Annex 2 - Feasibility study

Reduced Emissions through Climate Smart Agroforestry (RECAF)

(or Achieving emission reductions in the Central Highland and South Central Coast region of Viet Nam to support National REDD+ Action Programme goals)
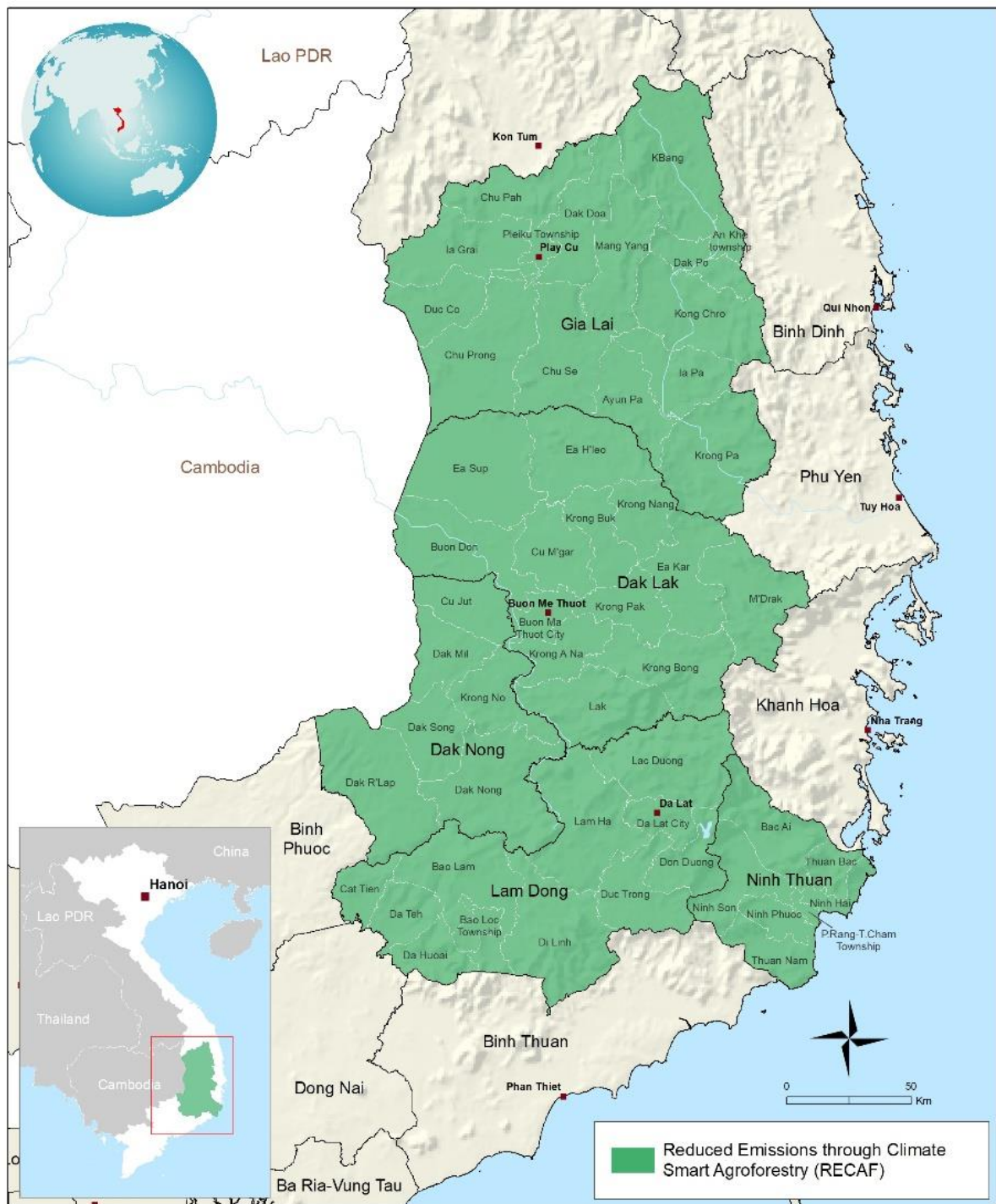
27 June 2024

