draft PFES Action Plan	2014-2015
	FLEG	Identify main weak points and main forest violation areas	MARD, FPD Provinces	Summary of approach and coordination program	2014-2015
Carry out further consultations with private sector companies in the program area	Update the stakeholder consultation and include recommendations for private sector involvement and responsibilities		MARD	Wider role for private sector	2014
Update ER/R figures	Begin updating the ER/R figures		MARD		2015
Obtain SEDPs of six Provinces	Collect all Social and Economic development plans (SEDPs) for the program time and include main aspects in ER program where appropriate		MARD, Provinces	Summary of SEDPs for inclusion in the ER Program	2015
Set up national REDD+ fund under VNFF	Establish the REDD+ fund in the VNFF administrative office;		MARD	National REDD+ fund established	2014
Establish the MRV	Establishing MRV system at national level according to UNFCCC requirements		MARD and MONRE	National MRV system existed	2014-2015
ER Program monitoring system	Establish an ER program monitoring system		VRO, FIPI, VAF	A Program monitoring system	2015-2016
Financing for project/program			MARD	Gov. investment; ODA, loan in forestry development	From 2016
Begin the next NFI			VNFOREST FIPI		2016

7.5 Financing plan (in US$ million)
Please describe the financial arrangements of the proposed ER program including potential sources of funding. This should include both near-term start-up cost and long-term financing. If the proposed ER program builds on existing projects or programs that are financed through donors or multilateral development banks, provide details of these projects or programs, including their financing timeframe. Use the table in Annex Ito provide a summary of the preliminary financial plan

The near term and cost for developing a detailed ER program will be covered under the existing FCPF grant.

It is estimated that the program will cost US$ 37,5 million over 10 years and work in about 41 communes spread over six provinces. The expected investment should generate at least US$ 72,31 million in revenue from ERs. The government expects to take a conservative approach and hold back some of the ER in a buffer (see Annex 1 for details).

There are a number of bilateral donors working in the program area on the implementation of REDD+ and related activities and it is expected that they will be able to contribute directly and indirectly to the implementation of some of the activities.

A detailed financial plan will be developed during the preparation of the ER program document.

8 Reference Level and Expected Emission Reductions

8.1 Approach for establishing the Reference Emission Level (REL) and/or Forest Reference Level (FRL)
Please briefly describe how the REL/FRL for the proposed ER Program has been or will be established. Describe how the approach for establishing the REL/FRL is consistent with UNFCCC guidance available to date and with the emerging Methodological Framework of the FCPF Carbon Fund, and with the (emerging) national REL/FRL (or with the national approach for establishing the REL/FRL).

8.1.1 Setting up the REL/FRL in Vietnam

Under the UNFCCC countries are given flexibility to develop their own methodologies for REL/RL construction[44], subject to independent review and verification. A recent and comprehensive study on preparing a REL/FRL for Vietnam was conducted by JICA[45]. This study provides the most complete data set and analysis currently available for the whole of Vietnam. Other efforts have been undertaken to develop RLs for individual provinces throughout Vietnam. These include:

- Lam Dong provincial RL developed under LEAF program;
- Thanh Hoa and Nghe An preliminary provincial RLs developed under VFD program;
- Quang Binh RL developed by GIZ; and
- Interim FRL developed for UN-REDD Phase II pilot provinces (Lao Cai, Bac Kan, Ha Tinh, Lam Dong, Binh Thuan, Ca Mau).

Some of these RLs may use more thorough analyses and data with a lower level of uncertainty than in the JICA study. Therefore, these methods may provide some guidance on potential improvements to the JICA analysis. However, all of the other efforts are implemented only at provincial level, and none provide data for the entire North Central region. To promote consistency across the provinces in the North Central region, the JICA study is used as the basis for the establishment of a preliminary baseline.

[44]UNFCCC Decision 12/CP.17 2011 suggests that the establishment of REL/FRL should be built on transparent, complete, consistent and accurate information, including historical data. The data and information used for constructing REL/FRL should be consistent with national greenhouse gas inventory the countries should move towards national RLs, but can develop sub-national RLs in the interim.

[45] JICA. 2012. Report on study on potential forest and land related to climate change and forest in the Socialist Republic of Vietnam. Vietnam Administration of Forestry. Hanoi.

a) Vietnam's proposed REL/FRL

Following is a summary of the key modalities that must be addressed in the development of a REL/FRL, and Viet Nam's proposed decisions for addressing each element, as identified in the JICA study.

Table 8.1. **Key modalities and Vietnam's proposal for REL/FRL development**

Description	Vietnam's proposal	Justification
Pools and gases included	Pools: - Aboveground biomass - Belowground biomass Gases: - Include CO_2	AGB and BGB are significant sources of carbon and changeable as the cause of human activities. No data and/or inappropriate information for other pools and non-CO_2 gases.
Activities included	Include deforestation Include forest degradation Include forest enhancement	Deforestation and forest degradation are major source associated with emission. Significant removals resulted from forest enhancement (change from lower stock forest to higher stock forest within forest categories and from non-forest to forests)
Reference Period	2000-2010	Fit to National forest inventory system, which started in 1990, and repeats every 5 years. The latest national forest inventory ended in 2010.
Definition of forest used	Minimum tree cover: 10% Minimum height: 5 m for natural forests 1.5 m for slow growing plantations 3 m for fast growing plantations Minimum area: 0.5 ha	This definition used in national forest inventory

8.1.2 Methods used for emission/removals estimation

a) Forest and eco-regions stratification

Due to the diverse climate and topographical conditions in Viet Nam, the growth of forests varies greatly among forest types and from region to region. Therefore, the forest and eco-regions stratification are used to give homogeneity of wood stocking for forest types in eco-regions. 12 forest types used are: (1) Evergreen broad leaved forests (rich); (2) Evergreen broad leaved forests (medium); (3) Evergreen broad leaved forests (poor); (4) Evergreen broad leaved forests (re-growth)[46]; (5) Deciduous forests; (6) Bamboo forests; (7) Mixed timber and bamboo forests; (8) Coniferous forests; (9) Mixed coniferous and broad leaved forests; (10) Limestone forests; (11) Mangrove forests; and (12)Plantation.

The eco-regions stratification produces 14 bio-ecological regions[47] that are: (1) Cardamon mountain rain forests; (2) Central Indochina dry forest; (3) Indochina mangroves; (4) Luang Prabang montane rain forests; (5) Northern Annamite rain forests; (6) Northern Indochina subtropical forests; (7) Northern Vietnam lowland forests; (8) Red River freshwater swamp forests; (9) South China – Vietnam subtropical evergreen forests; (10) Shoutheastern Indochina dry evergreen forests; (11) Southern Annamite montane rain forests; (12) Southern Vietnam lowland dry forests; (13) Tonle Sap freshwater swamp forests; (14) Tonle Sap Mekong peat swamp forests.

[46]Circular No. 34. Rich, medium, poor and re-growth are based on standing wood stock expressed in m^3/ha. The value for classification for rich, medium, poor and re-growth are 201-300, 101-200, 10-100 and less than 10 m^3/ha respectively.
[47]WWF's eco-regions stratification.

b) Estimation of emission/removals

Estimation of emissions/removals is following Stock –Difference Method[48]. The emissions/removals are estimated for different time points (2000-2005; 2005-2010) and then aggregate for whole period of 2000-2010.

Estimating emissions/removals associated with deforestation, forest degradation and forest enhancement requires activity data and carbon stock. The activity and carbon stocks data in Vietnam are made for 12 forest stratum in 14 bio-ecological regions of the country. The forest stratification is based on an overlay of the 14 eco-regions with the 12 forest types.

Activity data and carbon stock data [49] were derived from national forest inventory (NFI) data. Viet Nam started its NFI since 1990 and repeats this every 5 years. As by now, Viet Nam has completed four cycles of NFI. The data used for REL/FRL development is taken from NFI cycle 3 (2000 – 2005) and cycle four (2006– 2010). NFI data of cycle 3 is created using Landsat ETM+ and field survey on 4,200 sample plots. The SPOT-4 and SPOT-5 images and 2,100 sample plots for ground survey were employed for national forest data for 2006-2010. NFI produces forest distribution maps, area and wood standing stock data for every forest stratum and for different geographical levels (national, sub-national and provinces). Under the JICA study, all national forest data was verified and it is indicated that the uncertainty of area data of forest stratum is estimated at around 5- 10%[50].

Carbon stock (CS) expressed in ton C per ha was estimated for 12 forest stratum in 14 bio-ecological regions based on national data set on growing stock (m^3/ha) derived from ground survey of sample plots of NFI.

The formula for estimation of forest carbon stock for every strata is as follows:

CS(ton C/ha) = (AGB + BGB)*CF

Where AGB is above ground biomass
BGB is below ground biomass
CF is carbon fraction (%).

AGB is calculated as follows:

AGB = GS*BCEF

Where: GS is growing stock and BCEF is biomass conversion and expansion factor (ton/m^3)

BCEF values are taken from default values considering climate zone, forest types and growing stock (m^3/ha)[51].
BGB is estimated using formula

BGB = AGB*R

Where: R is a ratio of below ground biomass to above ground biomass. The values of R and CF are taken from default values given by IPCC and the value of R and CF used are 0.24 and 0.47 respectively[52].

Emission Factors are estimated using Stock Difference Method. The emissions were estimated by calculating the change of carbon stock for every forest strata between two points in time (used here 2000 and 2005; 2005 and 2010).

For deforestation, the post-deforestation carbon stock was assumed to be zero as land uses are bare-land, residential areas, agricultural crops. Regarding forest degradation, the estimation is based on the change of wood stock in forest stratum. The degradation is considered if forest strata with higher wood stock changed to forest strata with lower wood stock. Removals from forest enhancement include the forest enhancement (the change from lower wood stock forest strata to higher wood stock forest strata and from non-forest areas to forest area).

[48] IPCC 2006 Guidelines on National Green Houses Gases Inventory.
[49] Activity data and emission factors are available upon request.
[50] JICA. 2012. Report on study on potential forest and land related to climate change and forest in the Socialist Republic of Vietnam. Vietnam Administration of Forestry. Hanoi.
[51] FAO. Table 5.4. Default biomass conversion and expansion factors (BCEFs). This provides BCEFs for conifer and natural forests and for 8 growing stocks (< 10, 11-20, 21-40, 41-60, 61 – 80, 81-120, 120-200, and > 200 m^3/ha).
[52] 2006 IPCC Guidelines for National Green House Gases Inventories. Chapter 4: Forest Land

The results of emission/removals estimation associated with deforestation and forest degradation and forest enhancement is then synthesized for eight agro-ecological regions[53].

However, it is proposed that in ER program areas, the RELs/FRLs should be prepared on the provincial level and the improvement of activity data and particularly carbon stock of every land use. The Tier 2 approach will be used for emission/removals estimation using country data particularly carbon stock will be generated using country equations of for biomass estimation developed by UN-REDD phase I. Soil carbon pool will also be considered to include in RELs/FRLs constructions using the data from national greenhouse gases inventory. Uncertainty of emission estimation is pending by now, and this will be considered to include in the analysis in the near future.

Though the adoption of RELs or FRLs, a "benchmark" for assessing the results of mitigation activities, is in discussion in Vietnam, FRLs should be adopted by considering the removals resulted in forest increase and this should be the case for China and India where the net forest cover increased. Therefore, regarding methodology of considering national circumstance and methodology for RFLs development, it is necessary to promote developing a robust theory to insist on it in international negotiations in the future. In the ER program, Viet Nam will be addressing at both reducing the emission from deforestation and forest degradation and enhancing removals from forest enhancement.

8.2 Expected REL/FRL for the ER Program
Please provide an estimate of the REL/FRL for the proposed ER Program area. Even a very preliminary estimate would be helpful.

8.2.1 Preliminary national estimates

The preliminary estimation of emissions/removals from deforestation, forest degradation and forest enhancement for period of 2000 – 2010 was analyzed. The analysis shows that there is no clear trend in historical emissions/removals over this period. Therefore, the average FRL (in Mt CO_2e/year) is proposed as reference levels in ER program for Viet Nam (see Table 8.2).

It can be seen that emissions associated with deforestation and forest degradation vary greatly among agro-eco regions. In the period of 2000 – 2010, the three top eco-regions having large emissions are North Central, followed by North East and Central Highland. However, there is significant removals resulted from forest enhancement. In this period, total removals of the country are 869 Mt CO_2e. It is also seen that the net emissions for all regions except North Central are removals (See Table 8.2).

Table 8.2 Estimated emissions (+) and removals (-) for 2000-2010 and FRL

Agro – eco region	Emissions ($MtCO_2e$)	Removals ($MtCO_2e$)	Net Emissions ($MtCO_2e$)	Average FRL ($MtCO_2e$/year)
1. North West	79.8	-133.3	-53.5	-5.4
2. North East	125.4	-268.0	-142.6	-14.3
3. Red River Delta	0.5	-5.2	-4.7	-0.5
4. North Central	**160.0**	**-153.0**	**7.0**	**0.7**
5. South Central	75.5	-93.2	-17.7	-1.8
6. Central Highland	116.6	-141.7	-25.1	-2.5
7. South East	43.0	-55.3	-12.4	-1.2
8. Mekong Delta	16.0	-19.3	-3.3	-0.3
Whole country	**616.8**	**-869.1**	**-252.2**	**-25.2**

[53]The basic regions for administration. The country is divided into 8 agro-ecological regions that are: i) North West; ii) North East; iii) Red River Delta; iv) North Central; v) South Central; vi) Central Highland; vii) South East; and viii) Mekong Delta.

The estimation of emissions and removals was made for each of six provinces in the ER program area in North Central. The analysis data shows that Nghe An, Thanh Hoa and Quang Binh provinces are three top emitters. The average annual emission for period of 2000 – 2010 for Nghe An, Thanh Hoa and Quang Binh is 4.7, 3.9 and 3.1 Mt CO_2e respectively.

However, large amount of removals is also found in these provinces. Out of 6 provinces in the ER program area , there are two provinces (Quang Tri and Thua Thien Hue) having removals bigger than emissions (see Table 8.3).

The ER program will be generated by both reducing gross emission and enhancing removals. It is expected that by implementing ER program in North Central Region, this region will be shifted from being a emitting region in the country to a net sequestering region.

Table8.3 Estimated emissions(+) and removals (-) for period of 2000 – 2010 by provinces in North Central

Province	Emissions ($MtCO_2e$)	Removals ($MtCO_2e$)	Net Emissions ($MtCO_2e$)	Average FRL ($MtCO_2e$/year)
1. Thanh Hoa	39.3	-37.3	1.98	0.20
2. Nghe An	47.1	-41.3	5.85	0.58
3. Ha Tinh	16.7	-14.9	1.83	0.18
4. Quang Binh	31.2	-29.3	1.91	0.19
5. Quang Tri	14.0	-15.2	-1.21	-0.12
6. Thua Thien Hue	11.7	-15.1	-3.34	-0.33
Whole region	**160.0**	**-153.0**	**7.0**	**0.70**

8.2.2 Summary of the approach to uncertainty

The REL/RL was developed under a national project funded by JICA[54] and included the preparation of a time series 5-year of digital maps, 1990, to 2010, the calculation of an interim RL development of model to estimate forest carbon stock. The report noted that it was important to reduce uncertainty as much as possible, and use methods with robustness and transparency:

- For the stratification classification for developing the Emissions Factor, it was concluded that Bio-Ecological regions should be used in order to reduce uncertainty;

- From the geographical standpoint for calculating the mean timber volume for each forest type, stratification is necessary as a way to reduce uncertainty;

- Stratification based on agro-ecological regions was compared and examined, based on the examination of the stratification classification in terms of the versatility in other countries as well, the Study decided to adopt Bio-Eco regions which were introduced by international organizations, (WWF in this case). Agro-Ecological regions and Bio-Ecological regions are possible for stratification classifications;

- To reduce uncertainty, Agro-Ecological regions and Bio-Ecological possible stratification, the standard deviations for the mean timber volume were compared and the stratification classification, which ever has the smaller standard deviation was employed. The standard deviations for the mean timber volume were compared between two similar selected regions. For example, when comparing standard deviations for Evergreen Forest (Rich), the standard deviation for Northern Indochina subtropical forests (of Bio-Eco region) was 144 and the standard deviation for the Northwest region (of Agro-Ecological region) was 191. Therefore, the Bio-Ecological region had a smaller standard deviation. The same results were obtained for Evergreen Forest (Medium) and Evergreen Forest (Poor). A similar trend was seen in the results of comparisons between another set of northern regions (South China-Vietnam subtropical evergreen forests and the Northeast region). On the other hand, Bio-Ecological regions showed higher standard deviations for

[54]The Study on Potential Forests and Land Related to "Climate Change and Forests" in The Socialist Republic of Vietnam, Japan Forest Technology Association, JICA, March 2012.

Bamboo Forest and Mixed Timber and Bamboo Forest in light of the results, and to reduce uncertainty throughout the data, Evergreen Forest which greatly affects the evaluation of biomass was effective; and

- To evaluate the forest carbon stock, it was necessary to collect two sets of data: the data of the biomass per unit area, which corresponds to the forest distribution maps, and the maps themselves; when those two factors are improved in accuracy estimation, the result of calculating forest carbon stock would lower uncertainty.

9. Forest Monitoring System

9.1 Description of approach and capacity for measurement and reporting on ERs
Please describe the proposed approach for monitoring and reporting the emission reductions attributable to the proposed ER Program, including the capacity of the proposed ER Program entities to implement this approach.

For the ER program to be performance-based, a forest monitoring system (FMS) is needed to estimate ERs generated by the ER Program. To be consistent with Decision 11/COP19, the FMS will be built based on existing forest monitoring systems. Currently, Vietnam's national forest monitoring system consists of three elements:

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

Based on a series of Prime Minister's Decisions, NFIMAP has been implemented by Forest Inventory and Planning Institute (FIPI) since 1991. So far, four 5-year cycles [55] have been completed. It is, however, not being implemented for the period 2011-2015. This is because a NFI&S Project (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 of a permanent sample plot system were also collected in each cycle. The NFIMAP is currently under review for improvement and expected to be restarted from 2016-2020 and subsequent cycles.

9.1.2 National Forest Inventory and Statistics Projects

Based on Prime Minister's Decisions, several NFI&S Projects have been carried out in the past and the current NFI&S Project is being implemented during 2011-2016. In the latest NFI&S 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 (see Section 14 on land tenure) 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 the VNFOREST. For the forest statistics stage, the main actors are provincial authorities and local forest owners with the technical support coming from national institutions such as FIPI and Vietnam Forest University.

9.1.3 Annual Forest and Forestry Land Monitoring and Reporting Program

The Forest Protection Department (FPD) has undertaken this program since 2001[56]. Based on forest baseline maps of the latest NFI&S Project, forest rangers collect information on changes in their responsible communes, and then update these changes in a database. These updates are usually based on reports from forest owners and do not require remote sensing imagery or field surveys. Data are then aggregated through the FPD system from commune to district to province up to the central level. The program has generated a dataset on area of forest and forestry land, broken down by drivers, forest owners, forest functions, and administrative units. However, this dataset still

[55] Cycle I: 1991-1995; Cycle II: 1996-2000; Cycle III: 2001-2005; and Cycle IV: 2006-2010.
[56] Based on the Directive No. 32/2000/CT-BNN-KL dated 27/03/2000 by MARD.

have some limitations, which are: (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.

During the readiness phase of REDD+, Vietnam has produced the first version of an MRV Framework Document[57]. This document is a 'work in progress' document and is being reviewed and updated as the Vietnam REDD+ process progresses. The methodological basis of ER Program FMS will be based on the MRV Framework Document approach, which suggest, calculating GHG emissions/removals from a combination of information on the extent to which human activity takes place (Activity Data; AD) with coefficients to quantify emissions/removals per activity unit (Emission/Removal Factors; EFs/RFs). Therefore, the ER Program FMS will allow for operational measurement, monitoring and reporting (MMR) of AD and EFs/RFs. In the proposed forest monitoring system, AD will be mainly sourced from satellite imagery and EFs/RFs from sample plot data.

Since the method for reference level setting described in Section 8.1 is also based on AD generated from satellite imagery and EFs/RFs derived from the sample plot data of the NFIMAP, the methodological approach to monitoring emissions/removals described here is consistent with that used in reference level setting methods.

a) Generating activity data

As mentioned above, AD will be generated from a land monitoring system (LMS), which is based mainly on remote sensing data. Area of land use and land use change will be generated for the whole geographical coverage of the Accounting Area. Thus, it is based on Approach 3 of the IPCC.