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Working papers (providing further details at the below hyperlinks)

Working paper 1. RECAF Hotspot Thematic Report

Map of the project area

The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

IFAD *Map compiled by IFAD | 07-02-2022*

Chapter 1 - OVERVIEW

1.1 Introduction

Land use change continues to be a major contributor to greenhouse gas emissions, forest loss and degradation in Viet Nam, with the main drivers being logging, infrastructure development, and commercial crops (explored in detail in Chapter 2). In response, far-reaching legislation has been introduced, including the National REDD+ Action Plan. The Reduced Emissions through Climate Smart Agroforestry (RECAF) (or Achieving emission reductions in the Central Highland and South Central Coast region of Viet Nam to support National REDD+ Action Programme goals) project will trigger the implementation of these policies, to directly address the major drivers of land use change in 5 provinces Gia Lai, Dak Lak, Dak Nong, Lam Dong in the Central Highlands and Ninh Thuan in the South Central Coast of Viet Nam targeting 100,000 households with a focus on women and ethnic minorities. The project aims to facilitate an economically viable transition to sustainable forest management, deforestation-free value chains, agroforestry systems and climate resilient livelihoods. This transition faces a number constraints, such as (i) policy and institutional gaps for implementing REDD+ at provincial level, e.g. lack of interdepartmental, cross-sectoral and public-private coordination and lack of a monitoring system to report emission reduction results (ii) inequitable distribution of costs and benefits of forest protection and conservation (iii) lack of secured land tenure and (iv) lack of incentives for private sector action and lack of access to long-term credit products for mitigation and adaptation investments. The project will therefore invest in: (i) mainstreaming the NRAP into socio-economic development plans, improve coordination and capacity to implement REDD+; (ii) effective community-based forest management and benefit sharing; (iii) deforestation-free agroforestry development and alternative income generating activities, climate resilient infrastructure and development of aligned and funded credit products.

RECAF will support Viet Nam in implementing the Article 6 of the Paris Agreement, for AFOLU related activities, and will support the Vietnam Administration of Forestry (VNFOREST) to meet all the requirements from different sources of REDD+ Result Based Payments (RBP) such as the GCF, the FCPF, and the LEAF Coalition for instance, to be able to seek RBP for results which will be achieved during the lifetime of the project (2023-2030). RECAF will also establish and operationalize a domestic Viet Nam Forest and Business Partnership as a public private platform to discuss funding mechanisms and mobilize private sector funding for NRAP implementation, including support to the national movement on the plantation of 1 billion trees.

RECAF consists of two technical components with six sub-components and the project management and monitoring component. Component 1 focuses on creating an enabling environment to reduce emissions from deforestation, enhance carbon stocks and adapt to climate change, while component 2 will provide measures to reduce GHG emissions from deforestation, promote sustainable agriculture and enhance climate resilience. Total project cost is US$ 98.2 million. This includes IFAD loan financing of US$43 million, a GCF grant of US$ 30 million, and counterpart financing from the Government of US$10 million cash and US$15.2 million in kind. The IFAD loan will exclusively finance the climate resilient infrastructure investments under sub-component 2.2 in accordance with current government ODA policy, which limits the use of ODA funds to infrastructure.

The project rests on the solid foundation of IFAD's 25 years of experience in Viet Nam. IFAD has already invested in three out of the five provinces targeted by RECAF, including Gia Lai, Dak Nong, and Ninh Thuan during the period 2010-2016. RECAF will refine and scale-up successful approaches of past and on-going relevant projects of its own as well as of others.

1.2 Country background: Development context and challenges

Country context. Viet Nam is located at the south-eastern tip of the Eurasian continent and has a total land area of about 331 051 km². The country has an extended coastline of 3 444 km. In the coastal areas there are two major deltas, the Red River Delta (RRD) in the North and the Mekong River Delta (MRD) in the South, which are the most productive agricultural areas of the country. In contrast to these low-lying deltas and coastal regions, the northern part is characterized by mountainous and hilly areas, and there are some elevated plateaus in the middle of the country. The

climate is generally warm including temperate and tropical regions. Viet Nam's varied topography is associated with a range of different climates, for which diversified changes can be observed.