According to IPCC Guidelines, only anthropogenic emissions/removals should be estimated. In LULUCF sector, emissions/removals occurring on "managed land" are anthropogenic emissions/removals. The whole land in the ER Program Accounting Area will be considered as "managed land" because all land uses (forest land, cropland, etc.) are being managed by legal owners.

b) Generating the baseline forest cover maps

As mentioned above, Vietnam is now conducting the NFI&S Project for the period 2011-2016. In the years 2011-2012, two provincial-level pilot projects were implemented in Bac Kan and Ha Tinh provinces [58] provinces to test the methodologies. In the years 2013-2014, the NFI&S is implementing in 13 provinces in the Central Highlands and the South West regions. It is planned that the NFI&S will be implemented in 25 provinces in the years 2014-2015 and the remaining provinces in 2015-2016. Therefore, it is logical to make use of the results of this project for generating AD for the ER Program monitoring system. It is still unclear when NFI&S will be implemented in other provinces in the Accounting Area of the proposed ER Program. However, in the case the ER Program is approved, the Government of Vietnam will make priorities of these provinces.

c) Annual update of the forest cover maps

After the generation of the baseline forest cover maps, an annual update will be implemented to generate the annual forest cover maps. The approach for updating the maps is as follows: (i) Using medium resolution RS imagery (e.g., LANDSAT-8, DMCI, etc.) to identify the forest hot-spots (i.e. locations with recent and many changes in forest cover); (ii) using high resolution RS imagery (e.g. VNREDSAT-1, SPOT-5, SPOT-6)together with ground surveys to update the forest cover maps at hot-spots, for areas with little changes, local forest rangers, from FPD, can use the traditional reporting system to update the changes. The FPD is the main actor for annual update of the forest cover maps as regulated[59]. FIPI will take part in the interpretation of RS imagery to detect hot spots and update the forest cover maps at hot spots.

The outputs of the LMS will include:

- Annual forest cover maps at various levels (commune, district, province and the Accounting Area);
- An annual land use change matrix, for reporting on land use changes processes; and
- An annual activity conversion matrix, for reporting on changes in activities between each land use sub-category.

[57] UN-REDD Vietnam Program (2011) Measurement, Reporting and Verification Framework Document. v1.3.
[58] Ha Tinh province is within the Accounting Area of the proposed ER Program.
[59] By the Directive No. 32/2000/CT-BNN-KL dated 27/03/2000 by MARD.

d) Estimating emission/removal factors

The Reference Level setting uses sample plot data from the NFIMAP to estimate the EFs/RFs. However, the NFIMAP is not implemented for the period 2011-2015 and the NFI&S is implementing instead. The NFA Project under the FAO-Finland Forestry Cooperation Program is now working on improvements of the NFIMAP (the name of the Program will also likely to be changed) and it is expected that a revised NFIMAP will be implemented for the period 2016-2020 and subsequent cycles.

The currently implementing NFI&S Project, also has a component to estimate the mean volume per ha for every forest stand. This is undertaken by using a system of sample plots, which are different from the sample plots in the NFIMAP. Since the NFIMAP is not implemented for the period 2011-2015, the sample plot data collected in the NFI&S Project will be used to estimate the mean carbon stocks for each forest type in the start year for crediting (i.e., 2016) of the proposed ER Program. It is expected that the improved NFIMAP will be restarted from the 2016-2020 and subsequent cycles. Assuming this happens, NFIMAP sample plot data will be used to estimate the mean carbon stocks for each forest type for the end year of crediting (i.e., 2020) of the ER Program. Otherwise, a forest resources inventory similar to that in the current NFI&S will be implemented in 2020 in the Accounting Area to estimate the mean Carbon stocks for each forest type. From the mean Carbon stocks for each forest type in the start and end years of the ER Program, annual EFs/RFs for each land use change category can be derived. (For non-forested land categories, the IPCC default values of mean Carbon stocks will be applied.)

The past NFIMAP plot data as well as the current NFI&S Project plot data only contain metrics (e.g.diameter at breast height, tree height, tree species) for estimating the aboveground biomass pool. Metrics for estimating belowground biomass, dead wood, litter and soil organic carbon pools are not available. Therefore, default IPCC values will be used to estimate these carbon pools.

e) Developing country-specific allometric equations

For the reporting of emissions/removals to be consistent with IPCC Tier 2, allometric equations and conversion/expansion factors need to be applied for key forest types. This information together with NFI data will allow generation of country-specific EFs/RFs for each of the forest related land use change types. Phase I of the UN-REDD Vietnam Program has developed allometric equations for key forest types in several forest-rich eco-regions in the country. In the ER Program Accounting Area, allometric equations are now available for evergreen broadleaf and bamboo forests and will be used to estimate EFs/RFs.

f) Estimating emissions/removals

Forest-related GHG emissions/removals will be estimated using LULUCF sector methods which conform to the international guidelines, namely, the Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories (hereinafter referred to as the Revised 1996 IPCC Guidelines), the 2000 IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (hereinafter referred to as the GPG-UM) and the 2003 IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (hereinafter referred to as the GPG-LULUCF). This is consistent with the methods used to estimate GHG emissions/removals in the LULUCF sector in the Vietnam Second National Communication to the UNFCCC, [60]which is the latest Vietnam's National Communication to the UNFCCC.

g) Quantifying uncertainties

Uncertainties can arise in both Reference Level setting and Emission Reductions accounting. To ensure consistency among ER programs, a 3-step process to deal with uncertainties will be applied:

Step1 -Identify and assess sources of uncertainty: First, all assumptions and sources of uncertainty associated with AD, EFs/RFs and calculation methods that contribute to the uncertainty of the estimates of emissions/removals will be identified. Next, the sources of uncertainty are assessed for their relative contribution to the overall uncertainty of the emissions/removals.

Step 2 -Minimize uncertainties where feasible and cost effective: Uncertainty can be due to both random and systematic errors. Systematic errors are minimized through the implementation of a consistent and comprehensive set of standard operating procedures, including a set of quality assessment and quality control processes that work within the local circumstances of the ER Program. Random errors are minimized to the extent practical based on the

[60] Ministry of Natural Resources and Environment, 2010. Vietnam's National Second Communication to the United Nations Framework Convention on Climate Change

assessment of their relative contribution to the overall uncertainty of the emissions/removals. An example of this is when the benefits received from more ERs are larger than the cost caused by increasing sample size.

Step 3 -Quantify remaining uncertainty: Uncertainty of activity data and emission factors used in Reference Level setting and MMR will be quantified using accepted international standards, so that the estimation of emissions, removals and Emission Reductions is comparable among ER Programs. Uncertainty of the estimate of ERs will be quantified using Monte Carlo statistical methods. These methods allow underlying sources of error in data and methods for integrated measurements of deforestation, forest degradation and enhancements to be combined into a single combined uncertainty estimate. The uncertainties will be reported at the two-tailed 90% confidence level.

b) The information system

As part of the FMS, an information system will be established. This information system will have a GIS database that store all the maps and data collected by the FMS 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, (e.g., degraded forest; natural forest; plantation), if applicable;
- 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 adjusting emissions, if applicable.

In addition, the following spatial information, maps and/or synthesized data will be displayed publicly:

- Accounting area;
- Activity data (e.g., forest-cover change or transitions between forest categories);
- Emission/Removal factors;
- Average annual emissions over the Reference Period;
- Adjusted emissions; and
- Any spatial data used to adjust emissions, if applicable.

Information about multiple benefits (see Section 9.5) such as biodiversity conservation or enhanced rural livelihoods, governance indicators, etc. will be collected and made available online through the information system.

In Vietnam, the Development of Management Information System for Forestry Sector – Phase I (FORMIS I) project (2009-2013) has developed a system with adequate structure and capacity for integrating and sharing data through standard interfaces. The FORMIS system comprises of three sub-systems: (i) the databases for storing quantitative and qualitative data collected and managed by agencies inside and outside of the FORMIS system; (ii) the platform for providing capacity for integration of existing and new data and applications, security, exposing data and business functionalities in standardized manners; and (iii) the content delivery layer for including different channels such as the portal for delivering the information to the target users and for accessing various applications. However, due to time limitation, only a limited amount of data has been put into the databases of the FORMIS system. The Development of Management Information System for Forestry Sector – Phase II (FORMIS II) project has just started in May 2013 and will last until 2018. This project aims to integrate most of forest resources data into the system developed by FORMIS I. If the proposed ER Program 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 Program.

9.2 Describe how the proposed ER Program monitoring system is consistent with the (emerging) national REDD+ monitoring system.

The national forest monitoring system for REDD+ is being developed and will allow sub-national forest monitoring. Each province will operationalize a revised and elaborated Annual Forest and Forestry Land Monitoring and Reporting Program, which will incorporate data on changes in forest quality, following national guidelines and standards. Pioneering REDD+ provinces outside the Accounting Area of the proposed ER Program are already identifying and testing Since the Accounting Area of the ER Program consists of several provinces, the ER Program monitoring system will be an aggregation of all data generated by the annual monitoring system operating in each province so it is fully consistent with the evolving national forest monitoring system for REDD+.

At a minimum, the ER Program monitoring system will apply all technical specifications of the national forest monitoring systems NFI&S and revised NFIMAP Programs. It will only consider applying higher technical specifications (e.g., increasing the number of sample plots for achieving higher accuracy) than those in NFMS, if it is more cost-effective (i.e., the benefits received from a reduction of ERs set aside when using lower conservativeness factor is significantly larger than the cost for achieving higher accuracy). To be consistent, the ER Program forest monitoring system will use the same forest stratification for carbon accounting under REDD+ as with forest reference level development (see section 8.1).

9.3 Describe how the proposed ER Program monitoring system is consistent with UNFCCC guidance available to date and with the emerging Methodological Framework of the FCPF Carbon Fund.

9.3.1 Monitoring system consistency with UNFCCC guidance

The ER Program monitoring system is consistent with UNFCCC guidance available to date on the following points:

- It use a combination of remote sensing (the satellite land monitoring system) and ground-based forest carbon inventory (national forest inventory) approaches for estimating forest-related GHG emissions by sources and removals by sinks, forest carbon stock and forest area changes.

- It follows the Transparency, Accuracy, Completeness, Comparability and Consistency(TACCC) principles:

    - Transparency: Key data sources, definitions, methodologies and assumptions will be clearly explained and documented and made publicly available online for external peer review (to facilitate replication and assessment of the inventory);

    - Accuracy: Appropriate methodologies conforming to guidance on good practices will be used to promote accuracy in inventories. A QA/QC plan will be developed and used to improve the accuracy and reduce the uncertainty as far as possible;

    - Completeness: All of the significant REDD+ activities, carbon pools/gases will be covered, the ER Program monitoring system also covers full geographic coverage of sources and sinks of the Accounting Area);

    - Comparability: The ER Program monitoring system will use the methodologies and formats agreed under the UNFCCC process for estimating and reporting emission reductions and removals; and

    - Consistency: The ER Program monitoring system will apply the same definitions and methodologies over time to estimate emissions/removals, for AD, although different types of RS imagery and different techniques of interpretation have been used at different points in time, they are not systematically biased, for EFs/RFs, since NFIMAP period 2011-2015 are not implemented, sample plot data collected by the NFI&S are proposed to be used for the start year of crediting (i.e., 2016), this is not violating the consistency principle as the sample plot systems used in the NFIMAP and NFI&S have sound scientific bases and are not systematically biased; and

- The results will be integrated into the national GHG inventory for the LULUCF sector and reported through Vietnam National Communications to the UNFCCC.

9.3.2 Consistency with the emerging methodological framework of the FCPF Carbon Fund

The ER Program forest monitoring system will be fully consistent with the emerging Methodological Framework of the FPCF Carbon Fund, as detailed below:

- The ER Program monitoring system accounts for deforestation, forest degradation and forest enhancement, the proposed forest monitoring system generates forest cover maps annually, so it can easily identify an area of deforestation, forest degradation and forest enhancement by overlaying forest cover maps of two points in time, (consistent with Criterion 3 of the FCPF Methodological Framework);
- The ER Program monitoring system will account for, measure and report, and include in the ER program MMR all significant carbon pools and GHGs (except those that collectively account for less than 10% of the forest-related total emissions, or those when excluding them would result in underestimation of total emission reductions) (consistent with Criterion 4);
- The ER Program monitoring system will use the Revised 1996 IPCC guidelines, the 2000 IPCC GPG-UM and the 2003 IPCC GPG LULUCF, which are most recently adopted by the Conference of the Parties as a basis for estimating forest-related greenhouse gas emissions by sources and removals by sinks (consistent with Criterion 5);
- The ER Program monitoring system will make sufficient details of key data and methods, and the reported emissions and removals publicly available online (consistent with Criterion 6);
- As mentioned above, the ER Program monitoring system follows the TACCC principles and will provide data and information that are transparent, consistent over time, and are suitable for measuring, reporting and verifying emissions by sources and removals by sinks (consistent with Criterion 14);
- The same methods will be used to estimate emissions by sources and removals by sinks for both Reference Level setting and Emission Reductions accounting (consistent with Indicator 14.1);
- Activity data will be determined annually to allow for ERs to be estimated from the beginning of the Term of the ERPA, Area for each chosen activity (deforestation, forest degradation and forest enhancement) will be determined using IPCC Approach 3 (consistent with Indicator 14.2);
- National forest inventory data and country-specific allometric equations/factors are used to estimate emission/removal factors for both Reference Level setting and for MMR. This method is consistent with IPCC Tier 2 method, the uncertainty for each emission factor is also estimated and documented (consistent with Indicator 14.3);
- The ER Program monitoring system follows the same principle of the evolving National Forest Monitoring System, which is operated at the subnational level through annual provincial monitoring, at the minimum, the ER Program monitoring system will apply all technical specification of the NFMS, and will only apply higher technical specifications when the additional benefits received from reduction of ERs set aside when using lower conservativeness factor is larger than the cost for achieving higher technical specifications (consistent with Indicator 15.1); and
- The ER Program Forest Monitoring System will involve local people/communities in the collection/verification of AD and EFs/RFs, and information on safeguards and non-carbon benefits, the local people/communities will be compensated for their contribution on the above activities (consistent with Criterion 16).

9.4 Describe any potential role of Indigenous Peoples or local communities in the design or implementation of the proposed ER Program monitoring system.

Building on pilot participatory forest monitoring (PFM) interventions in recent years[61], the proposed ER Program monitoring system would upscale these models to a regional scale with a view to nationwide adoption under the appropriate element of the NFMS, post-2020. The proposed ER Program monitoring system would effectively,

[61] Including: NFI&S piloting, by GoV in Bac Kan and Ha Tinh provinces; Participatory Carbon Monitoring (PCM) by UN-REDD in Lam Dong province; Participatory forest monitoring (PFM) by Lam Dong DARD in Lam Dong province.

operationalize Article 32.2 of the current (2004) Forest Protection and Development Law[62].Local communities and ethnic minorities can participate in the monitoring system as either:

(i) Directly, as forest owners (individual households or collectively as village communities under CFM); or

(ii) Indirectly as subcontracted service providers to larger state-managed forest owners (e.g. SFCs or protected area management boards), as under the current domestic PFES scheme.

The functions of local communities and ethnic minorities in the implementation of the proposed ER program monitoring system are three-fold:

(i) Participatory carbon accounting:

- Identifying and monitoring the key agents or drivers of forest cover change, forest degradation, and carbon stock enhancement across the landscape;
- Collecting field data (AGB), according to standardized national protocols, for estimating forest carbon stock fluxes and EFs/RFs; and
- Assisting in accuracy assessments of (spatial and non-spatial) activity data generated for REDD+, for verifying or validating remote sensing products, as planned under the NFI&S 'statistics stage'.

(ii) Non-carbon benefit monitoring – (see Section 9.5):

- Identifying basic indicators for priority environmental and social benefits/risks associated with REDD+ interventions, identified during participatory PRAP processes (see Section 5.3); and
- Collecting and conducting basic analysis of environmental and social data against indicators, and/or accessing information from the NFMS to inform adaptive management of interventions

(iii) Intervention monitoring:

- Conducting basic analysis of AD and AGB data and/or accessing information from the NFMS information system to inform refinement of management interventions

PFM under the proposed ER Program will be integrated into a modified annual forest cover (and quality) change monitoring implemented by FPD, which has the mandate and human resource capacity (with ranges at all levels of administration, from national to commune level), to engage with forest owners and local communities.

9.5 Describe if and how the proposed ER Program monitoring system would include information on multiple benefits like biodiversity conservation or enhanced rural livelihoods, governance indicators, etc.

To ensure attribution of environmental and social impacts of the proposed ER Program, the participatory PRAP methods, currently being tested under bi-and multilateral readiness initiatives, will facilitate stakeholder identification of basic indicators to monitor multiple benefits (and risks) associated with planned REDD+ interventions (see Section 5.3). Three of the five non-carbon benefits (risks) identified in Section 16 are expected to be monitored under the proposed ER Program under its constituent PRAPs: 1) forest governance; 2) sustainable rural livelihoods; and 3) biodiversity and ecosystem services.

Two participatory planning methods are being tested: PIAM and P-PRAP. Both methods comprise two multi-stakeholder workshops to: a) assess risks and benefits; and b) identify indicators and develop a monitoring plan for the PRAP. The outputs of the monitoring plan workshop, towards the end of the PRAP process, will be three sets of indicators and monitoring plans:

[62]'*Forest owners* [see Section 14 on tenure] *shall have to make 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…'*

(i) To measure progress towards achieving the objectives of specific PRAP interventions to reduce emissions and enhance removals;

(ii) To measure progress in mitigating, and managing residual social and environmental risks, and enhancing social and environmental benefits; and

(iii) To identify negative social and environmental effects as they occur to inform adaptive management of the PRAP's implementation

These three monitoring plans will be captured in an 'Environmental and Social Mitigation Plan'[63], a supplementary document to each PRAP. Subsequently, annual 'Environmental and Social Mitigation Reports', will be submitted to relevant provincial and national government agencies, in addition to be made public through the existing and emerging national information systems. Data collection protocols will adapted from on-going participatory multiple benefit monitoring pilots, including biodiversity indicators under Lam Dong province's PFM model, and Participatory Governance Monitoring methods developed by the UN-REDD Program. As for participatory carbon accounting aspects of monitoring (Section 9.4), non-carbon benefit/risk monitoring will be operationalized through a modified annual forest cover (and quality) monitoring system of FPD.

This bottom-up approach to indicator identification, to ensure locally-specific attribution on impact to the ER program, will be adjusted over the program's lifetime to be consistent with emerging new national framework indicators, such as those of an anticipated revised NFIMAP (see Section 9.1), as well as a National Biodiversity Monitoring System. As with participatory carbon accounting (activity and AGB) data, NCB data will be analysed locally to inform adaptive management of the PRAPs comprising the ER Program, and the individual forest management plans that operationalize each PRAP. Data will also be aggregated up through FPD offices at each level of the administrative hierarchy – district → province →national - into existing and future information systems for informing domestic policy reform processes, as well as international reporting requirements (notably, FCPF Carbon Fund Methodological Framework[64] and UNFCCC Cancun safeguards).

10 Displacement

10.1 Activities to address risks of reversal of greenhouse gas benefits
Description of the potential risks of both domestic and international displacement of emissions(leakage)
Please describe the potential risks of both domestic and international displacement of emissions from the proposed ER Program activities. Then also describe how the proposed ER Program activities will minimize the risk of domestic displacement and international displacement (if applicable), via the design of the proposed ER Program and the ER Program activities and the selection of locations. For sub-national programs, pay special attention to identifying domestic risks of displacement of emissions, the proposed ER Program activities to mitigate these risks, which otherwise would contribute to fewer net emission reductions generated by the proposed ER Program, and how these activities are consistent with the design features of the (emerging) national REDD+ strategy to address risks of displacement.

The potential risks of both domestic and international displacement of emissions from the proposed ER Program activities are summarised in Table 10.1 and elaborated below. As part of the full ER Program design, a comprehensive displacement risk assessment will be conducted to inform displacement measurement options under the NFMS (particularly under the revised NFIMAP and annual forest monitoring components), and risk mitigation options for the NRAP, under which the ER Program would operate. Residual domestic displacement will be measured and fully accounted for by a robust NFMS currently under development (see Section 9.1). The NRAP does not articulate any specific provisions for addressing risks of displacement, either domestically or internationally. Consequently, the ER Program will serve as a major influence informing the operationalization of the evolving NRAP.

[63] In essence, the PRAP environmental and social benefit/risk assessment, and subsequent environmental and social mitigation plan and annual reports, represent a participatory subnational equivalent of the national SESA-ESMF process for the NRAP.
[64] Indicator 35.2.

Table 10.1 Summary of both domestic and international displacement risk and proposed program risk mitigation design features

Activity	Displacement risk		Mitigation design feature
	Domestic	International	
1. Production forestland allocation	Low – largely underutilised degraded and bare lands; possibility to displace rubber production to other regions if latex prices spike	Low – shifting cultivation and industrial tree crop might be displaced domestically; possibility to displace rubber production internationally if latex prices spike or labour costs increase	Allocation of, and investment in, production forests, particularly for households and communities, provides stable alternative income to shifting cultivation and market volatility of global commodity prices (particularly latex)
2. Sustainable production forest certification	Low – nationwide logging ban in natural forests should restrict logging within Vietnam	Relatively low – nationwide logging ban could cause displacement to Laos, but certified production could reduce displacement from the Accounting Area	Nationwide logging ban could displace timber harvest to Laos or further afield. By certifying production forests in the Accounting Area, some supply can be maintained within the Accounting Area, reducing the risk of international displacement
3. Payment for Forest Environmental Services	Low – could displace shifting cultivation to provinces where domestic PFES is not viable; could displace illegal logging	Low – PFES alone unlikely to discourage illegal logging, main displaceable driver of forest degradation to Laos or beyond	PFES, with participatory forest monitoring, adopted to compensate forest owners and subcontracted local communities as an alternative income source
4. Strengthened law enforcement	Medium – illegal logging could be displaced to other parts of Vietnam if proportional law enforcement efforts are not made	Medium - illegal logging could be displaced to Laos or other countries if no change in international measures to address illegal timber supply taken	Law enforcement interventions adopted as model to inform improved national policies and practices; integration with FLEGT and operationalising VPA components adopted as strategic response to international leakage

10.1.1 Domestic displacement

There is some risk of domestic displacement as a result of the ER Program, with the potential to shift agriculture and timber production to other regions. However, this risk is perceived as low, given:

(i) The proposed ER Program promotes alternative production sources for timber through allocation and certification of production forest in the context of a nationwide logging ban in natural forests;

(ii) The differences in ecological conditions across agro-ecological regions limit displacement of conversion for agricultural purposes;

(iii) The proposed ER Program is focused on sustainable development – through forestry-based livelihood support (through CFM and smallholder forestry), and, as such, will work to address the needs of communities in conjunction with enhanced forest protection responsibilities (through PFES); and

(iv) The national forest monitoring system will help to identify and correct any displacement that does occur.

10.1.2 International displacement

The current nationwide logging ban has the potential to create international displacement. Vietnam heavily relies on imported wood for domestic processing to produce wood-based products for export[65]. Vietnam does not have jurisdiction over other sovereign states, and consequently no requirement to address international leakage for national-level under the UNFCCC, it is therefore not possible to eliminate this risk. Nevertheless, GoV takes international illegal forest crime as a serious issue in the ASEAN region and is committed to reducing this broader reputational risk for the country. In addition to existing bilateral Memoranda of Understanding on trans-border timber trade with immediate neighbours, Laos and Cambodia, Vietnam has been negotiating FLEGT-VPA since 2010 and should be concluded by the end of 2014. Furthermore, Laos is preparing to negotiate FLEGT. The proposed ER Program will operationalise key elements of the VPA (Legality Definition and Timber Legality Assurance System) to limit risk of international displacement, however, there is some potential for an increase in unsustainable timber production in neighbouring countries to meet international demand.

11 Reversals

11.1*Please describe major risks of anthropogenic and non-anthropogenic reversals of greenhouse gas benefits (from e.g., fire, agriculture expansion into forest, changes in commodity prices).**Also describe any activities or design features in the proposed ER Program that are incorporated to minimize and/or mitigate the anthropogenic risks or reversals, and how these activities are consistent with the design features of the (emerging) national REDD+ strategy to address risks of reversal.*

Reversal of GHG benefits could result from fire, disease, illegal logging, unplanned agricultural expansion (responding to global commodity price hikes), centrally planned infrastructure development, or climate change (particularly increased frequency and intensity of typhoons). Table 11.1 provides a preliminary risk assessment and identifies possible mitigation strategies. The overall risk mitigation strategy is to negotiate trade-offs between ER, economic, environmental and social objective of land-use options through the participatory PRAP processes. Vietnam's equivalent of a national REDD+ strategy, the NRAP does not offer any specific provisions for addressing risks of (anthropogenic or natural) reversals. Consequently, the ER Program will serve as a major influence informing the operationalization of the evolving NRAP with regards to reversals mitigation mechanisms.

Table 11.1 Reversal risks, risk assessment and possible mitigation strategies

Risk	Level of risk	Mitigation strategies
Anthropogenic		
Expansion of commercial (industrial crops) and subsistence agriculture	Medium – commodity (latex) prices beyond the control of the ER Program	Participatory land-use planning through PRAP; livelihood improvement through production forestland allocation and development coupled with PFES contracts for natural forest protection
Infrastructure development	Low in main areas of interest to the program i.e. upland areas away from the coastal plain; Infrastructure in the coastal areas can be expected to expand for tourism, economic zones and transport; any expansion of HEP is likely to involve only small HEP schemes; currently all future HEP now require PM approval	Participatory land-use planning through PRAP; forestland allocation securing statutory tenure
Illegal logging	Low – key strategy of the proposed ER	Community based forest management

[65]It is estimated that about 4 million m^3 of timber is imported annually from different countries, including Laos (the western border with the North Central Region of Vietnam, and Malaysia (for FSC timber). The manufactured wood- based products of Vietnam are exported to over 100 countries, but the main markets are United State of America (37%), EU (15%) and Japan (15%). Almost 100% of the wood chips that are exported from Vietnam go to China; small volumes go to Japan, Korea, and Taiwan.

Risk	Level of risk	Mitigation strategies
	Program is strengthened enforcement	Prevention-based enforcement; strengthened criminal justice response; intelligence-based enforcement (see section 5.3); participatory forest monitoring (see section 9.4)
Climate change	Medium – increased frequency or severity of typhoons could impact near coastal and coastal forests	Improve technical advice, appropriate selection of locations for future industrial tree crop plantations during PRAP 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 coast)
Natural		
Typhoons	Medium - Typhoons are a normal part of life in the area	As above -similar to mitigation measures under climate change
Fire	Low – historically a minor driver of DD; could increase with climate change	Monitored by VNFORESTS; implementation of fire prevention measures and fire-fighting infrastructure (Vietnam has a well-established and functioning fire prevention and management system in the FPD)

During the ER Program development, the VRO will commission a detailed reversals risk assessment that will identify:

- Anthropogenic and natural risks of reversals that might reduce ER performance during and beyond the term of the ERPA;
- Measures to demonstrate how effective ER Program design and implementation will mitigate significant reversal risks;
- Measures to account for reversals from ERs that have been transferred to the FCPF Carbon Fund during the term of the ERPA; and
- Recommendations for improved reversal mitigation and management mechanisms in the design of the ER Program.

In the course of the ER Program implementation, any significant 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, and 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. Vietnam will participate in the Carbon Fund buffer option. In addition to the buffer solution of reserving ERs, during the full ER Program's development, and integrated with national REDD+ fund design under the NRAP, other national non-permanence risk mitigation strategies - namely national/subnational compensation funds and formal insurance mechanisms - will be investigated.

12 Expected emission reductions

12.1 Expected Emission Reductions (ERs)

Please provide an estimate of the expected impact of the proposed ER Program on the REL/FRL (as % age of emissions to be reduced). Based on this %age, also estimate the volume of ERs, as expressed in tonnes of CO_2e, that would be generated by the ER Program:

a) up to December 31, 2020 (currently the end date of the FCPF)

b) for a period of 10 years; and

c) the lifetime of the proposed ER Program, if it is proposed to continue longer than 10 years.

Based on the emission and removals from the reference period and the plan for forest management in the North Central region, as well as planned interventions to be carried out in ER program, the emission and removals are estimated. With effective implementation of interventions through the support of ER program and Vietnam government, there is high potential to reduce emission caused by deforestation and forest degradation and increase removals by forest enhancement. There is strong commitment of Viet Nam government in reducing emissions in key sectors. As this, it is targeting to reduce 20% of emission occurred in forestry by 2020[66]. It is estimated that the emission reduction amount of 12 $MtCO_2e$ and removals of 8.6 $MtCO_2e$ can be achieved in the ER program (see Table 12.1).

Table 12.1 Estimated emission reduction and removals potential of ER program for 2016-2020

Intervention	Target (ha)	Emission reduction potential ($MtCO_2e$)	Removal potential ($MtCO_2e$)
1. Reducing emission from deforestation and forest degradation			
1.1. Reducing 20% forest area converted to infrastructure development (Hydro power, mining, road construction) and for agricultural development in line with social and environmental safeguards of WB)	17,000	4.37	
1.2. Improving and generating income from cash crops planting to avoid 20% of unplanned deforestation and forest degradation with sustainable agriculture	12,000	3.08	
1.3. Strengthen local communities and relevant agencies involved in community forest management, RIL techniques and carbon monitoring and income generating activities;	250,000	4.59	
2. Forest enhancement			
2.1. Enhance forest quality by enrichment planting and effective forest management (increased carbon stock by 15%)	300,000		2.75
2.2. Planting forest on barren land and replanting of long rotation species (saw log timber)	200,000		5.87
Total emissions/removals (MtCO2e)		**12.04**	**8.62**

12.2 Volume proposed for the FCPF Carbon Fund

Please explain the portion of the expected ERs that would be offered to the Carbon Fund, and if other carbon finance providers or buyers have been identified to date, the portions of the expected ERs that would be offered to them.

The process of emission reduction requires a longer time for putting impacts of mitigation activities while the Carbon Fund can only be functioning until 2020. In 2012, Vietnamese government committed to reduce emission in the key sectors, in which reduction target for forestry is 20 % by 2020. Considering the commitment of Vietnamese Government and the ER program under the Carbon Fund, the amount of emission reduction will be made available to the Carbon Fund is 10.3 MtCO2e or 50% of the total emissions plus removals of the period 2016-2020 as mentioned in the table 12.1.

13 Preliminary assessment of the proposed ER Program in the context of the national Strategic Environmental and Social Assessment (SESA) and the Environmental and Social Management Framework (ESMF)[67]

[66] Decision 1775/QD-TTg of Prime Minister on emission target for relevant sectors by 2020.

[67] The SESA is the assessment process to be used in FCPF REDD+ countries during R-PP implementation and REDD+ readiness preparation. The ESMF is an output of SESA that provides a framework to examine the issues and impacts associated with

13.1 Progress on SESA/ESMF

Please describe the country's progress in the implementation of SESA and the development of the ESMF, and their contribution or relationship to the proposed ER Program.

a) Summary of progress

While the SESA has not been completed, the readiness process in general, and information from on-going international projects in the program area, means that there is substantial information SESA related information already available and SESA related work has started on a number of important activities that will contribute to the expected outcomes of the two components of the SESA that of strategic risk diagnosis and management, work contributing to the SESA includes: (i) the identification of environmental and social issues, priorities and recommendations on how to address those priorities by closing legal, institutional, policy, and capacity gaps;(ii) work on deforestation and degradation drivers; and (iii) preliminary work on the social risk and potential impacts.

Vietnam has elected to adopt a country-led approach to safeguards under the NRAP. This country-led approach is looking to Vietnam's existing legal, institutional and compliance (comprising information systems; feedback and grievance redress mechanisms; and non-compliance) frameworks to develop a country safeguard system (CSS) for the NRAP.

b) Progress on policy gaps

In February 2012, a sub-technical working group on safeguards (STWG-SG) was established[68], with government (VRO) chair and civil society organization (CSO) co-chair (SNV). During 2012, the STWG-SG reviewed options to operationalize REDD+ safeguards, together with the major multilateral international safeguard frameworks applicable to REDD+: World Bank Operational Policies, through the SESA-ESMF process; UN-REDD Social and Environmental Principles and Criteria (SEPC); and international CSO REDD+ Social and Environmental Standards (SES). The conclusion of this review was the decision to adopt a CSS approach, commencing with commissioning a gap analysis of the legal framework (existing policies, laws and regulations – PLRs), which would form a basis for a safeguard 'roadmap' for the NRAP.

The legal framework gap analysis conducted over 2013, constituted a comprehensive[69] analysis of how Vietnam's existing PLRs meet an 'international best practice' interpretation[70] of the Cancun safeguards and was presented to the STWG-SG for feedback[71] in December 2013. The legal gap analysis conducted to inform the roadmap, constitutes the first analytical input into an on-going process, and serves as the basis of the specific (short and longer term) recommendations on legal (PLR) framework reform and strengthening. The NRAP acknowledges the UNFCCC ('Cancun') safeguards and associated UNFCCC requirements and the Government is also familiar with the World Bank Operational Polices and requirements of the FCPF and Carbon Fund to follow the Operational Polices of the World Bank.

The current roadmap is a 'work in progress' document' that will be elaborated through further (institutional and compliance framework) analytical inputs and revisions, through a multi-stakeholder consultative process facilitated by the STWG-SG. Institutional framework and feedback and grievance redress mechanisms (FGRM) gap analyses will be conducted under the FCPF readiness project-led SESA-ESMF process in 2014. Information system and non-compliance measure gap analyses will be conducted in parallel under the UN-REDD Phase II Program. A revised safeguard roadmap, formed by the analysis of all three CSS elements – legal, institutional and compliance frameworks – will be submitted for national government approval towards the end of 2015, to inform adjustments to the NRAP's second

programs, activities, and/or policies/regulations that may occur in the future in connection with the implementation of the national REDD+ strategy but that are not known at the present time.

[68]The STWG-SG is open to all National REDD+ Network members and comprises representatives from government, donors, inter-government organisations, international and national CSOs, representing local community and ethnic minority constituencies.

[69]54 PLRs were analysed for the roadmap v1.0; a total of 60 PLRs were analysed for the current v2.0.

[70]Rey, D., Roberts, J., Korwin, S., Rivera.,&Ribet, U. (2013a) *A Guide to Understanding and Implementing the UNFCCC.* ClientEarth, London, United Kingdom.

[71]The roadmap, together with the full analytical matrix, incorporating stakeholder comments is now available in Vietnamese and English on the REDD+ Vietnam website.

period of operations (2016-2020). The government-endorsed safeguards roadmap for the NRAP will provide the overarching framework under which the ER Program, and its constituent PRAPs, will operate through application of existing and improved PLRs, improved institutional capacities and information, FGRM and non-compliance systems.

In parallel with the national CSS roadmap process and consistent with the decentralised government structure outlined in section 3.2, whereby the NRAP is operationalised through PRAPs, Vietnam is also in the process of piloting participatory SESA-ESMF-type processes at the subnational level. Two methodologies for participatory environmental and social impact assessment have been developed and are scheduled for field testing in quarters two and three of 2014:

I. Participatory Impact Assessment and Monitoring (PIAM) in Lam Dong province under the MB-REDD project; and

II. Participatory Provincial REDD+ Action Planning (P-PRAP) in Binh Thuan province under the UN-REDD Phase II Program, with a view to replication to three other provinces, including Ha Tinh in the proposed ER Program landscape.

These subnational 'SESA-ESMF' processes will form the basis of a bottom-up approach to the national SESA-ESMF conducted under the FCPF Readiness project (2014-2015), effectively sampling REDD+ strategy options, and their associated environmental and social impacts, from each of the major forested ecoregions/agro-ecological zones in the country.

c) Progress on drivers of deforestation and forest degradation

Data collection on drivers of deforestation and forest degradation for the proposed program area has been an on-going exercise during the preparation of the ER-PIN and detailed information is available from a number of sources including the national JICA study[72] and more specifically in the program area GIZ REDD+ project[73] in Quang Binh and the VFD Project in Thanh Hoa and Nghe An[74]and the UN REDD program have reviewed forest deforestation and degradation drivers at the provincial level.

d) Preliminary work on the social risk and potential impacts

In similarity to ongoing REDD+ activities on deforestation and forest degradation, the same projects also undertook and have made available information on REDD+ social aspects[75]. In addition a number of the program provinces and Special Use Forests are included in Forest Sector Development Project and work has included SIAs, EIAs[76]and semi detailed commune and village level participatory social studies on the socio-economic situation and forest dependency and potential mitigation options of the often remote ethnic minorities living in and around the Special Use Forests in the program area. Therefore many of the social and socio economic issues are recently documented over wide areas of the program provinces and all of which provide SESA type information.

e) Value of added by the SESA and EMSF

It is expected that the SESA and resulting ESMF will build on the existing socio-economic and related REDD+ activities work on going across the program area and with input to the various REDD+ projects, but also act as a process that will

[72]JICA. 2012. Report on study on potential forest and land related to climate change and forest in the Socialist Republic of Vietnam. Vietnam Administration of Forestry, Hanoi.

[73]REDD+ Quang Binh, Analysis for Drivers for Deforestation and Forest Degradation, GIZ, November 2013.

[74]Vietnam Forests and Deltas Program goal is to help support Vietnam to accelerate the country transition to climate-resilient, low-emission sustainable development. The project will assist the Government of Vietnam to implement these recently enacted national policies on climate change adaptation through building climate change resilience in upland communities and reducing emissions in the forests and agriculture sectors from supporting REDD+ and green growth practices. Vietnam Forests and Deltas Program Thanh Hoa Province: Provincial Scoping Report September, 2013 and similarly Nghe An Province: Provincial Scoping Report September 2013.

[75]REDD+ Quang Binh Social and Environmental Safeguards, sub national level Quang Binh November 2013; REDD+ Quang Binh Free Prior and Informed Consent, sub national level Quang Binh November 2013. VFD references as in foot note 61.

[76]Forest Sector Development Project (FSDP): Environmental Impact Assessment and Update Environmental Management and Monitoring Plan for Additional Financing and Extension (includes Thanh Hoa and Nghe An) October 2011; Social Impact Assessment of smallholder forest plantation project in Nghe An and Thanh Hoa Provinces; In addition the Vietnam Conservation Fund, (component part of the FSDP) undertook Social Screening Reports for most of the SUFs in the program area 2010-2012.

document and integrate relevant socio-economic and environmental information approaches for the program area with the aim of the program being: (a) supportive of establishing the international standard safeguard polices that apply; and (b) also for the SESA process to be used to further develop the safeguard approach under development (and help in filling the gaps identified during the earlier gap analysis). The EMSF as an output should, in particular, be relevant as it is expected that it should develop and build on the detailed mitigation (socio-economic and environmental) and environmental management plans that were developed for manly project based activities, but would not have been applied outside those projects, where as the ESMF is expected to introduce a consolidation process to all the on-going REDD+ activities, and related projects, and have a wider (in terms of area) broader (in terms of gap filling) and longer use (by dovetailing with the national policy in the NRAP).

13.2 Incorporation of SESA outputs and/or outcomes into the proposed ER Program
Based on the progress outlined in 7.1, please describe how the proposed ER Program is expected to make use of the outputs and/or outcomes of the SESA process. Provide an analysis of the ways in which activities planned under the proposed ER Program will rely on the measures and procedures included or to be included in the ESMF. Are there likely to be any gaps or issues regarding the compliance of the proposed ER Program activities with applicable safeguard standards, including the UNFCCC safeguards?

The NRAP CSS currently under development through the roadmap process will identify the existing legal, institutional and compliance frameworks that will regulate the implementation of PRAPs that will comprise the ER Program. The current roadmap already identifies which existing national PLRs provinces will have to implement effectively to ensure consistency with the World Bank and Cancun safeguards. Subsequent analytical inputs on institutional and non-compliance framework scheduled for 2014-2015, will inform existing institutional capacity building needs, information system, FGRM and non-compliance measures that will apply for the NRAP and constituent PRAPs (six of which will be completed under the proposed ER Program).

Piloting of PIAM and P-PRAP will yield subnational SESA-ESMF-type outputs for five provinces in Vietnam by the end of 2015, including one (Ha Thinh) in the landscape of the proposed ER Program. Revised methodologies, formed by these pilot provinces, will be applied, with support from existing development projects, to the remaining provinces in the ER Program landscape, as the core of multi-stakeholder PRAP process that will operationalise the Program in 2015-2016.

Activities planned under the proposed ER Program will rely on the measures and procedures to be included in the Environmental and Social Mitigation Plans (ESMP), which are the ultimate outputs of PIAM and P-PRAP as applied to subnational planning for REDD+ under the NRAP. ESMPs will document:

- Potential environmental and social impacts (benefits and risks) as perceived by stakeholders;
- Modified PRAP interventions with lower NCB risks and higher benefit potential;
- Indicators of 'SMART' objectives to mitigate and manage the risks and maximise non-carbon benefits; and
- Capacity building recommendations for the entities responsible for implementing PRAP interventions.

The PRAP-ESMPs will contribute to and inform the national SESA-ESMF process to be conducted under the FCPF Readiness project in 2014-2015.

Vietnam is in a unique situation where subnational assessments - of drivers of deforestation and forest degradation (as well as barriers to 'plus activities'); identification of interventions to address these drivers and barriers; and the potential environmental and social impacts of these interventions - are proceeding with more detail, clarity and stakeholder engagement than national-level processes. Consequently, PRAPs (and their ESMPs) comprising the proposed ER Program, and the parallel SESA-ESMF for the NRAP, are likely to mutually enforce and inform each other.

The PLR gap analysis of the draft safeguard roadmap v2.0 has identified the main gaps or issues regarding FCPF (World Bank) safeguards for the NRAP; these gaps issues are equally applicable to the ER Program and are summarised in Table 13.1. These gaps and issues will form specific thematic foci under the SESA-ESMF of the NRAP, during 2014-2015, which will contribute further to the national safeguard roadmap's recommendations.