The relative contribution of agriculture, forestry, and fishing to the country's economy has declined in recent years due to the rapid growth of the industry and service sectors; as of 2017 the agricultural sector contributed 15.3% of gross domestic product, this is somewhat mismatched against an employment contribution of around 40.3% of the country's labor force. Rice production has a particularly vital role for the country in terms of food security, rural employment and foreign exchange, employing two-thirds of the rural labor force and positioning Viet Nam as consistently one of the world's largest rice exporters.

Viet Nam's long coastline, geographic location, and diverse topography and climates contribute to its being one of the most hazard-prone countries of Asia and the Pacific Region. The country already experiences a range of natural hazards with damages caused by floods, droughts, landslides, erosion, cyclones, and tropical storms. Climate change is projected to exacerbate existing climate-induced risks, which can pose significant threats to the country's development. Over the past two decades, disasters in Viet Nam have caused more than USD 6.4 billion of property damage and economic losses, and led to 13 000 deaths (World Bank, 2017).

Given that a high proportion of the country's population and economic assets (including irrigated agriculture) are located in coastal lowlands and deltas and rural areas face issues of poverty and deprivation, Viet Nam has been ranked among the five countries likely to be most affected by climate change. It has been estimated that climate change will reduce national income by up to 3.5% by 2050.

Project area context. Project target areas lie in two regions: the Central Highlands and the South-Central Coast.

- The Central Highlands (CH) consists of five provinces, including Dak Lak, Dak Nong, Gia Lai, Lam Dong and Kon Tum– with the project targeting all except the latter one. In terms of topography, the region is mountainous and forms the eastern part of a series of contiguous plateaus located 500 m up to 1,500 m above sea level, expanding to the south of Lao People's Democratic Republic and north-east of Cambodia.
- The South-Central (SC) Coast consists of one major city, Da Nang, and seven provinces, including Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan and Binh Thuan – with the project targeting only the Ninh Thuan province. The region is situated between the East Sea and the mountainous region to the west and slopes along the east coast. This region has a complex topography with meandering upland and lowland areas, forests, dunes, and sandy and rocky soils.

Figure 1. The provinces in the Central Highlands region (left) and South-Central Coast region (right).
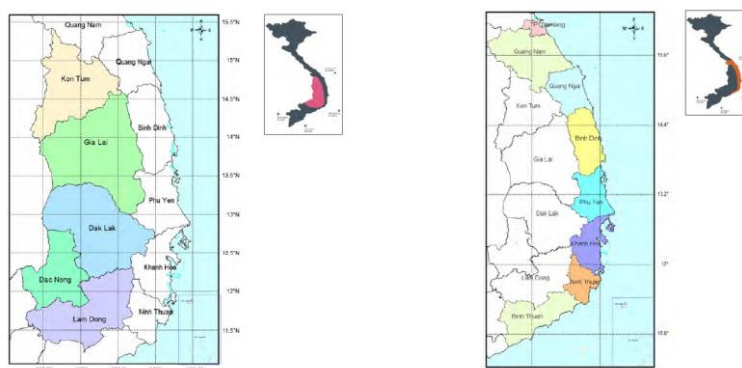
The nexus between climate change and poverty. Of particular relevance for RECAF is the nexus between weather and climate risk and poverty. Studies and field interviews in Viet Nam have shown that community members consider factors directly related to climate to be among the main causes of poverty. Groups that are already the most vulnerable (women, ethnic minorities, and the disabled) are

likely to be disproportionally less able to adapt to climate change. The rural poor, and especially these most socially vulnerable groups, are also exposed to greater risk given their direct reliance on agriculture and the natural resources base for their livelihoods, as well as their greater exposure to natural disasters and their lack of assets and capital to recover or to shift to alternative livelihoods.