According to guidance set out the Methodological Framework, the program will comply with applicable World Bank safeguard policies and procedures and promote and support the safeguards included in the UNFCCC Cancun decisions. Safeguards plans will be prepared during the detailed preparation phase, including appropriate monitoring arrangements, and will be publicly disclosed through the Viet Nam REDD website: Vietnam-Redd.org

13.3 Feedback and grievance redress mechanisms
Please describe the mechanism(s) that are or will be put in place to resolve any disputes regarding the proposed ER Program.

Under the Vietnam safeguard roadmap, a full gap analysis of existing Policies, Laws and Regulations (PLRs) was conducted. In terms of feedback and grievance redress mechanism, the results of this analysis have indicated that the legal framework in Vietnam recognizes the right to access to justice at all levels, providing access to legal services and support. The legal framework also guarantees access to appeals, remediation and compensation and the enforceability of its decisions. Vietnam has a Law on Complaints and a Law on Denunciation (2011) which provide a comprehensive legal framework for citizens to access justice relating to administrative decisions through lawyers or legal aid staff.

There are legal grievance and dispute settlement processes prescribed in detail in the two main laws which are used to administer land and forest areas, The Land Law (Article 132, 135 etc) and the Law on Forest Protection and Development (Article 84 etc), and both encourage settling of any dispute or grievance at the local level and these allow for a grievance or dispute to be raised at the Commune level first. The grievance can be taken forward to the District or Province and eventually to the Minister for MONRE (see section 14.1) in the case of the Land Law. For the Law on Forest Protection and Development "Disputes over the rights to use forests of all kinds and/or the ownership rights over planted production forests shall be settled by people's courts. Disputes over forest land and/or afforestation land shall be settled according to the provisions of land legislation".

In the Decree 99 on the PFES there are grievance procedures, but these could be improved to be made more transparent.

A common problem at the local commune and village level is that people often do not know their rights, they cannot read or write or their village leader does not forward their concerns to higher-level officials for resolution. A process for handling grievances in which people's complaints are addressed in a timely manner is required and this will need to be addressed in the proposed Process Framework that will form an output of the SESA and be included in the ESMF (see section 13). The FCPF Communication Strategy[77] discussion on a grievance mechanism, however, further work is required on developing a suitable system that works in the field and included in the Process Framework. The FCPF will be conducting field work and intends to form a Register of Grievances and to monitor the situation will form a panel (an independent panel) to periodically review any grievance that is made to the FCPF project. The role of panel will be included in the Process Framework (as part of the ESMF) would be carried forward to the ER Program. Important points for the grievance system:

- The grievance[78] procedures will include a formal process based around the Land Law, which includes four stages of mediation starting at the CPC, if not settled the matter can be taken to the District Peoples Committee, then to the PPC. If parties are still not satisfied then the case may be submitted for consideration by the District Court within 45 days of receiving the decision of the PPC. The District Court will reach a decision on the complaint within the timing regulated by Vietnamese law.

- Grievances should be received orally (in the Vietnamese language or a local ethnic language) or in written form.

- Complaints or grievances can be received through a variety of sources, including, for example direct from either the individual or a group, or through a representative, such as the village head, a representative of a

[77] Communications strategy and stakeholders consultation Plan, FCPF, April 2014.
[78] Grievances relate to issues that cannot be solved immediately and may not be solved locally and would include matters related to land and assets. For ethnic minorities affected by the program, these issues may relate to (a) conflict between communities on access and management of natural resources, (b) any other matter for grievance in relation to ethnic minority cultures.

mass organization or an NGO in the Vietnamese language or a local ethnic language or in written form. They may also be reported through the Commune People's Committee, which informs the program; or through compliance monitoring.

- Key principles in the informal process are: (a) to deal with the matter at the lowest possible level; and (b) to address complaints as quickly as practicable to avoid minor issues becoming major ones.

- Program information leaflets will provide practical information about grievances to local residents such as contacts and addresses and will mention both the legal mechanism and the Independent Panel (as set up by the FCPF project).

Clearly there are different procedures for handling disputes and grievances in the different laws and legislation, however, as would be expected the most used and known about grievance mechanism is found under the Land Act and (follows the Laws on Complaints and Denunciation)and this process has been used as the basis in many Development Projects[79].

An advantage that will be taken further over the period of the FCPF project and included in the SESA and EMSF will be the development of the grievance procedure mechanism (based on field tested processes) and with the on-going work on the legal and policy gaps this can add value to areas where the grievance mechanism is not so well defined.

14 Land and resource tenure

14.1Rights to territories and land, and mitigation benefits
Please describe the land use and land tenure context of the proposed ER Program, and if and how rights to territories and land and mitigation benefits from REDD+ are reflected in traditional practices and codified in legal and/or regulatory frameworks.

14.1.1 Land administration and use status

Whereas the land tenure and resource use rights can be complex, the titles to use land[80] in Vietnam are entered into a register [81] and once entered into the register are fully supported by the government. The title is also supported through the following:(i) there are detailed dispute mechanisms and disputes are encouraged to be resolved at the local level [82] there are procedures to be used at the local level (Commune, District, town and Province level);(ii)many forest boundaries are agreed using participatory approaches, for example, SUF and SFC land where encroachment for agricultural is a problem are agreed using participatory approaches[83]and then surveyed; (iii) for community forest management, the community forest land boundaries and use rights also have to be determined using participatory processes developed under the KfW forestry projects; (iv) in many of the remote forested areas, ethnic minority communities are still highly dependent on natural forest areas, innovative pilot legislation[84]

[79]Including the grievance procedures for the Resettlement Policy Framework of the large World Bank funded forest sector project (FSDP and the VCF), and the Trung Son Hydropower Project (Consultation, Communications and Community Relations Annex, 2011).

[80] In Vietnam the allocates a registered title based on the usufruct rights, the rights to use and obtain benefits of the property, but does not transfer the outright ownership of the land which remains with the state.

[81]The Land Law 2003 (Article 46 and 47) provide for the registration of land use rights and management of cadastral records to record the registration of land use rights under the Land Law and the article defines the registration and updating process.

[82]Conciliation of disputes, complaints and boundary disputes are dealt with a detail in Article 135 – 138 in the Land Law 2003

[83]Resolution of boundaries for SUFs, this included external boundaries and boundaries and land use for small communities located with the boundaries of the SUF, was an integral part of the Vietnam Conservation Fund, small grants program, which was supported by WB, GEF, The Netherlands, and Trust Fund for Forests (TFF) and ran from 2005-2013.

[84]Decision 126 /QD-TTg' Pilot policy on benefit sharing mechanism (BSM) in management, protection and development of special-use forests (SUFs) 2nd February 2012'. Up until this innovative legislation, any use or exploitation of SUF land or forest even though local communities were dependent on the forest and sometimes located inside (SUFs have total of about 95,786 people living inside the SUFs nationwide in the central region (north and south central region there are about 11,882 people living inside the SUFs, VCF figures 2013) were deemed as illegal, therefore informal arrangements where generally followed. The Decree sets limits and periods for the sustainable collection of NTFPs. Part of the Decision also places more responsibility and

supporting benefit sharing mechanisms, forest use rights and co management, allow legal agreed exploitation and co management approaches in a number national parks; and (v) FLA has long been a cornerstone of land and forest administration and management and to the end of December 2010 1.8 million Land Use Certificates had been issued by MONRE covering about 8,843,000ha or about 69.4% of the total target forestland[85].

Based on the primary management functions, forests in Vietnam are classified into protection, special-use and production forests:

- Protection forests 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 (SUFs) 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 duel purpose of acting as a watershed protection forest.
- Production forests are used mainly for production of timber, NTFPs, in addition to combined environmental protection purposes. Production forests include: natural, plantation and seed forests.

The current status of the North-Central Agro-Ecological Region's forest estate, in terms of forest management type is presented in Figure 14.1.

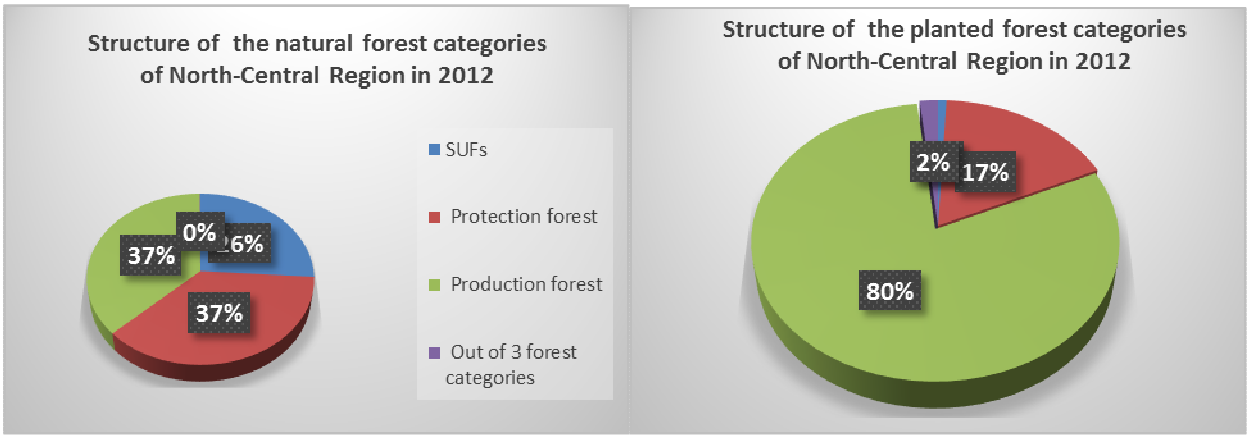


Figure 14.1 Forested estate of the North-Central Agro-Ecological Region, in 2012, divided by forest management type categories(forest monitoring 2012, MARD

14.1.2 Statutory forest and agricultural land tenure

According to the 2013 Constitution, 2003 Land Law, 2013 revised Land Law and 2004 Forest Law, forest and agricultural lands "*belong to the people and the State is the representative owner*". The forest/land users (organizations, companies, households and communities) have the land use right and forest use rights only this forms the registerable title. The Government allocates or leases land and forests to organizations, companies, households and communities, without collection of land-use fees (rent), to manage and to use sustainably and on a long-term (50-70 years) basis.

SUFs and large-scale (>5,000 ha) protection forests are allocated to state financed management boards. Small-scale (<5,000 ha) production and protection forests can be allocated to households and communities for management and resource use. For plantations, household lease holders have rights to convert, transfer, donate, sublease, bequeath or use as these production forests collateral in accessing credit. However, the rights of households for

accountability on the local communities but also encourages them to report problems from outsiders e.g. illegal loggers. This Decision sets the precedent for the draft legislation on co management.

[85]Forest Land Allocation in Vietnam: Implementation Processes and Results, Tropenbos International' May 2013.

natural productions forest are limited to harvesting, receiving PFES and limited rights to using the forest goods and services value as collateral, except where the forest is subject to a CFM project. The rights of local communities are limited in the case of forest allocation. They are not permitted to: convert, transfer, donate, lease, mortgage, guarantee capital on business development loans, or divide the forestland among community members (households).

Land and forest allocation efforts of the government in recent years have resulted in long-term land-use (lease-holder) certificates, which becomes the registered title being granted for 684,864 ha of agricultural land (80.3%), 17,103 ha of aqua-cultural land (50.7%) and 1.83 million ha of forestland (75.9%) to different land users in the North-Central Agro-Ecological Region (MONRE 2012). The allocated forest areas to state organizations and companies[86]comprise the majority of land 'owners' compared to non-State owners (households, communities and private companies). 66.7% of natural forest areas and 30% of planted forest areas belong to the state forest owners. Allocated natural forest to the households and communities consist of only 22.0%. However, 54.5% of planted forest areas belong to the households and this shows that households are the main actors to supply planted timber for the market. The allocated forest areas to the local communities are rather limited (1.2% of the forest areas) and it shows that communities have not been considered as a viable forestland owner option by local government. The reason is that, although a "community of citizens" can be allocated forest land, village communities are not recognized as legal entities by law and it is difficult to issue a registered title to a group of households[87].

For agricultural land, households are also the main actor. Nearly 84.0% of the 835,200 ha of agricultural land in this region has been allocated to households (see Figure 14.2).

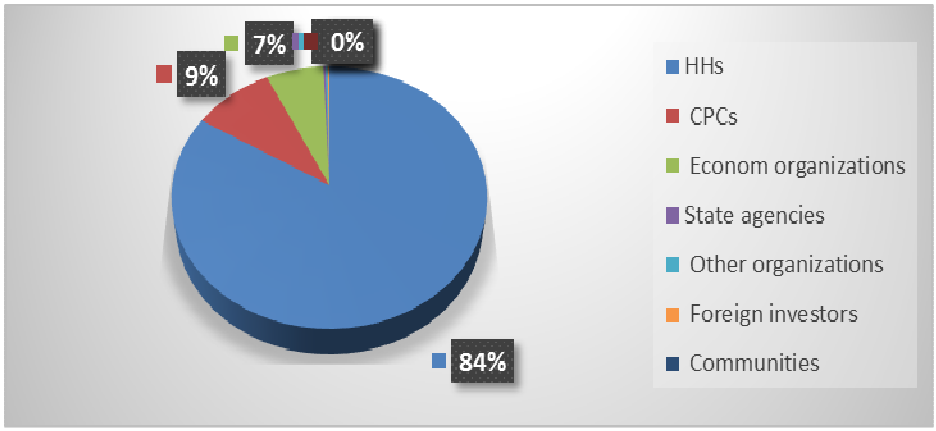


Figure 14.2 Breakdown of agricultural land users in the North-Central Agro-Ecological Region, in 2010 (MONRE 2010)

[86]Management Boards of Protection Forests, SUF Management Boards, state forest companies, Province, District Commune, etc.
[87]As the Land Law recognises individual rights following the Civil Law, to issue a group or community title or a group of citizens under the current legislation (Article 71 Agricultural Land used by families households individuals and communities of citizens, and 71.4 Land allocated by the State to a community of citizens shall be used to preserve the national identity through the habits and customs of ethnic minority people) would require the registration of all individual rights and interests including absent people, i.e. an individual's right should not be extinguished; there are also problems of individual transfers, however, in many community forest management projects, where the community agrees, the land has been 'assigned' to the community by the District authority, and it remains as unregistered, but thereby avoids extinguishing any unregistered interests and transfers are not an issue as it is assigned to the community. The pilot benefit sharing mechanisms (BSMs) under Decision 126 included a registration process where every individual and households of a village were encouraged to register their interests in following traditional practices of collecting NTFPs. In the Bach Ma example the people who did not register were all non forest users such as the village school teachers.

a) Customary forest and agricultural land tenure

Customary tenure of forestry and agricultural land is not codified in the Land or Forest laws in Vietnam (it is not formally recognised [88]), however, the Government has a number of policies to designed to protected ethnic minority rights and support ethnic minorities such as prioritization for: forest / agricultural land allocation; technical and financial support for forestry and agriculture production, timber harvesting for house construction; and infrastructure development in the mountainous areas.

b) Forest resource access rights

The government has recently approved a logging ban in all natural production forests from 2014 onwards, with the exception of: (i) household and community forest owners for their subsistence uses; and (ii) state forest companies, granted with FSC or other international SFM certification. The national Forest Management Regulations (Decision 186/2006/QD-TTg) regulates harvest of bamboo, bamboo shoots and other NTFPs, excluding those species listed as legally protected. Decree 99/2010/ND-CP on PFES stipulates that forest owners can be paid for the environmental service activities such as protection of watershed forests of HEP stations, water supply companies, eco-tourism and carbon sequestration activities. In cases where state forest owners contract forest protection activities to local communities or households, 80% of the PFES amount will be paid to the contracted community or household service providers. 10% for provincial Forest Protection and Development Fund, and 10% for the forest owners is retained to cover administrative costs.

c) Agriculture and forest land tenure and use issues

- Limited forestland availability: poor farmers need more land for forest planting (see Figure 14.3). More than 560,000 ha of unused land and 60,000 ha land managed temporary by CPCs in the Region remain unallocated.

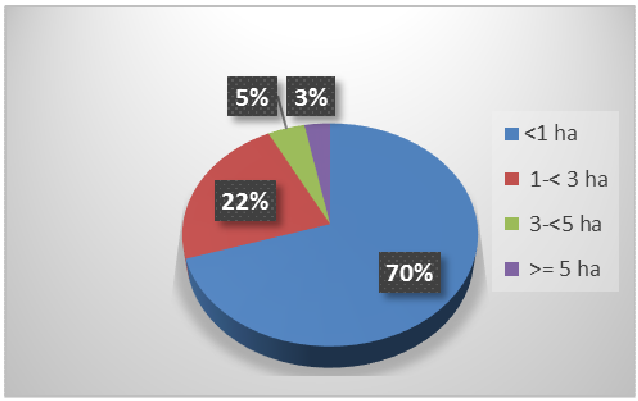


Figure 14.3 Structure of smallholder (household) production foresters by planation size in the North-Central Agro-Ecological Region, in 2006 (GSO 2006)

- Forest conversion: agricultural land per rural capita in the Region is, on average of 0.4 ha, of which 0.2 ha is paddy land (see Figure 14.4). Therefore, the risks of unplanned conversion of forestland to agricultural land are high in the region, especially for rubber, other cash crops, dry rice and Acacia plantations.

[88] However, the Land Law does note the habits and customs of ethnic minority people. Article 71.4 Land allocated by the State to a community of citizens shall be used to preserve the national identity through the habits and customs of ethnic minority people. The pilot benefit sharing mechanisms (BSMs) under Decision 126 included a registration process where every individual and households of a village were encouraged to register their interests in following traditional practices of collecting NTFPs. In the Bach Ma example the people who did not register were all non-forest users such as the village school teachers.

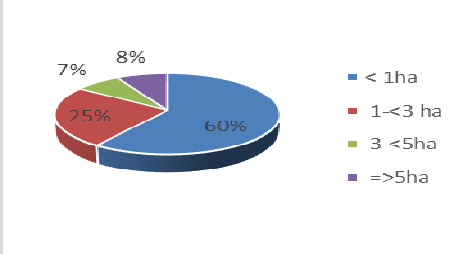


Figure 14.4 Structure of smallholder (household) farmers by area of agricultural land allocated in the North-Central Agro-Ecological Region, in 2006 (GSO 2006

- Poor soil conditions limiting timber productivity: soil of most of planted forest areas is very poor and cannot be used for agricultural purpose. This results to low yield of planted forests. Use of fertilizer and planting of selected *Acacia* species are possible solution for increasing yield.

- Agricultural and forest use conflicts, such as agricultural encroachment into forest areas, between state companies and management boards with local communities, especially planted forestland.

14.1.2 Overview of actions to assess the land tenure and processes for communities to engage in the proposed program interventions

a) Processes used to establish the land tenure situation at the commune and village level

Land tenure records for the program area are available for the Province, District through the Department of Natural Resources and Environment) and through the commune administration. The Province always has a land use plan and this is also available for the District level and includes agricultural land use and forest type and use. There is a cadastral registry and a register of land inventory at each commune. At the commune level there is an official Land Allocation Committee as part of the Commune level administration. The Commune Land Official records land tenure of a commune including tenure at the commune and village level and any changes.

Where a planned program intervention is to occur, the land tenure of the communities involved would first be reviewed at the Province and or District level along with reference to the land use map. Under the program, as in any development project or program in Vietnam, there would also be a need for verification of land use and tenure holdings at the Commune and village level and any special issues such as forest dependency. For this process the land tenure of the commune and any village would first be discussed with the commune administration and the commune register of land inventory reviewed, the registry records the current land tenure holdings, and any changes, at the commune, village and household level. This record would include which households have a LUC and those that do not yet have them. However, as the issuance of LUCs is normally done systematically, village by village and Commune, it is unusual to find villages where there is a mixture of households with and without titles [89]. A LUC title can be issued for residential, agricultural and forest land use. Where a land use title is given out the boundaries have to be agreed between neighbours, it is then surveyed and boundary markers placed. The program area can be expected to include villages in remote areas, which do not yet have any LUCs, however, the Commune administration can still be expected to have a registry and record which household occupies which areas of land and record the land use. Where land tenure is discussed it is normal to hold meetings first at the commune level to review the formal records and then hold whole village meetings in the individual separate villages or groups of household[90]. The program's communication plan and FPIC will need to be explained - that a community has the right to give its consent to proposed projects that may affect their lands, resources, livelihoods, and communities. Local communities therefore have to be provided with sufficient and timely information, advice of their rights and, above all time to consider their options of involvement or not. The process to facilitate the involvement of local community and allow them to exercise these rights and be enabled to make informed decisions taking into account

[89] An exception can be newcomers to a village or sometimes newly married couples.

[90] Some ethnic minorities have quite dispersed households – but the general approach is to bring the households together to discuss land holdings and forest use, NTFP collection etc.

all positive and negatives must ensure that adequate time is made available and is not just a results driven process[91] with fixed steps. The formal registration of forestland is included in the proposed FLA program intervention and a number of other projects in the program area are expected to support formal FLA. This process would also be expected to contribute and support the proposed program FLEG interventions. The willingness of local communities to engage in natural forest protection without the measures included for support from the program would be expected to be quite limited.

b) Traditional use of Protection, Special Use Forest and Production Forest

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) or grazing land, and this communal use may be agreed, and recognized by the Commune administration, thereby recognizing 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.

For communities located in, or close to, or who are dependent on Protection Forest and Special Use Forest, then the formal legal rights to access and use this forest and land are normally very limited (although sometimes Forest Protection Contracts can be given out, but mainly over the protection forest) and only informally agreed between a community and the Management Board. This can lead to problems as there is little incentive for the households to protect the forest and mostly people simply use it as "common goods" and it is not thought of as belonging to the local people and, for example, it is then easy for "outsiders" to undertake illegal logging with little consequence from the local community, this is also a similar problem for natural production forest areas. To address this in SUF forest land, (but it could also be applied to protection forest), VNFOREST has introduced co-management pilot legislation[92] and developed guidelines, which allows some defined agreed use (e.g. generally sustainable collection of defined NTFPs) over defined areas in SUFs (but not the strict protection zone of the SUF) in return for the local community accepting more responsibility and accountably for the forest protection and agreeing to work in collaboration with the SUF Management Board. Following the Decision all households or individuals interested in using the forest, for example, for sustainable NTFP collection, are encouraged to register an interest and thereby be eligible to a "benefit sharing agreement" to legally and sustainably extract NTFPs. To achieve this, boundaries have to be agreed at whole village meetings and also agreed between neighbouring adjacent villages and similarly agreements have to be made over current and future forest use. This format, if the pilots are successful, could be applied more widely to more SUF forestland and to protection forest, and based on this approach VNFOREST is currently working on a draft Decision on co management, which is based on the Decision 126. This process would contribute and support the proposed program FLEG interventions.

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, and supported under the program CFM intervention, is to assign this, generally for 50 years, through a District land use decision, to the village, or sometimes more than one village, and this becomes community forest managed forestland. The community then takes more responsibility for the long term protection through the setting up of a community forest protection force and the sustainable management of the forest, using a mixture modern forest planning and acknowledgement of traditional forest use by the village community. This normally includes the development of 5-year management plans for forest saw log timber, and more latterly the management of NTFPs through village based NTFP user groups. These can be particularly important for livelihoods and for women forest users. The process involved in establishing the CFM areas, and

[91] There are a number of NGO projects that have followed a process of particularly allowing more time for decision making and while this can delay implementation agreements on land and forest use between different villages can take time. However, state run Management Boards are also ware of the issue, for example, Bach Ma NP SUF MB was very aware of this issue when introducing the concept of the Decision 126 BSM with traditional ethnic minority forest village users, and the start up process took almost one year to gain agreements between 7 villages.

[92] Decision 126 / QD-TTg Pilot policy on benefit sharing mechanism (BSM) in the management protection and development of Special use forests 2nd February 2012: Working with Bach Ma NP, Hoang Lien Sapa NP and Xuan Thuy NR; Inaddtion six of SUF MB took part in BSM pilots on an informal basis. Draft Guidelines for the Implementation of the Benefit Sharing Mechanism.

recognising traditional use is well established [93] and is based around many whole community village based meetings on current forest and NTFP use and meetings and agreements on boundaries between neighbouring villages. Where necessary separate meetings for women forest user groups are also used. This process would contribute and support the proposed program CFM and FLEG interventions.

Table 14.1 Proposed program activities

Key land tenure/use issue	Proposed ER Program Intervention	Potential land types	Land area (ha)
Unallocated/unmanaged forestland and shortage of forestland allocated to households and communities	Allocation of barren land to HHs for planting of production forest	- Land under temporary management of CPCs - Land Type I a and I b	560,000 60,000
Limited protection and special use forests are under forest protection contracts	Forest protection contracting for ethnic minorities and other to compliment contracted forest areas of government and other projects	- Natural forest under CPC management - Land type I c - Selected poor and young natural forest areas of 3 forest categories, not yes contracted by Government	200,000
Limited forest areas under SFM	Sustainable forest management planning for prioritized forests	- Selected community/ household forests - Selected forests of forest companies	70% of communities forest areas under SFM
Large barren land (600,000 ha) is a potential for carbon enhancement	New forest planting on selected barren land areas and replanting after harvesting	- Selected land under CPC management, forests of households and of management boards of protection and special use forests [94]	600,000
Risks for natural forest conversion due to high opportunities costs of commodities (rubber, cassava, acacia…)	Technical support for improved land use planning and forest protection and development planning (including the PRAP) and EIA processes	Mainly for forest conversion for agricultural and infrastructural developments	Reducing 70% of planned forest conversion
Agricultural and forest use conflicts between state companies/MBs with local communities	- Review of land use status of state forest companies and farms by Government according to the Resolution No. 30/NQ-TW (2014) of the Politburo of the Party - Support for CFM and co-management by Program	- Recovering of agricultural and forest land areas not used effectively; - Co- management and community forest management of three forest categories	Not available would be surveyed in the detailed preparation process

[93] KfW funded forest projects, e.g. KfW6 Quang Ngai, close to the program area, includes numerous manuals on setting up CFM, procedures for holding meetings, agreeing boundaries, developing 5-Year management plans; and "Future of Community Forest Management in Vietnam Workshop Summary", June 2011, KfW6, IUCN, RECOFTC sponsored work.

[94] SUFs generally have three zonations: the strict protection zone (core zone) which holds the best quality forest and biodiversity, and administrative area of variable size and forest quality and an ecological rehabilitation zone where planting of native species can be made.

15 Benefit Sharing

15.1Description of envisioned benefit-sharing arrangement for the proposed ER Program.
Please describe the benefit-sharing arrangements that are envisioned to be used for this proposed ER Program.

Following the strategy of Forest Protection and Development for the period from 2011 to 2020, instead of the forest protection contracts[95], forest co-management mechanisms and co-benefits from forest between State entities and communities can be established.

Extensive work has already been undertaken to explore the type of benefit-sharing arrangements that would be most appropriate for REDD+. In particular, a joint GIZ-MARD paper in 2010 provided a list of 17 recommendations around the design of efficient and transparent benefit-sharing systems[96]. This drew on an analysis of existing benefit-sharing arrangements under the national PFES system and other sectors of the economy. The recommendations speak to the importance of designing transparent national funding frameworks to support lower level distribution processes.

Following on from one of the recommendations made in the GIZ-MARD paper, Vietnam was supported in developing a payment co-efficient (the 'R-coefficient') to be incorporated into the distribution methodology[97]. The R-coefficient has been designed with the intention of weighting the benefit size of future performance-payments on various socio-economic and ecological factors. At this point in time, the R-coefficient remains conceptual and is yet to be piloted.

Furthermore, work undertaken in Vietnam has explored the use of local-level consultations to determine the most preferred benefit types according to those being directly involved in activities[98]. Such activities have illustrated the importance of consultative approaches to ensuring the incentives provided through REDD+ match those that will generate the most relevant benefits to those undertaking the activities. In particular, on behalf of the UN-REDD Program, the Netherlands Development Organization (SNV) helped to design and pilot test an approach for local-level benefit-sharing decision making. The approach uses an interactive approach to engage REDD+ actors in decisions around the size, nature, timing and preferred distribution system of future REDD+ benefits. This approach has been adopted in other areas of the country and can be easily up-scaled under future sub-national and national REDD+ activities.

The thinking that has been developed at both the national and local levels for benefit sharing in Vietnam therefore provides a foundation for designing specific incentive models once the PaMs have been articulated and includes:

- Benefit sharing arrangements at the national level will consist of a specific National REDD+ Fund to receive and manage REDD+ financing. Fund management responsibility will be with the Ministry of Finance.

- Provincial financial management structure – will use the existing Forest Protection Development Funds (FPDFs), which are already in place to allocate forestry-related benefits to local actors.

[95] Formally sometimes known as "green books" Forest Protection Contracts are given out by the FPD under the 147, 661 (now complete)or 30a Programs to individual households to protect a small area (50ha) of protection forest for which the individual received a small rent; this varied, but is now set at 100,000 VND per year per ha; however, in poorer communes such as those covered by the Program 30a the rate can be higher for the same area.

[96] Vietnamese Ministry of Agriculture and Rural Development (MARD), UN-REDD and GTZ, (2010) Design of a REDD-Compliant Benefit Distribution System for Viet Nam.

[97] Ph□m Minh, T., Phùng Văn, K., Enright, A., Nguy□n Thành, T., Nguy□n Trúc, B.S. (2012) A Pilot Establishment of R-coefficients for REDD+ Benefit Distribution in Di Linh District, Lam Dong Province, Vietnam, for the UN-REDD Program, Vietnam. Available at; http://www.snvworld.org/en/sectors/redd/publications.

[98] Enright, A., McNally, R. and Sikor, T. (2012). An approach to designing pro-poor local REDD+ Benefit Distribution Systems: Lessons from Vietnam. SNV Netherlands Development Organisation. Available from: http://www.snvworld.org/en/sectors/redd/publications and Sikor, T., Enright, A., Nguyen Trung, T., Nguyen Vinh, Q., Vu Van, M. (2012) Piloting Local Decision Making in the Development of a REDD+ Compliant Benefit, for the UN-REDD Program, Vietnam http://www.snvworld.org/en/sectors/redd/publications

- The Provinces will act as the operational unit for distribution local benefits/incentives in accordance with the individual PRAPs.

- Benefit sharing arrangements at the local level will consist of a mix of investments and post investment incentives. The appropriate approaches will principally depend on the types of REDD+ activities being undertaken. The approach will also be supported through consultative methods of engaging local actors in key benefit sharing decisions such as the timing, type and size of benefits. Such methods have already been trialled in Vietnam and will help to inform the most appropriate local level allocation of both before and post investment benefits/incentives.

15.2 Link between the envisioned benefit-sharing arrangement and the activities in the proposed ER Program. *Please explain how these benefit-sharing arrangements would support the activities identified in section 5.3 to address the drivers of deforestation and forest degradation. Identify, if possible at this stage, potential issues or constraints that may emerge in development of the ER Program that could need additional progress in order to effectively implement the benefit-sharing mechanisms.*

According to the ER Program activities listed in Section 5.3, the local benefit sharing arrangements will include the following:

- Securing tenure: Benefit sharing for these activities should be a mix of both before and after investment incentives. Providing non-cash benefits to support forest landscape restoration and plantation, including seedlings, fertilizer, appropriate silvercultural training etc. will be used to help communities choose the most appropriate species mix as well as help to ensure long-term management techniques are appropriate. A performance-based post implementation component will be applied in the form of awarding land tenure rights to community mangers on the basis of maintained compliance with the original restoration and plantation efforts.

- Intensifying production: Here, benefits will be delivered in the form of up-front financing to invest in practices to meet certification standards (for tea) and to improve market linkages in commodities which are suffering from underinvestment in processing facilities (e.g. bamboo). Other cash crops will have REDD+ investments to improve yields and generate more output per unit area. Such up-front investments will be made conditional on the agreement to reduce forest encroachment.

- Strengthened enforcement: increased investments into forest patrols (e.g. officers and supporting capital) and supporting structures such as hotlines to report illegal activity.

- Renewable energy solutions: Where there is a clear identified link between fuel wood collection and deforestation and degradation, benefit sharing will take the form of introducing alternative renewable energy solutions including improved cook stoves, biogas and waste-to-energy for crop residues (bamboo and rice). Renewable energy solutions will be cost-shared with REDD+ recipients, with the portion of cost covered by local actors being repaid upon proof that fuel wood collection has reduced by an agreed amount.

- Sustainable management of forests – Benefit sharing models should be initially based on supporting the up-front costs that often restrict forest operators from adopting sustainable forest practices, including certification. Compliance based-benefits should be made in terms of helping to find buyers who can guarantee certain market prices for sustainably grown and harvested timber.

The above models not only promote carbon as a primary benefit of REDD+ related activities, but also promote a suite of 'multiple-benefits' such as biodiversity, livelihood improvements or land tenure clarification.

The activities envisaged under the PRAPs (see section 5.3) which will be carried out by REDD+ actors will include activities identified by local actors which, based on their experience, will best address the causes of deforestation and forest degradation. The benefit-sharing mechanisms will directly link to these activities at the local level through providing a mix of investments, which support the chosen activities, and post investment monetary and non-monetary benefits.

Activities will be monitored to ensure compliance by the relevant Provincial level authorities and cross-referenced with MRV data to ensure the appropriate level of benefit is delivered to match the activities undertaken.

15.3 Progress on benefit-sharing arrangements
Describe the progress made thus far in the discussion and preparation of the benefit-sharing arrangements, and who has been participating in this process.

The Benefit Distribution System (BDS) is one of the core components of the NRAP and should, at the local level, work to incentivise multiple (carbon and non-carbon) benefits through individual and collective, monetary and non-monetary incentives tailored to specific interventions. The results of the study on benefit distribution system under the UNREDD+ phase 1 has been reviewed [99]in detail and in total included 22 recommendations to improve the system the more wide reaching recommendations include:

- Eligibility needs to be made clearer;
- Better use of FPIC and safeguards;
- The rights of ethnic minorities and forest dependent communities need to be strengthened;
- Mapping of forest types and tenure of the forest needs to be clearer;
- Improvements should be made to the types of forest lease;
- Grievance mechanisms need to be improved;
- Role of ethnic minority women forest protection and therefore in REDD+ needs to be acknowledged and training women as they will participate more in REDD+ in key roles; and
- Consideration should be given to closer cooperation of co management and co benefit between state Forest Management boards and the communities.

To support implementation of the NRAP, finalize the BDS policy recommendations, and develop a programme of work to implement them, the UN-REDD Programme organized consultations at national, sub-national (province, district, and commune) and local levels, aimed at obtaining views of all stakeholder groups (from government officials to village households) on the policy issues, and ensuring that these views were reflected in the policy recommendations and programme of work.

For the detailed design of the ER Program the design would build on previous pilot participatory approaches to identifying locally specific types of benefits, the timing and distribution of 'pro-poor' benefits under the NRAP. The ER Program will combine investments, together with post investment payments for results to incentivise local stakeholders to transition to more sustainable production systems. For example, conditional investments, in the form of goods and/or services, could be offered to local farmers to develop agroforestry models (e.g. jungle rubber). Such incentives could be coupled with post investment compensation for performance through commodity certification, offering price premiums, or preferential access to credit for further on-farm investment in increased productivity.

a) The PFES example and progress

Benefit sharing mechanisms following Decree 99, Decision 380 and Circular 80 and includes a formulaic approach of payment rate per hectare, average area of forest per household and a forest coefficient category (poor, medium, restoration, plantation forest, natural forest etc.). Funds have been equally distributed among all villagers and this gives them a greater sense of responsibility for forest protection and reduces the risk of elite capture by village

[99]Consultations in Support of the Development of a Reducing Emissions from Deforestation and Forest Degradation (REDD+) and Compliant Benefit Distribution System (BDS) for Viet Nam October 2012.

management boards. However, this option means that each household receives only a small amount of money (USD 1/ha/year; by contrast, the opportunity costs of corn production in Son La are around USD 1500/ha/year[100].

Where communities do not have the legal status needed to enter into a PFES agreement, they lose interest in forest protection and development, Vietnam's 2005 Civil Code gives communities limited rights to enter into contracts and other civil legal relationships, but the requirements are not easy to meet, an alternative of community collective action in forest protection and development has also been used. This approach also ensures that those who are vulnerable and marginalized (e.g., poor, elderly or landless households) can still benefit from PFES.

16. Non-Carbon Benefits

16.1 Expected social and environmental benefits

Please describe the environmental and social benefits, other than emission reductions, that the proposed ER Program is planning to achieve; and any other ways in which the ER Program would contribute to broader sustainable development.

As a sub-Program under the NRAP, the proposed ER Program will be consistent with the NRAPs overall multiple benefit goals[101], in addition to the objectives of other key national policy documents notably: the National Forest Development Strategy[102]; Payment for Forest Environmental Services (PFES); National Biodiversity Strategy and Action Plan[103]; National Action Plan on Green Growth[104].

The overall strategic approach of the Program, as outline in Section 5, is to deploy carbon financing from the Carbon Fund and other potential (bi- and multi-lateral buyers) to catalyse low-emissions development planning throughout the landscape of the North Central Agro-Ecological Region. This balanced multiple (carbon and non-carbon) benefits approach to sustainable development will employ a three-pronged approach to ensuring broader environmental, social and emission reductions benefits: 1) safeguarding multiple benefits at the national level (see Section 13); mainstreaming multiple benefits into subnational planning (also Section 13); and incentivising multiple benefits at the local level (see Section 15).

In addition to the overarching framework of the ESMF produced for the NRAP, PRAPs - as the operational level of both NRAP and the ER Program - will serve as a vehicle to mainstream multiple benefits into broader socio-economic development planning. Two complementary analytical approaches will be used to ensure non-carbon benefits (NCBs) are optimised (and risks minimised) in PRAP processes:

- Spatial analysis of NCBs – building on national assessments and subnational piloting; and
- Participatory impact assessment methodologies – PIAM and P-PRAP (introduced in Section 13)

The ER Program recognises five broad categories of NCB:

(i) Improved forest governance;

[100] Payments for forest environmental services in Vietnam: From policy to practice; Occasional Paper 93; CIFOR2013.

[101] 'Reduction of greenhouse-gas emissions through efforts to mitigate deforestation and forest degradation, increased greenhouse-gas sequestration by forests, sustainable management of forest resources, biodiversity conservation, and contribution to the successful implementation the national strategy on climate change and poverty reduction, and striving towards sustainable development'.

[102] 'To sustainably establish, manage, protect, develop and use 16.24M ha of land planned for forestry; to increase the land with forest up to 47% by 2020; to ensure a wider participation from various economic sectors and social organizations in forest development; to increase their contributions to socioeconomic development, environmental protection, biodiversity conservation and environmental services supply, poverty reduction and improved livelihoods of rural mountainous people, and contribute to national defense and security.'

[103] 'Integrate biodiversity conservation targets into the implementation of the NRAP; map areas of high biodiversity value in the NRAP; promote the use of native species for forest enrichment and restoration in the framework of REDD+; reduce risks to biodiversity from implementation of the NRAP through the application of stringent social and environmental safeguards.'

[104] 'Formulate and implement programs on reducing emission from deforestation and degradation (REDD+), sustainable forest management in combination with maintaining and diversifying livelihoods of local residents to respond to climate change'.

(ii) Sustainable rural livelihoods;
(iii) Biodiversity conservation and enhanced ecosystem services;
(iv) Climate change adaptation; and
(v) Protection of human rights

ER Program interventions are like to yield, directly and indirectly, multiple NCBs. Indeed, they are selected for their NCB, as much their emissions reduction (enhanced removal), potential. Table 16.1 identifies the main NCBs, indicative scale of potential impact, and the most immediate beneficiaries, anticipated from ER Program interventions.

Through participatory subnational planning and decentralised forest sector interventions, improved governance will be the 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.

Table 16.2 Anticipated non-carbon benefits from ER Program interventions, an indication of their potential scale, and key stakeholders benefiting

Intervention	Principle NCB	Potential scale	Key beneficiaries
1. Participatory PRAP	i) improved governance through stakeholder participation in planning i-iv) all other NCBs through environmental and social benefit/risk assessment along ER Program result chains	6x provinces - 5.1 million ha; 41 Districts.	All stakeholders, particularly: government departments outside forestry sectorethnic minority and local community representatives hitherto excluded from planning processes
2. Forestland allocation	i) improved governance through secured (decentralised) statutory forestland tenure ii) sustainable livelihoods through clear incentives to invest in (agro-forestry strategies	750,000 ha of unallocated forestland under secure 'ownership'	village communities and smallholders (individual households) as new forest 'owners'; local government from improved forestland management
3. Forest law enforcement	i) improved governance through suppression of organised crime (illegal logging and associated wildlife trade) perpetrated by 'outsiders' iii) biodiversity and ecosystem services from reduced threats to high-value timber species and forest ecosystem integrity maintenance	m^3/year reduction in illegal logging	local government through improved law enforcement performance; village communities and smallholder (individual household) forest 'owners'
4. SFM certification (natural forests)	ii) sustainable livelihoods through subsidised production of price-premium goods (and services) iii) biodiversity and ecosystem services through forest ecosystem integrity maintenance	no. SFCs/CFM management boards (or total ha natural forest) that could be certified	SFCs faced with closure under logging ban; village communities and co-operatives of smallholder (individual household) forest 'owners'
5. SFM certification (plantations)	ii) sustainable livelihoods through subsidised production of price-premium goods	ha of rubber/*Acacia* plantation potential on bare forest land	SFCs and private sector plantations; village communities and co-operatives of smallholders (individual households)
6. Payment for Forest Environmental Services (PFES)	ii) sustainable livelihoods through prior incentives/post investment payments for forest protection results iii) biodiversity and ecosystem services through forest ecosystem integrity maintenance iv) climate change adaptation through investment in maintaining natural forests	ha natural forest under PFES contract/no. forest owners and subcontracted households engaged	local government through widespread incentives for forest protection; natural forest owners through additional/alternative revenue for forest protection activities village communities and individual households through prior incentives and post investment payments for forest protection results
7. Forest landscape restoration	ii) sustainable livelihoods through enhanced forest ecosystem goods and services provision iii) biodiversity and ecosystem services through enhanced forest ecosystem integrity iv) climate change adaptation through investment in improved natural forest quality	ha of degraded natural forestland	village communities and individual households through direct labour opportunities and direct improved forest goods/services; local government through contribution to forest protection and development and climate change policies
8. Community agroforestry	i) improved governance through allocation of forest ownership to village communities/smallholder (household) co-operatives ii) sustainable livelihoods through alternative income generation opportunities from forest goods and services iii) biodiversity and ecosystem services through expansion of semi-natural forest habitat if native tree species used	ha of forestland potentially allocated for CFM	village communities and individual households through direct labour opportunities and direct improved forest goods/services; local government through improved forest management

16.2 Diversity and learning value
Please describe the innovative features of the proposed ER Program and what learning value the proposed ER Program would bring to the FCPF Carbon Fund.

The methodological innovation of the proposed ER Program, with significant learning potential for the FCPF Carbon Fund, future UNFCCC compliance regime, Vietnam and other country's national REDD+ Programs, can be encapsulated as participatory, multi-stakeholder approaches to which will bring innovation, technical solutions and practices to be shared within jurisdictions outside the proposed region, within the FCPF Carbon Fund, and for other World Bank sustainable landscape, funds such as the Biocarbon Fund. Within Vietnam, Communities of Practice will be established within the jurisdiction, which will enable shared learning amongst governments, forests owners and local communities.

a) Sustainable landscape approaches

Unlike landscapes, which are dominated by agricultural commodities as the drivers of deforestation and forest degradation - such as the coffee landscape in Vietnam's Central Highlands, the North Central Agro-Ecological Region is characterised by a complex suite of interacting drivers (Section 5.1). Consequently, a judicious mix of interventions, tailored to the specific drivers of each locality (province) needs to be identified to achieve emissions reductions from these more complex landscapes. Participatory PRAP, as a an enabling mechanism to mainstream climate change mitigation, together with NCB's, into subnational land use and socio-economic development planning, are approaches that will achieve this locality-specific mix on REDD+ interventions.

A number of innovative methods are currently being tested under the NRAP readiness phase that can be up-scaled under the ER Program for multi-sector low-emissions development planning. In addition, key provinces in the North Central will embark on innovative sustainable landscape approaches towards reduced emissions and landscape management, and through recognition of the interdependent links between forests, agriculture and water, to be address emission reduction and sustainable green growth. Two provinces (Thanh Hoa and Nghe An) will pilot provincial green growth strategies where emissions from forest, agriculture and agricultural waste will be reduced through climate smart interventions and investment opportunities with the private sector. This will also provide learning into the FCPF Carbon Fund countries on low emission development strategies and green growth.

b) Integrating strategies for climate change adaptation and mitigation

Vietnam upland areas are amongst those most vulnerable to impacts of climate change (UNDP, 2012). Upland communities are faced by drought, landslides, flash floods and increased extreme weather events which all lead to exacerbating food security problems and underlying causes of deforestation and degradation. Vietnam has embarked upon ambitious program to help meet local solutions for increasing climate change resilience and these will be tested and integrated into planning procedures and community interventions in order to stabilize food security, reduced impact of disasters and increase agricultural production.

c) Comprehensive Approaches to Forest Monitoring

Integrated into the existing national forest monitoring system for: (i) forest carbon accounting; (ii) adaptive management of interventions; and (iii) NCB objectives. Participatory forest monitoring (PFM) methods will be up-scaled from previous pilots to improve the vertical and horizontal institutional integration of different stakeholders in carbon accounting for the ER Program and subsequently the NRAP. Forest owners, together with local communities, will apply data collection protocols for: drivers of deforestation and forest degradation; spatial and non-spatial activity data; and above ground biomass for estimating emission/removal factors. PFM, through modification of the existing annual forest cover and forest cover change monitoring system in Vietnam, will also monitor performance of ER Program interventions through proxy indicators to facilitate adaptive management of the Program and its constituent PRAPs. NCB indicators (biological diversity; ecosystem services and goods, such as NTFPs; livelihood assets; etc.), identified during the participatory PRAP process will generate impact data as a contribution to safeguard compliance.

d) Country-led safeguard systems

Operationalizing the evolving national CSS through: (i) improved implementation and enforcement of existing PLRs; (ii) mainstreaming NCBs into subnational planning; and (iii) incentivising NCBs at the level of emissions reduction activity implementation. The CSS, under the NRAP, will continue to evolve with strategic analytical inputs from the national SESA-ESMF process, together with other readiness support initiatives (notably the UN-REDD Phase II

Program). The ER Program will complement these national safeguard developments through subnational mechanisms to ensure environmental and social benefits are optimised and realised. Strengthened implementation of existing PLRs will provide feedback on policy reform and institutional capacity building agendas. Impact assessment and monitoring, as part of the PRAP processes, will start to generate information on safeguard compliance that can be submitted to, and aggregated at, the national level for reporting under the NRAP for future bi-/multilateral funding opportunities.

17. Progress on registries

17.1 National registry

Please include a short description of the relationship of the proposed ER Program to national REDD+ activity management arrangements, and if the proposed ER Program will be part of any system to track REDD+ or other emissions reduction activities (e.g., a REDD+ registry).

It is anticipated that a national REDD+ national registry will be developed, as part of the activities funded under the FCPF readiness project.

The management of the ER Program and REDD+ activity management arrangements would be managed through the same institutional and management system working under the leadership of VNFOREST.

The ER Program would consolidate information nationwide on all emission reduction activities.

18. List of acronyms used in the ER-PIN

Please include an explanation of any institutional or other acronyms used. Add rows as necessary.

Acronym	Meaning
ADB	Asian Development Bank
BCEFs	Biomass conversion and expansion factors
BDS	Benefit distribution system
CF	Carbon Fund
CFM	Community Forest Management
CFM	Community Forest Management
CPC	Commune People's Committee
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Civil society organsiations
EIA	Environmental Impact Assessment
ER	Emission reduction
ERDP	Emission Reductions Program Document
ERL	Emission reduction level
ERPA	Emission Reductions Payment Agreement
EZ	Economic Zone
FCPF	Forest Carbon Partnership Facility
FIPI	Forest inventory and planning institute
FLA	Forest Land Allocation
FLEGT	Forest Law Enforcement Governance and Trade
FMS	Forest monitoring system
FPD	Forest Protection Department of VNFOREST also at the Provincial, District and most communes although one officer may be responsible for a number of communes
FPDS	Forest and Protection Development Funds (part of PFES and under the umbrella of the VNFF)
FPIC	Free prior informed consent
FRL	Forest reference level
FSC	Forest Stewardship Council
FSDP	Forest Sector Development Project
FSIV	Forest Science Institute of Vietnam
GEF	Global Environmental Facility
GIZ	German agency for international development
GoV	Government of Vietnam

Acronym	Meaning
GRM	Grievance Redress Mechanism
GSO	General Department of Statistic Office of Vietnam,
HCMC	Ho Chi Minh City
HEP	Hydro-electricity power scheme
HH	House hold
IPCC	Intergovernmental panel on climate change
JICA	Japanese International Development Organisation
KfW	German Development Bank
LEDP	Low-emissions development planning
LEDP	Low-emissions development planning
LMS	Land monitoring system
MARD	Ministry of Agriculture and Rural Development
MOLISA	Ministry of Labour
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Investment and Planning
MRV	Measurement reference and verification
Mt	Million tonnes
MW	Mega Watts
NCAR	North central agro-ecological region (of Vietnam – consisting of ThanhHoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue provinces)
NFI&S	National Forest Inventory and statistics
NFIMAP	National Forest Inventory, Monitoring and Assessment Program
NGO	Non government organisation
NRAP	National REDD+ Action Plan
NTFP	Non timber forest product
ODA	Overseas Development Assistance
OP	Operational Policy (on safeguards) of the World Bank
PAs	Protected areas (also known as SUFs Special Use Forests in Vietnam)
PFES	Payment for Forest Environmental Services
PRAP	Provincial REDD+ Action Plan
R-PP	Readiness preparation proposal
RECOFTC	The Centre for People and Forests
REL	Reference Emission Level
SEDP	Socio-economic development plans (5-years)
SFC	State forest company
SFE	State Forest Enterprises
SFM	Sustainable Forest Management
SNV	Netherlands Development Organisation
SUF	Special Use Forest (a protected area such as national park or nature reserve)
TA	Technical Assistance
TFF	Trust Fund for Forest
TOR	Terms of Reference
TT Hue	Thua Thien Hue Province
VCF	Vietnam Conservation Fund
VFD	Vietnam Forest and Delta Project
VHLSS	Vietnam Household Living Standard Survey 2012
VNFF	Forest Protection and Development Fund in Vietnam
VNForest	Vietnam Forest Administration
VPA	Volunteer partnership agreement
VRO	Vietnam REDD Office
WB	World Bank

Annex : 1 Financial Plan

Carbon price set US$7 per tonne.

Expected uses of funds	Description of activities	Central level	Provincial participating	Central level cost	Program Provinces	Program per District	Breakdown per year										Total US$
							1	2	3	4	5	6	7	8	9	10	
Main Activities																	
PRAP	Enabling environment, capacity building, consolidation and updating of 6 PRAPs, field work to support PRAP, field monitoring work, national forest monitoring; support for provincial REDD+ task force	1	6	50,000	50,000	10,000	760,000	456,000.00	380,000	304,000	228,000	228,000	228,000	228,000	228,000	228,000	
FLA	Support for 6 provincial FLA teams, update information and address FLA gap, capacity building at District, support for CFM approach	1	6	30,000	30,000	48,000	2,178,000	1,306,800.00	1,089,000	871,200	653,400		-	-	-	-	6,098,400
SFM	Capacity building for Province, Districts, and Communes, support for implementation of FSC requirements including, Forest Farmer Group, training, inspections monitoring and improved market information; CFM training and capacity building at District, Commune and villages, e.g. include 5-year forest management plans, planting costs	1	6	0	30,000	30,000	1,410,000	846,000.00	705,000	564,000	423,000	423,000	423,000	423,000	423,000	423,000	6,063,000
PFES	Capacity building to Forest Management Boards, Forest companies, Communes, training for communities, support for monitoring	1	6	0	50,000	20,000	1,120,000	672,000.00	560,000	448,000	336,000	336,000	336,000	336,000	336,000	336,000	4,816,000
FLEG	Capacity building for policy on law enforcement, Provincial and District FPD, sharing information with other law enforcement agencies, and capacity building for the judicial system at the Provincial and District	1	6	0	30,000	20,000	1,000,000	600,000.00	500,000	400,000	300,000	300,000	300,000	300,000	300,000	300,000	4,300,000
	Total investment costs			80,000	190,000	128,000	**6,468,000**	**3,880,800**	**3,234,000**	**2,587,200**	**1,940,400**	**1,287,000**	**1,287,000**	**1,287,000**	**1,287,000**	**1,287,000**	**24,545,400**
Operational and implementation costs	As a per cent of the investment costs			0.125	0.1	0.15											
PRAP		1	6	6250	5000	1500	97,750	97,750	97,750	97,750	97,750	97,750	97,750	97,750	97,750	97,750	
FLA		1	6	3750	3000	7200	316,950	316,950	316,950	316,950	316,950	316,950	316,950	316,950	316,950	316,950	
SFM		1	6	0	3000	4500	202,500	202,500	202,500	202,500	202,500	202,500	202,500	202,500	202,500	202,500	
PFES		1	6	0	5000	3000	153,000	153,000	153,000	153,000	153,000	153,000	153,000	153,000	153,000	153,000	
FLEG		1	6	0	3000	3000	141,000	141,000	141,000	141,000	141,000	141,000	141,000	141,000	141,000	141,000	
Financing costs	Any interest payments made by the Central or Province e.g. 10% of total						424,760	273,676	235,905	198,134	160,363	160,363	160,363	160,363	160,363	160,363	
Other costs	VNFF Administration and management costs						129,360	77,616	64,680	51,744	38,808	25,740	25,740	25,740	25,740	25,740	
	Contingency at 0.05% (variable)						323,400	194,040	161,700	129,360	97,020	64,350	64,350	64,350	64,350	64,350	
	Total recurrent costs						911,200	911,200	911,200	911,200	911,200	911,200	911,200	911,200	911,200	911,200	9,112,000
	Total uses per year						**8,256,720**	**5,337,332**	**4,607,485**	**3,877,638**	**3,147,791**	**2,448,653**	**2,448,653**	**2,448,653**	**2,448,653**	**2,448,653**	**37,470,231**

Expected sources of funds	Description		US$	US$ (total investment)	US$ (investment per district)	Breakdown per year										Total US$
						1	2	3	4	5	6	7	8	9	10	
Grants																
FCPF	FCPF grant working in 3 provinces, but 2 program provinces (Quang Binh and Quang Tri)		3,500,000	500,000	500,000	250,000	250,000									500,000
USAID	VFD 4 provinces 2 program provinces (Nghe An and Thanh Hoa)		26,500,000	10,600,000	1,325,000	1,060,000	2,120,000	2,120,000	2,120,000	3,180,000						10,600,000
GIZ	Works in the buffer of PNKB (Quang Binh)			100,000		50,000										
KfW	Core and buffer zone of PNKB project			100,000		50,000	50,000									
KfW/BMU	Carbi Project (TT Hue)		7M Euro	1,000,000	500,000	50,000	50,000	200,000	200,000	300,000						800,000
WWF	Carbi Project (TT Hue)		1.2M Euro	500,000	200,000	12,000	20,000	40,000	120,000	12,000						204,000
UN REDD+	UNREDD (Ha Tinh)		US$12M	2,000,000	400,000	200,000	200,000	400,000	600,000	400,000						1,800,000
Loans																
JICA	Protection Forest Restoration and Sustainable Management Project, will work in 11 provinces over about 10years (project in all six program provinces)		US$70M	5,454,545	600,000	450,000	1,500,000	3,000,000	450,000							5,400,000
KfW 6	Forestry, plantations and CFM and FLA				250,000	5,000										5,000
KfW	Core and buffer zone of PNKB project (Quang Binh)				100,000	2,000										2,000
FSDP II	Expected WB Forest and Plantation project. Expect to be in TT Hue, Thanh Hoa, and Nghe An. Expect to include FSC, FLA, CFM, work with SFCs			10,000,000	666,667	500,000	1,000,000	2,000,000	3,000,000	2,000,000	1,000,000					9,500,000
			Value US$	**Total revenue US$**		Advance=	0.1	Deflators=	0.1	0.2	0.3	0.01				
Revenue from REDD+ (e.g. sale of agricultural products)	Cash crops plantings; 500,000 ha under effective forest management planting forest and plantations	tive forest management + cash crop sale =		2,000,000		200,000	200,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	3,600,000
	Planting on bare land using long rotation species, A part of the area under plantation to be sold at yr10	Plantation =		15,000,000						150,000		150,000			4,500,000	
Revenue from sale of Emissions Reductions (contracted)	Amount available to be sold to the Carbon Fund MtCO2e		72,310,000	72,310,000		7,231,000				21,693,000	43,386,000					72,310,000
	Total Emissions Reduction 20.66 MtCO2e available to be sold															
Revenue from sale of additional Emissions Reduction (not yet contracted)	Amount of Emission Reductions not sold and kept in buffer MtCO2e															
			72,310,000	72,310,000							7,231,000				65,079,000	72,310,000
	Total sources before taxes					**10,060,000**	**5,390,000**	**8,160,000**	**6,890,000**	**28,135,000**	**52,017,000**	**550,000**	400,000	400,000	69,979,000	**181,981,001**
	Net revenue before taxes (=total sources - total uses)					**1,803,280**	**52,668**	**3,552,515**	**3,012,362**	**24,987,209**	**49,568,347**	**(1,898,653)**	**(2,048,653)**	**(2,048,653)**	**67,530,347**	**144,510,770**
														Net Benefit is US$ =		**144,510,770**
			Total value of carbon =	144,620,000					Carried forward to next CF tranche still in buffer US$=		7,231,000					

Annex 2: Agro-climatic conditions of North Central Costal Region

North Central Coast has a total natural land area of approximately 5.1 million ha, of which 80% is hills and mountains and the remaining is coastal plains with agricultural land, accounting for 14% of the natural area. The region has a tropical monsoonal climate. Average rainfall is about 2500 mm with two seasons a year: the rainy season from June to December with storms and hurricanes and 85% of the rainfalls concentrating during September to November and the dry season from January to May. The region had a population density of about 200 persons per km2 and the population was around 10 million in 2001 (13% of the country's population). During 1995-2000, the region's GDP growth was around 5.3% per year (76% of the national average). The region has a low level of socio-economic conditions and high poverty rate. The annual income per capita in the region remains low (around $190), about 65% of the country's average.

The North Central Coasts are characterized by diverse natural conditions with mountainous conditions in the West and coastal conditions in the East. In recent years, in addition to development of seaports and coastal tourism, marine and coastal aquaculture also has developed quite strongly.

The natural conditions of the Central Coast regions vary greatly from lowlands in coastal areas in the East to midlands and high lands in mountainous areas in the West. The coastal plains are suitable for annual crops, depending on the availability of freshwater. The mountainous areas are of poor soil fertility due to high water run- off continuously removing soil nutrients. Most coastal areas tend to develop marine and coastal aquaculture and industries, while in the uplands, ethnic minorities mainly rely on sloping agriculture and forestry.

Due to limited land availability for agriculture, industry (i.e. oil refinery, sea ports) and tourism have been developed for alternative incomes leading to the region becoming the main tourist destination of the country.

The main constraint to agricultural development includes limited agricultural land availability for crops, poor soil fertility, poor infrastructure and shortage of freshwater in the dry season. The regions are also prone to annual typhoons and flooding. In addition, environmental degradation due to deforestation and unsuitable farming on sloping land in the western mountain areas is a long-term concern.

Table 2.1 Potential agricultural development actions for the region[105]

Constraints	Recommended actions	Investment strategy
Main constrains prone to typhoons and flooding in coastal areas and sloping (often steeply) in the west in mountainous areas.	1. Supporting the private sector in developing upstream and downstream enterprises (i.e. input supplies, processing, marketing and exporting) to generate more rural employment. 2. Focusing on improving product quality and quality control. 3. Linking research and extension programs with regional universities and research centers to develop strong agricultural support service systems, e.g. advice on Timber and Typhoons 4. Implementing reforestation in the mountainous areas in the West and coastal zone management in the East	Rural industries and tourism Agricultural diversification Aquaculture, fisheries and livestock Agricultural support services Market development Protection forestry. Coastal zone management

[105]Agricultural Diversification Study WB

Impact of Typhoons

The loses resulting from typhoons are not easy to quantify on a regular basis, but an assessment of damages to the FSDP WB project plantations caused by the typhoons in 2009 indicate that a total of 5,720 hectares (or about 20 % of the total plantation area of the project) was affected with about 1,100 hectares (or about 4 %) severely damaged. The expected losses to typhoons can be mitigated through use of different types of wind breaks and planting species that are more able to withstand strong winds. Improving mitigation measures for typhoon can be expected to have a very positive impact on the economics of investment in forest the project area. Details of loses are documented in Table 2.2 below.

Table 2.2 Overview of plantation damage caused by typhoons (2009 data)

Year of establishment	Households Affected	Damaged area (in hectares)			
		Total	Less than 40% damage	Between 40-80% damage	Between 80-100% damage
2005	670	1,202	350	532	320
2006	1,335	1,614	583	766	265
2007	1,937	2,035	584	1,080	371
2008	995	870	436	287	147
Total	**4,937**	**5,721**	**1,953**	**2,665**	**1,104**

Socio economic data

Table 2.3 Administrative centres in the program area

Province	City	Total number of towns	Total number of districts	Total number of communes
Thanh Hoa	1	2	24	505
Nghe An	1	2	17	435
Ha Tinh	1	2	10	235
Quang Binh	1	0	6	141
Quang Tri	1	1	8	117
Thua Thien- Hue	1	2	6	105
Total	6	9	71	1,538

Annex 3: Supporting information on drivers of deforestation and forest degradation

The region has been investing in developing economic zones, the larger one are listed below by province and show the considerable amount of investment on going since 2006 and also where possible the projected population increase and core investments.

Table 3.1 Economic zones in the program area

No	Name of EZ	Area	Main projects
1	Nghi Son_Thanh Hoa	Population: 2006: 80,600ha 2015: about 160,000ha 2025: 230,000ha Area: 18.611,8 ha Decision 1364/QĐ-TTg dated 10/10/2007	Heavy industries: Oil refinery, steel rolling, mechanics, car production and assembling, electricity, etc.
2	South-East Nghe An-Nghe An	11/6/2007 at Decision 85/2007/QĐ-TTg 18,826 ha **613,520 m^2/23 projects cancelled** Planning towards 2020 approved by the PM following Decision 1534/QĐ-TTg dated 21/10/2008.	Difficult to define Port Beer factory

No	Name of EZ	Area	Main projects
		702 invested projects including 5 foreign direct investment projects. (BSE Korea Informatics and Electronics) More than 40 projects ongoing	
3	Vung Ang-Ha Tinh	Good geographical site easy access to Laos-Thailand. 22.781ha **Decision 72/2006/QĐ-TTg dated 03/4/2006**	Good conditions for tourism and entertainment Metallurgy Thermo-electricity plant; Deep sea port
4	Hon La-Quang Binh	Dec 79/2008/QĐ-TTg dated 10/6/2008 10,000 ha (main land 8.900 ha)	Port, steel rolling, post and telecommunications, transport, insurance, ship building, mineral processing, oil refinery. A thermal electricity plant: 1200 KW.
5	Chan May-Lang Co- TT Hue	Decision 04/2006/QĐ-TTg dated 05/01/2006 27,108 ha Up to 2015: About 90,000 persons. Up to 2025: About 170,000 persons.	Port Tourism
6	Quang Ngang / My Thu Quang Tri	250 ha close to Cua Viet port	US$65.8M MDF plant 120,000m3 through put to be finished 2015
		Quang Tri My Thuy deep seaport masterplan, the Government has agreed to add Quang Tri southeast ocean economic zone to the Master Plan on Vietnam's coastal economic zones towards 2020. The ocean economic zone covers a total area of 237.71 sq km. the natural resources advantage, gas industry combined with the gas potential in the inshore, power and logistics. Total investment is expected to be about US$1.5 billion in the first phase.	
		My Thuy Port is the heart of Dong Nam Economic Zone;	Thermo-electrical plant 1,200-MW coal-fired which consumes 3 million tonnes of coal per year.

National energy demand and hydropower in the region

Energy Consumption

Between 2000 and 2005, total primary energy consumption in Vietnam grew 10.6% per year. Growth in fossil-fuel consumption is correspondingly high, with coal use increasing 14.9% per year, oil use 8.2 % per year, and natural gas use 37% per year.

Vietnam's current power-generating capacity and medium- term expansion plan includes hydropower, natural gas and oil-fuelled thermal power, and coal-fired power. With growth in generation expected to continue at some 15% per year for up to a decade, the biggest issue concerning energy efficiency in this sector is to ensure that new thermal power plant capacity being brought on-stream is as energy-efficient as possible.

The tripling in energy consumption during the previous decade of 1997–20074 was achieved with a net reliance on Vietnam's own energy resources, particularly hydropower, during a period of relatively low energy costs.

Table 3.2 Forecast of capacity demand period 2011-2030 in MWs

	2011	2015	2020	2025	2030
Total demand	18,406	30,803	52,040	77,084	110,215
Total installed capacity	24,607	43,132	70,115	98,010	137,780
Total standby capacity	6,201	12,329	18,075	19,870	27,565
Supply is broken down as follows					

Pumped storage and hydro	10,631	14,283	17,987	20,926	21,057
% hydropower comparison with total capacity	57.8%	46.4%	35.6%	27.1%	19.1%
Small hydro and renewable energy	511	1,679	3,129	4,829	4,829
Coal thermoelectric	4,185	15,515	32,535	45,190	77,310
Gas and oil thermoelectric	8,362	10,582	13,625	17,525	17,525
Nuclear			1,000	6,000	10,700
Imported	918	1,073	1,839	4,609	6,359

Paper and Pulp industry

The energy needs of pulp and paper in Vietnam is predominantly derived from electricity and coal, accounting for 52% and 30% of total energy consumption respectively. The major heat energy using processes are the drying process in paper production and the production of the steam used in evaporators in chemical based pulp production processes. Electricity is used for a variety of tasks including chipping, pumping, air handling and lighting. Additionally, when mechanical pulping is employed, it uses large quantities of electricity. In some plants, the steam is powered by waste wood and pulp as a form of cogeneration and heat for drying is also sourced from waste heat. Overall the pulp and paper industry is a high energy consuming industry accounting for 7% of electricity use and 9% of coal consumption in industry. In 2002, the industry consumed 597 million kWh of electricity, 350,000 tons of coal, 11,200 tons of diesel and 87,000 tons of fuel oil. The energy efficiency is low due to the use of an old technology and there is also limited exploitation of energy recovery and reuse systems such as waste heat recovery and co-generation.

Hydropower

Table 3.3 Status of small and medium HEP

Area	<50KW		50-100KW		100-500KW		>500KW		Total		Operating	
	No. of stations	Capacity	No. of stations	Capacity	No. of stations	Capacity	No. of stations	Capacity	No. of stations	Capacity	No. of stations	Capacity
North central coast	12	260	1	50	9	1720	3	5460	26	7490	8	1400

From: Capacity building for river basin water resource planning ADB Hydropower CR.

There are three large rivers in the region, Ma and Chu river basin, Ca river and the Huong river.

Table 3.4 Expected capacity by large river in the program area

By River	Province	MW
Ma river	Thanh Hoa	542
Ca River	Nghe An, Ha Tinh	398
Huong River	TT Hue	282

Table 3.5 Larger schemes recently completed (within the reference period) or under construction

Name of scheme	Province/river	Operating company	MW
Cua Dat Recently finished, also an irrigation scheme	Thanh Hoa	Cua Dat Hydropower JS	2x485
Trung Son Under construction due to finish 2015/17	Thanh Hoa /Ma	EVN / Trung Son HEP company (WB funding)	275
Hoi Xuan/Hua Na	Thanh Hoa /Ma	EVN ?	180?
Binh Dien	TT Hue Huong river	Song Da Construction Corp	30
A Luoi	TT Hue		170
Ta Trach	TT Hue	MARD HEP irrigation	21
Nhan Hac	Nghe An	Hanoi construction corp	60
Ban Coc	Nghe An	Hanoi construction corp	18
Sao Va	Nghe An	Hanoi construction corp	3
Ban Mong	Nghe An	MARD HEP and irrigation	42
Thac Muoi	Nghe An Ca river		53
Hung Son	Ha Tinh	Vietnam construction machinery corp	30
Ngan Truoi	Ha Tinh	MARD HEP and irrigation	20
No.2 Quang Tri	Rao Quang River	HEP and irrigation	64
Dak Rong 3	Quang Tri	HEP	8
Song Sen	Huong Phuong	HEP	25

Table 3.6 Small hydropower[106]schemesin the program under review, status not clear

Small schemes under review	River	KW	Road access (km)
Thanh Hoa			
Huoi Vong	Huoi vong	1000	3
Hon Hua	Hon Mau (Ma river)	1000	9
Tam Lu	Lo	7000	8

[106]The definition of a small hydropower schemes tends to vary, but generally it is less than or equal to ≥ 20-30MW.

Small schemes under review	River	KW	Road access (km)
Khu Stream	Khu	1000	13
Chang river	Chang river	3000	15
Am river	Chu river	2000	12
Dan river	Chu River	1000	11
Nghe An			
Luu Kieu	N. Kieu	1000	3
Yen Thang	Huoi Nguyen Lam river	26,000	8
Xoong con	Cha Lap Lam	7000	6
Trung Huong	Khe Thu Lam	3000	5
Mon Son	Giang	3000	10
Sao Va	Ca river	3000	
Nhan Hac	Ca river	18,000	21
Ban Coc	Ca river	18,000	8.5
Nam Can 1	Nam Can	7000	15
Ha Tinh			
Vu Quang	Nam Truoi	20,000	2
Huong Sen	Nam Troi	30,000	1
Ho Ho	Ngan Sau	13,000	4
Quang Binh			
Khe Net	Khe net	2000	18
Khe Ron	Khe ron	3000	9

Annex 4: Land Use, Forest Cover and Land Tenure

One of the major policies related to rubber plantation development [107] was the development of a master plan to 2015 with the main aim of intensifying rubber production and establishing rubber plantations on unproductive agricultural land and degraded natural forest.

Table 4.1 Projected future rubber plantation development[108]

Year	Total area (ha)	Total volume (mil ton)	Total export value (bil USD)
2010	650,000	0.8	1.6
2015	800,000	1.1	1.8
2020	800,000	1.2	2.0

Expected rubber plantation development in the north central region to 2020			
Region	**Newly established plantation area (ha)**	**Stabilized area (ha)**	**Major land resources**
North Central	20,000	80,000	Unproductive agricultural land

In some provinces especially in the central highland a collaborative model has been established between private companies and SFC to develop rubber plantations. In this model the forest companies contribute their land as follows:

For State forest companies

- Upon approval of the PPC (executive agency), contribute their land to private companies to jointly establish rubber plantations
- Contribute labour to the joint venture, this partially address the redundant labour problem in forest companies
- When sap of rubber plantations is harvested, forest companies are distributed benefits proportional to capital contribution ratio in land and labour

For private rubber companies

- Collaborate with forest companies in applying for approval of rubber plantation development projects and the conversion of forestland which is being managed by forest companies
- Contribute capital, material, techniques to implement the model
- Hold the majority of investment capital, hence private companies is in charge of the management and directions in the joint venture
- When rubber plantations produce sap, private companies are entitled to enjoy benefits proportional to the capital contribution ratio to the joint venture

Forest Land Allocation

Example of the progress on forest land allocation nationwide, as of 2010 about 1.8 million Land Use Certificates (LUC) had been issued by Ministry of Natural Resources and Environment (MONRE) to recognize user rights to land covering 8,843,000 ha or about 69% of the total area targeted for issuing

[107] Decision 750/QD-TTgto approve a rubber development mater plan to 2015 with a vision to 2020.
[108] From Rubber Development and Forest Protection in Vietnam, Forest Trends/Tropenbos International Sept 2013.

LUCs. The vast majority were issued to households, the average LUC granted to a household covered 3ha while he LUCs granted to an organisation averaged 930ha.

Table 4.2 Forest Land Use Certificate issuance as of December 2010[109]

Characteristics	Area	Number of certificates
Total are designated for issuing Land Use Certificates (LUCs)	17,743,000	
LUCs issued by 2010	8,843,000	1,818,000
Of which:		
To organisations	5,505,000	5,875
To households	3,338,000	1,175,083

Land use by region and province

Following a series of tables showing the land use and forest cover by region and province and district, figures from MONRE and the Forest Protection Department. The proposed ER programme would work with the 41 most forested districts, found mainly to the west in the upland areas towards the border with Lao.

Table 4.3 Summary of land allocation North Central Coast Region (ha) (MONRE 2005)

Region	Total Area of Forest	Allocated for Use							
		Total	Household	Commune	Economic Organisations	Other Organisations	Total Allocated to Organisations	Foreign Investment	Community
North Central Coast Region									
Production Forest	1,143,179	965,712	539,795	15,154	362,778	42,755	405,533	-	1,832
SUF	563,732	482,278	487	221	1,135	480,435	481,570	-	-
Protection Forest	1,428,967	910,671	337,450	38,236	313,221	221,667	534,888	7	92
Total	3,135,878	2,358,661	877,732	53,611	677,134	744,857	1,421,991	7	1,924

Table 4.4 Forest and forestland areas in North Central Region and land users (ha) (FPD 2012 figures)

Category	Total	Forest Management Boards	State companies	Economic organizations	Armed force	HHs	Communities	Other organizations	CPCs
Forested land	**2,879,640**	**1,290,273**	**367,656**	**2,358**	**52,276**	**837,193**	**33,935**	**34,906**	**261,045**
Natural forest	2,167,625	1,186,971	258,641	0	38,393	449,813	23,999	8,015	201,793
Planted forest	712,015	103,301	109,015	2,358	13,883	387,380	9,936	26,891	59,252
Barren land	**595,493**	**206,499**	**47,354**	**119**	**5,582**	**177,316**	**1,926**	**4,500**	**152,197**

At first reading the above tables show a change of total forest area of 256,238 ha from 2005 to 2012. However, the differences between the 2005 and 2012 total forest area requires some explanation. The 2005 figures from MONRE were based on SPOT 5 satellite imagery so at the time were quite accurate for recording areas of forest cover. What was not clear was the quality of the forest, also after 2005 there was a consolidation of forest land holding undertaken by the MARD and the quality of the national forest inventories improved. In the 2012, the category of "Barren land" in Vietnam does not mean empty or bare land, but can include heavily degraded natural forest, this goes some way to explain the change in forest area. However, there is quite close correlation between the land tenure holding of forest land allocated to households. Also of note is the favourable increase in "communities" being allocated forestland increasing from only 1,832 ha to 33,935 ha. It is expected that during the detailed preparation of the ER program more detailed work would be undertaken to review land use and land tenure in the program area.

[109]Figures from MONRE and the Forest Sector Support Partnership 2010

Table 4.5 Land allocation situation for protection forest (ha) (2005 MONRE)

Province	Total area of Protection Forest	Not Yet Allocated		
		Total	Community	Commune
North Central Coast Area	***1,428,967***	***518,298***	***184,224***	***334,074***
+Thanh Hóa	240,595	25,702	-	25,702
+Nghệ An	577,213	258,313	179,273	79,040
+Hà Tĩnh	180,226	29,114	-	29,114
+Quảng Bình	234,645	114,982	-	114,982
+Quảng Trị	78,434	56,670	2,987	53,683
+Thừa Thiên Huế	117,854	33,517	1,964	31,553

Table 4.6 Land allocation situation for production forest (ha) (2005 MONRE)

Province	**Total area of Production Forest**	**Not Yet Allocated**		
		Total	**Community**	**Commune**
North Central Coast Area	***1,143,179***	***177,467***	***59,023***	***118,444***
+Thanh Hóa	228,086	1,669	-	1,669
+Nghệ An	405,683	84,392	58,402	25,990
+Hà Tĩnh	82,501	16,551	-	16,551
+Quảng Bình	264,815	39,568	-	39,568
+Quảng Trị	80,239	21,838	621	21,217
+Thừa Thiên Huế	81,855	13,449	-	13,449

Table 4.7 Land allocation Special Use Forest (ha) (2005 MONRE)

Province	Total area of SUF Forest	Not Yet Allocated		
		Total	Community	Commune
North Central Coast Area	***563,732***	***81,424***	***-***	***81,424***
+Thanh Hóa	85,317	-	-	-
+Nghệ An	211,498	75,837	-	75,837
+Hà Tĩnh	78,683	90	-	90
+Quảng Bình	91,793	-	-	-
+Quảng Trị	33,664	105	-	105
+Thừa Thiên Huế	62,777	5,392	-	5,392

Table 4.8 Forest protection and development plans 2016-2020 of provinces in the North Central Coast Region

Province	Protection forest	Natural regeneration	Concentrated new Forest	Replanting after	Scattered tree plantings	Forest conversion for	Forest conversion for	Harvesting on natural forest	Harvesting on planted forest
	(ha)	(ha)	(ha/ year)	(ha/ year)	(trees/ year)	(ha/ year)	(ha)	(m3/ year)	(m3/ year)
Thanh Hoa	548,150	10,000	5,200	5,500	1,650,000	5,500	4,900	6,000	400,000
Nghe An	972,425	82,000	20,000	12,000	4,800,000	3,600	7,000	10,000	900,000
Ha Tinh	364,655	9,200	3,200	7,800	500,000	1,000	7,400	9,000	490,000
Quang Binh	535.596	42,000	1,500	2,100	4,000,000	770	10,000	13,800	183,000
Quang Tri	229,844	9,400	2,460	4,000	4,000,000	235	7,200	21,000	470,000
TT-Hue	128,000	17,000	2,400	20,000	7,000,000	700	?	10,000	200,000
Total	**2,243,610**	**169,600**	**34,760**	**31,400**	**21,950,000**	**11,805**	**29,500**	**69,800**	**2,643,000**

District level land use for Central Coastal Provinces (MONRE 2005)

Table 4.9 Land Use in Quang Tri

LAND USE	DISTRICTS										
	Province	Đông Hà	Quảng Trị	Vĩnh Linh	Hương Hoá	Gio Linh	ĐaKrong	Cam Lộ	Triệu Phong	Hải Lăng	Cồn Cỏ
Total Area of district	476,008	7,306	636	62,584	115,716	47,381	122,755	34,792	35,548	49,070	220
1. Agricultural Land	266,749	4,065	167	46,421	42,983	27,453	74,146	18,985	22,671	29,698	160
1.1 Agricultural Production Land	71,968	1,587	149	15,163	13,640	12,935	5,624	5,841	7,680	9,349	-
1.1.1 Annual crops	48,027	1,412	149	7,920	6,284	7,627	4,787	3,382	7,365	9,101	-
1.1.2 Perennial crops	23,941	175	-	7,243	7,356	5,308	837	2,459	315	248	-
1.2 Forest Land	192,307	2,281	14	30,578	29,106	14,135	68,499	13,077	14,542	19,915	160
1.2.1 Production	80,241	2,280	14	22,619	3,485	6,186	16,027	9,464	9,343	10,823	-
1.2.2 Protection	78,434	1	-	7,854	25,622	7,949	18,944	3,613	5,199	9,092	160
1.2.3 Special Use	33,634	-	-	105	-	-	33,529	-	-	-	-
3. Unused	168,332	844	18	8,655	70,168	14,794	46,390	10,824	4,772	11,842	25
3.1 Flat	15,617	402	14	2,717	100	4,524	1,197	858	2,303	3,477	25
3.2 Hilly	151,931	442	4	5,498	69,927	10,270	45,193	9,763	2,469	8,365	-
3.3 Rocky	784	-	-	441	141	-	-	202	-	-	-

Table 4.10 Land use in ThuaThien Hue

LAND USE	DISTRICTS									
	Province	Huế city	Phong Điền	Quảng Điền	Phú Vang	Hương Thuỷ	Hương Trà	A Lưới	Phú Lộc	Nam Đông
Total Area of district	506,529	7,105	95,559	16,324	28,074	45,828	52,220	123,279	72,931	65,209
1. Agricultural Land	319,398	2,241	66,325	7,669	10,829	29,842	30,263	84,253	41,453	46,523
1.1 Agricultural Production Land	51,899	1,796	9,034	5,425	7,371	5,229	7,357	5,529	6,365	3,793
1.1.1 Annual crops	42,411	1,576	7,954	5,425	7,325	4,862	5,503	2,789	5,967	1,010
1.1.2 Perennial crops	9,488	220	1,079	-	47	367	1,854	2,740	398	2,783
1.2 Forest Land	262,487	436	56,972	1,397	1,594	24,324	22,534	78,643	33,910	42,677
1.2.1 Production	81,854	419	10,829	-	607	13,019	13,683	24,075	10,161	9,061
1.2.2 Protection	117,856	-	14,131	1,397	987	10,785	8,851	49,165	10,756	21,784
1.2.3 Special Use	62,779	18	32,012	-	-	520	-	5,403	12,994	11,832
3. Unused	112,584	107	19,575	1,380	3,303	9,855	12,822	35,464	12,994	17,084
3.1 Flat	17,594	78	7,450	1,380	3,303	409	630	1,590	1,800	954
3.2 Hilly	93,642	29	12,126	-	-	9,446	12,113	32,604	11,194	16,130
3.3 Rocky	1,350	-	-	-	-	-	79	1,271	-	-

Table 4.11 Land use in Nghe An

LAND USE	DISTRICTS									
	Province	Vinh city	Cửa Lò	Quế Phong	Quỳ Châu	Kỳ Sơn	Tương Dương	Nghĩa Đàn	Quỳ Hợp	Quỳnh Lưu
Total Area of district	1,649,854	6,756	2,817	189,036	105,720	209,004	280,819	75,644	94,259	60,769
1. Agricultural Land	1,450,310	3,323	1,348	180,165	100,930	204,432	271,093	58,757	80,910	44,406
1.1 Agricultural Production Land	249,047	2,749	896	4,520	5,346	1,524	8,319	35,620	15,160	19,611
1.1.1 Annual crops	193,546	1,982	669	4,107	4,208	897	7,147	24,544	13,609	16,578
1.1.2 Perennial crops	55,500	766	226	413	1,139	627	1,172	11,077	1,551	3,033
1.2 Forest Land	1,194,395	109	435	175,464	95,493	202,845	262,726	22,731	65,523	23,014
1.2.1 Production	405,685	-	-	39,095	41,399	18,083	71,401	16,175	45,175	13,907
1.2.2 Protection	577,217	55	435	61,459	42,674	184,763	145,866	6,557	18,574	9,107
1.2.3 Special Use	211,498	54	-	74,910	11,420	-	45,459	-	1,774	-
3. Unused	85,851	108	319	4,949	2,242	2,455	6,762	5,440	8,123	5,951
3.1 Flat	13,272	108	310	706	243	5	570	629	219	1,624
3.2 Hilly	61,381	-	2	3,597	1,999	2,100	6,190	3,754	4,431	3,716
3.3 Rocky	11,199	-	7	646	-	350	2	1,057	3,473	611

Table 4.12 Land Use in ThanhHoa

LAND USE	DISTRICTS													
	Province	Thanh Hóa city	Bỉm Sơn	Sầm Sơn	Mường Lát	Quan Hóa	Bá Thước	Quan Sơn	Lang Chánh	Ngọc Lạc	Cẩm Thủy	Thạch Thành	Hà Trung	Vĩnh Lộc
Total Area of	1,113,630	5,794	6,701	1,789	81,462	99,014	77,522	93,017	58,659	49,634	42,583	55,885	24,451	15,803
1. Agricultura	810,614	2,607	3,717	833	53,904	81,250	60,697	73,465	44,710	36,953	29,973	40,703	14,059	7,913
1.1 Agricultu	245,367	2,209	1,899	478	2,929	6,232	7,390	6,860	3,878	16,977	10,628	16,564	9,275	6,655
1.1.1 Annual	218,779	2,186	1,807	403	2,859	5,987	6,945	5,849	3,337	13,753	7,847	13,250	8,624	6,274
1.1.2 Perenn	26,589	23	92	75	70	245	445	1,010	541	3,223	2,781	3,314	651	381
1.2 Forest La	553,999	229	1,536	201	50,957	74,978	53,215	66,530	40,706	19,764	19,173	24,003	4,172	1,088
1.2.1 Produc	228,088	-	1,536	-	17,751	28,841	25,554	32,919	23,467	12,550	5,984	6,978	2,178	1,038
1.2.2 Protect	240,598	10	-	62	25,964	21,304	15,215	33,611	17,240	7,215	13,189	11,683	1,702	50
1.2.3 Specia	85,317	219	-	139	7,241	24,834	12,446	-	-	-	-	5,342	293	-
3. Unused	154,891	92	1,277	104	26,021	13,150	12,716	17,077	12,387	4,278	6,891	6,875	4,892	4,251
3.1 Flat	15,799	-	129	99	450	711	351	895	62	227	94	52	329	676
3.2 Hilly	114,971	-	97	-	23,870	12,329	4,094	14,752	11,888	3,773	6,496	4,565	3,311	3,139
3.3 Rocky	24,129	92	1,051	5	1,702	111	8,271	1,430	438	278	302	2,258	1,252	437

Table 4.13 Land Use in Ha Tinh

LAND USE	DISTRICTS											
	Province	Hà Tĩnh town	Hồng Lĩnh	Hương Sơn	Đức Thọ	Vũ Quang	Nghi Xuân	Can Lộc	Hương Khê	Thạch Hà	Cẩm Xuyên	Kỳ Anh
Total Area of district	602,650	5,639	5,855	110,415	20,243	63,821	21,943	37,722	127,809	39,963	63,653	105,587
1. Agricultural Land	462,776	3,338	3,994	94,302	13,143	56,893	12,763	23,581	106,772	24,887	43,304	79,799
1.1 Agricultural Production Land	117,168	2,978	2,063	10,762	9,900	3,303	7,735	15,464	12,739	16,074	12,785	23,365
1.1.1 Annual crops	86,567	2,436	1,820	7,413	8,388	2,079	6,113	12,837	5,592	12,314	9,907	17,668
1.1.2 Perennial crops	30,600	542	243	3,349	1,512	1,223	1,622	2,627	7,147	3,760	2,877	5,698
1.2 Forest Land	341,412	65	1,853	83,453	3,129	53,574	4,534	7,854	93,955	7,548	30,239	55,208
1.2.1 Production	82,502	-	343	21,072	2,509	5,328	745	1,479	25,817	3,092	3,801	18,316
1.2.2 Protection	180,227	62	1,511	53,190	620	14,384	3,789	6,274	50,779	4,399	14,561	30,658
1.2.3 Special Use	78,683	3	-	9,190	-	33,861	-	101	17,359	58	11,877	6,234
3. Unused	65,699	409	460	10,054	2,150	3,536	4,269	5,061	11,772	5,239	8,759	13,990
3.1 Flat	17,589	409	319	2,688	1,112	657	1,376	1,465	1,547	3,747	2,188	2,081
3.2 Hilly	45,361	-	142	7,332	1,038	2,878	2,891	3,426	10,142	1,299	5,057	11,156
3.3 Rocky	2,751	-	-	34	-	2	1	170	83	193	1,515	753

Table 4.14 Land use in QuangBinh

LAND USE	DISTRICTS							
	Province	Đồng Hới	Minh Hoá	Tuyên Hoá	Quảng Trạch	Bố Trạch	Quảng Ninh	Lệ Thuỷ
Total Area of district	806,527	15,571	141,271	115,098	61,389	212,418	119,169	141,611
1. Agricultural Land	660,856	10,310	109,255	94,281	36,084	192,641	107,030	111,255
1.1 Agricultural Production Land	66,859	2,976	5,315	5,461	9,407	19,771	7,021	16,908
1.1.1 Annual crops	53,972	2,292	4,478	3,419	8,973	14,012	6,536	14,262
1.1.2 Perennial crops	12,887	684	838	2,041	434	5,759	485	2,646
1.2 Forest Land	591,253	6,758	103,822	88,773	26,016	171,948	99,705	94,231
1.2.1 Production	264,815	4,332	31,040	58,678	10,629	45,004	46,877	68,255
1.2.2 Protection	234,646	2,426	72,783	30,095	15,387	35,151	52,828	25,976
1.2.3 Special Use	91,793	-	-	-	-	91,793	-	-
3. Unused	98,090	1,450	29,061	15,611	15,060	9,630	6,252	21,026
3.1 Flat	16,226	667	1,468	2,721	4,402	2,962	439	3,567
3.2 Hilly	74,658	783	27,593	10,680	9,509	3,454	5,533	17,106
3.3 Rocky	7,207	-	-	2,210	1,149	3,214	281	353

Annex 5: Timber demand

Strengths of Vietnam's timber and furniture industry

- As of December 2011 the total area of plantation forest in Vietnam reached 2.4 million ha, (MARD 2012), as a result of the forest area expanding at about 100,000ha per year (MARD 2011), one of main drivers has been access to, and the demand for forest products and probably also due to combination of responses to economic conditions and factors such land availability (through FLA and restructuring of SFCs), improved availability of relatively cheap credit to companies (prior to 2008), households having improved access to small amounts of credit, and political responses to market opportunities (setting targets), however, some of the expansion has been at the loss of natural forest.

- Good growing conditions, as has been reported elsewhere the Acacia hybrid and *Acacia Mangium* supplied through the FSDP project area have both performed very will beating expectations and out performing similar species in Japan and Australia which includes Nghe An and Thanh Hoa provinces;

- Accessible markets with competitive logistic costs (the export chip mills) for the lower grade logs that are produced as a by product of sawlog production;

- A skilled, productive and low cost workforce;

- Evolving forest policy to encourage and facilitate investment in plantation forestry and recognition that smallholders have a contribution to make as well as larger companies;

- Plentiful labour readily adaptable and lower cost than that of neighbour countries; and

- With furniture manufacture still a sunrise industry in Southeast Asia, ample space exists in the market place for quality producers supplying well-designed furniture to controlled quality and on time

Changes in the international wood market continue to occur

In 2011, Timberland Investment Outlook identified six key trends that are restructuring the forest sector and that have implications for forest investment strategy - these trends remain relevant in 2013/14:

- The rise of China as a central element in international timber markets;

- The continuing transition from natural forest logging to intensive timber plantations as the main source of timber supply, and a continuous emphasis on the enhancement of productivity of those timber plantations;

- Increased manufacturing of engineered wood products from small dimension plantation grown timber - at the expense of solid wood from larger dimension native forest timber;

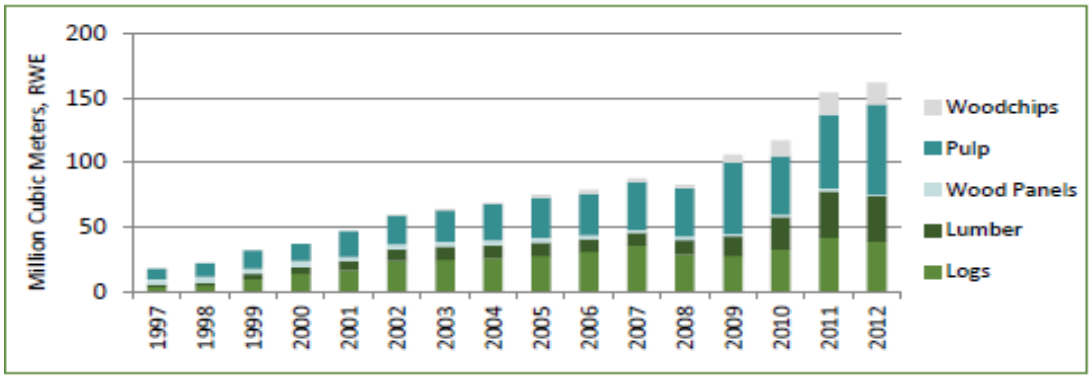
- Declining demand for newsprint, printing and writing paper, especially in Europe, North America, and Japan;

- A rising demand for biomass for a range of bio-products including bioenergy, biofuels, and new bio materials; and

- A continuing emphasis on reducing or reversing social and environmental impacts as part of supply chain certification, investment management and international trade rules.

China has a huge requirement for housing development and a rapid increase in per capita consumption. China now represents 50% of the global market for sawlogs and exceeded the United States as the world's largest lumber importer in 2011. The overall growth in all timber products demand results in a growing wood products deficit for the country, as shown in Table1.1 below

Table 5.1 Growth in China's timber deficit



China's domestic forest resources are insufficient to supply growing timber demand across the range of wood products. This growing timber deficit makes China a central force in both Asia Pacific and global timber markets. (Source: RISI)

China's growing industry is increasingly reliant on imported fibre supply, principally from Vietnam, Thailand, and Indonesia (see Tables 5.2 and 5.3).

Table 5.2 China hardwood woodchip imports

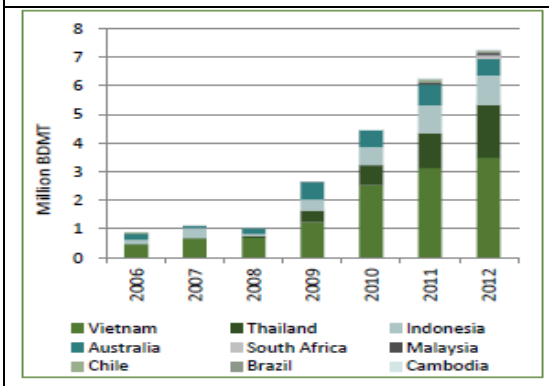
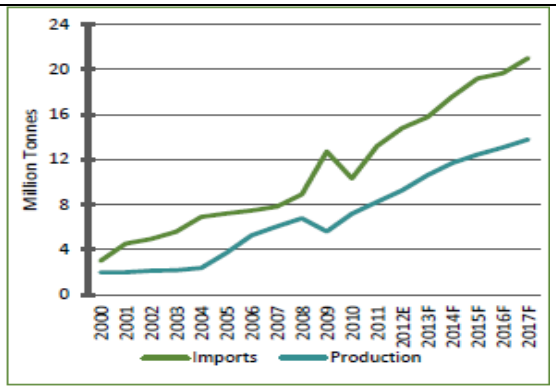


Table 5.3 China wood pulp consumption



China is poised to outpace Japan as the leading importer of woodchips, The Chinese market has been based primarily on price, whereas Japanese buyers have emphasized longer term supply relationships. As a result SE Asia producers have replaced Australia as the leading supplier of woodchips into Asia. Growth in the Chinese pulp capacity can be expected to be fed by imported woodchips across the Asia Pacific region as China will dominate the market as the leading woodchip importer. (source RISI 2013 international Pulpwood Trade Review)

On the timber plantation side, there has been rapid growth in Indonesia, Vietnam, and Thailand in developing very short rotation pulpwood crops (e.g. five to six years) to meet rising domestic and Chinese demand for pulp and paper, and all the governments in the region are actively promoting more timber plantation development to support the continued development of local wood-based industries as native forest timber resources decline and domestic demand for lumber, plywood and pulp and paper rises.

Challenges facing the smallholder plantations in the project area

- There is a worldwide existing large, and still expanding, demand for certified saw logs, but so far there is little domestic certified supply;

- Much of Vietnam's most predictive plantation industry is located in coast and near coastal areas that can suffer devastating impact from typhoons, most plantation and smallholders can expect some damage from typhoons at least once in a rotation, typhoon mitigation measures can be introduced and include the use of plantation wind breaks and better choice of species in typhoon prone areas, however, introduction of the mitigation measures has been very slow, insurance has also been discussed but this has also been slow to be adopted;

- The challenge of following FSC procedures and being open to international inspection should not be underestimated, FSC certification is demanding and time consuming, requiring much supporting paper work, attention to detail, and consistency at the smallholder plantation level that small famers are not familiar with;

- Willingness of smallholders to follow extension advice – a number of extension problems that will impact on quality and profitability of timber and have been documented and commented on and include:

    - (i) farmers using too dense plantings in the plantations this directly impact on bulk yield;

    - (ii) poor choice of species in some areas - adopting acacia hybrids as the best choice to suit all locations is wrong;

    - (ii) cutting plantations early can lead to lower returns on the initial investment and can, therefore, affect the availability of capital for re-investment in future plantations;

    - (iii) poor pruning and thinning operations, woodchip plantations require little maintenance, however, saw log plantations require careful pruning and thinning to obtain maximum growth and increase saw log diameter; and

    - (iv) difficulty in following FSC requirements on such issues as protection of watersheds, use of buffer zones near streams;

- The poor performance of the FFGs, has hampered involvement of communities, extension uptake, and marketing in the project area. The project has been aware of the under performance of the FFGs for a long time but has found it difficult to address the problem.

Annex 6: Example of payment for forest environmental services (PFES)

Table 6.1 Summary details from the two original pilot PFES sites in Lam Dong and Son La

Province/Site	Type of forest owner Number	Average land area (ha)	Average payment (ha) (1000 VND)	Payment received (1000 VND/per year)
Son La	Individuals	3	220	660
	32,396			
	Household groups	14	220	3,080
	1,242			
	Community forest	140	220	30,800
	1,497			
Lam Dong	Individuals	1-3	350	350-1050
	2,000			
	Patrols	333.9	65	8,000
	7,000			

Table 6.2 Expected national and region revenue from PFES

Year	Total revenue from service buyers (in million USD)			
	Hydropower plants	Water companies	Ecotourism	Total revenue
2009	10.5	0.48	0.016	11
2010	4.9	0.43	0.018	5.35
2011	13.38	0.72	0.034	14.13
2012	57.73	0.85	0.044	58.62
Total	**86.51**	**2.48**	**0.112**	**89.1**

Region	Number of hydropower plants	Projected revenue		Share (%)
		In billion VND	In million USD	
North	28	541.5	25.7	50.2
Central	31	389.2	18.5	36.1
South	14	148.1	7.1	13.7
Total	**73**	**1078.8**	**51.3**	**100**

Provincial examples from VFD project area of Thanh Hoa and Nghe An (2013 Scoping Reports) both provinces are with the proposed ER program area.

Table 6.3 Actual and potential hydropower payers Thanh Hoa province

Name of payers	Investors	Location	Design capacity (MW)	Operating year
Hydropower plants must pay to Vietnam forest protection and development fund				
Cua Dat Hydropower plant	Vinaconex	Thuong Xuan	97	2010
Hydropower plants pay directly to Thanh Hoa forest protection and development fund				
Muc River HP	Song Muc company	Nhu Thanh	2	2008
Ba Thuoc 2	Hoang Anh Gia Lai	Ba Thuoc	80	2012
Cam Thuy 1	Infrastructure and transportation companies	Cam Thuy	22.8	2014
Ba Thuoc 1	Hoang Anh Gia Lai	Ba Thuoc	60	2015
Hoi Xuan	Hoi Xuan company	Quan Hoa	102	2015
Trung Son	WB and Trung Son	Quan Hoa	260	2016
Doc Cay	North Central hydropower plant joint stock company	Thuong Xuan	15	2013
Tri Nang	Tri Nang hydropower plant joint stock company	Lang Chanh	4	2013
Song Am	Viet Nam joint stock company	Lang Chanh	13	2014

Table 6.4 Actual tourism payers Thanh Hoa Province

Name	Location	Operating year
Ben En National Park	Nhu Thanh district	08/11/1997
An Binh Mai tourism and entertainment company	Sam Son town	01/05/2006
Thao Tho Quyen company branch	Hoang Hoa district	15/10/2010
Song Da real estate company	Linh Truong sea ecological area	23/03/2011
Branch of tourism management	Linh Truong sea ecological area	08/05/2011
Tourism and EURO commercial Ltd., company	Hai Tien sea ecological area	22/09/2011

Table 6.5 Potential water user payers Thanh Hoa Province

Name of payers	Investor	Location	Design capacity (m3/year)
Mat Son water factory		Dong Ve precinct Thanh Hoa city	18,250,000
Ham Rong water factory	Thanh Hoa Limited company	Dong Cuong commune, Thanh Hoa city	7,300,000
Bim Son water factory		Bim Son town	3,650,000
Quang Xuong water station		Quang Xuong	365,000
Hoang Hoa water station		Hoang Hoa district	602,250
Nguyen Binh water factory		Tinh Gia district	511,000
Trieu Son water factory		Trieu Son district	438,000
Yen Dinh water supply branch	Centre of freshwater and rural environmental sanitation	Yen Dinh district	240,900
Vinh Loc water supply branch		Vinh Loc district	492,750
Thieu Hoa water supply branch		Thieu Hoa district	277,400
Nong Cong water supply branch		Nong Cong district	116,800
Hoang Khanh water factory	Hoang Gia joint stock company	Hoang Hoa district	5,475
Dong Cuong water factory	Tan Ngoc Hai limited company	Thanh Hoa city	1,825
Hai Hoa water factory	Linh Minh Nhat limited company	Tinh Gia district	7,300
Sao Vang water factory	Hong Ngoc ltd.company	Tho Xuan district	1,095
Quang Phong water factory	Thao Linh Ltd. company	Quang Xuong district	14,600
Bac Son water factory	Pacific Ocean	Sam Son town	9,125
Tien Loc commune, Hau Loc district	Project MB of freshwater and environmental sanitation	Hau Loc district	456,250
Nghi Son economic zone	Binh Minh construction and production of construction materials	Tinh Gia district	10,950,000
Ngoc Lac water factory	Thanh Hoa Limited company	Ngoc Lac district	438,000
Cam Thuy water factory		Cam Thuy district	255,500
Nong Cong water factory		Nong Cong district	328,500

Table 6.6 Actual and potential hydropower payers Nghe An Province

Name of beneficiaries	District	Capacity (MW)	Payment status
Khe Thoi	Con Cuong	14	not yet
Suoi Choang	Con Cuong	4	not yet
Chi Khe	Con Cuong	41	not yet
Chi Khe	Con Cuong	41	not yet
Total Con Cuong		**100**	
Ban Canh	Ky Son	1.5	paid
Nam Mo	Ky Son	18	paid
Nam Can	Ky Son	20	not yet
Ca Loi	Ky Son	2.4	not yet
Nam Tip Song	Ky Son	6	not yet
My Ly	Ky Son	250	not yet
Nam Mo 1	Ky Son	95	not yet
Totay Ky Son		**391.4**	
Nam Pu	n/a	n/a	not yet
Nam Tip	n/a	6	not yet
Dong Van	n/a	20	not yet
Khe Lim	n/a	1	not yet
Khe Cam	n/a	1	not yet
Khe Bu	n/a	0.8	not yet
Khe Na	n/a	1	not yet
Luu Kien	n/a	1	not yet
Mon Son	n/a	1.8	not yet
Nam Hat	Que Phong	45	not yet
Sao Va	Que Phong	18	paid
Ban Coc	Que Phong	3	paid
Hua Na	Que Phong	180	paid
Song Quang	Que Phong	12	not yet
Nhan Hac	Que Phong	45	not yet
Ca Nan 1, Ca Nan 2	Que Phong	12	not yet
Chau Thon	Que Phong	18	not yet
Dong Van	Que Phong	20	not yet
Tien Phong	Que Phong	4	not yet
Hanh Dich	Que Phong	6	not yet
Cua Dat	Que Phong	97	paid
Total Que Phong		**460**	
Song Quang 3	Quy Chau	9.15	not yet
Chau Thang	Quy Chau	14	not yet
Nam Pong	Quy Chau	30	not yet
Totay Quy Chau		**53.15**	
Ban Ve	Tuong Duong	320	paid
Khe Bo	Tuong Duong	100	paid
Xoong Con	Tuong Duong	15	not yet
Yen Thang	Tuong Duong	11	not yet
Xop Cop	Tuong Duong	4	not yet
Ban Ang	Tuong Duong	17	not yet
Nam Non	Tuong Duong	20	not yet
Total Tuong Duong		**487**	