Recent assessment on the social dimensions of adaptation to climate change in Viet Nam identified the Central Highlands and the Southern Coastal area as regions with high exposure and high sensitivity to climate change. The high sensitivity of the project region is a function of their large and largely poor, ethnic minority population. Some 75% of Viet Nam's minority populations live in these two regions. Most minorities remain rural residents, leaving them potentially more sensitive to climate events by virtue of being more likely to be rural producers. Ethnic minorities continue to be more dependent on staple goods and traditional agriculture, and their economic livelihoods are less diversified, and they report much lower rates of agricultural investment, with resulting lower productivity.

Access to financial services is very uneven in minority areas; Kinh's people report more use of bank loans and larger loan amounts than minorities on average, while the latter report a higher need for credit and other financial services13. Minorities also face many barriers in adaptive capacity as well, with a major limitation being the current low levels of education. Dropout rates remain significantly higher for minorities, resulting in higher rates of illiteracy and lack of language fluency in Vietnamese, which hinders their ability to interact with others and take advantage of external resources. Combined, all of these factors make ethnic minorities especially vulnerable to climate change and natural disasters. RECAF will target poor ethnic minorities to raise their income and food security, and align interventions that correspond to the capacity of the different target groups as regards to payment for ecosystem services, agriculture, deforestation free value chain and wage employment.

Poverty, nutrition and forests. The Central Highlands and the Southern Coastal region are among the poorest in Viet Nam. The areas of high incidence of poverty (ratio of poor to total population) in the country tend to overlap with the location of remaining stands of natural forest. The livelihoods of poor people in remote areas tend to have a relatively high level of dependence on goods and environmental services from natural forests. In spite of their dependence on forests, some rural people have also benefited from the clearance of forest cover through increased access to arable land and conversion of timber and other forest products into income and capital. Forest resources including timber and non-timber forest products (NTFP), agroforestry practices, forest services (ecotourism, PES), and derived employment serve as crucial income and nutrition diversity sources for the rural poor.

Biodiverse and well managed forests also play a crucial role in watershed ecosystem services, such as in mitigating risks related to land erosion, floods, and maintaining water quantity and quality. Almost undoubtedly, forest resources can continue to serve a crucial role in poverty alleviation and nutrition in the future. This can be deduced from the mere fact that millions of Vietnamese currently have forest resources at their disposal that they will continue to use and will need to be used in a sustainable manner. The capacity of forest resources to continue to support livelihoods depends critically on the lasting availability of those resources where no other alternatives exist as well as impacts of climate change on livelihoods. It also depends critically on how the country negotiates the rapid transition from a natural-forest economy to a plantation economy, as well as the capacity of the national, provincial, and district governments to adapt and improve programs that still have uneven performance record to date (e.g., FLA, FPES, REDD+).

A solid legal foundation for community forestry in Viet Nam and effective implementation of the benefit-sharing law can greatly improve the role of forests in reducing poverty in remote areas of the country while contributing to food security and nutrition. Present legislation does not secure tenure and ownership rights for private investors, creating uncertainty over returns in the long term and a disincentive to investment in forest property. In addition, current government incentives tend to promote investments in land-based activities and infrastructure projects, which do not clarify rights or directly address forest health concerns. The knowledge at the boundary of poverty alleviation, nutrition, climate change and forest resources would be greatly served by more systematic collaboration and planning between and among the relevant ministries/sectors

Land use, Land-Use Change and Forestry. Agriculture, forestry and other land uses are responsible for as much as 38.5% of greenhouse gas emissions in Viet Nam. The country's total net emissions in the agriculture sector (excluding forests) have increased from 52 million tonnes of CO_2e

in 1994 to 89 million tonnes of CO2e in 2013 to 98.7 million tonnes of CO2e in 2016[1]. However, the Land-Use Change and Forestry (LULUCF) sector (or "forestland in the 2016 data) has changed from being a source to a net carbon sink as a result of national efforts in afforestation and forest restoration. Consequently, net emissions from AFOLU, which combine agriculture and forestland, have decreased from 72 million tonnes of CO2e in 1994 to 44 million tonnes of CO2e in 2016, i.e. from 69% to 14% of total annual net emissions for the country.

While these figures are positive, they do not capture the emissions from forest degradation and from conversion of natural forest to plantation forest. Most of the carbon sequestration comes from the extensive plantation of monocultures for industrial purposes (especially acacia and rubber). Therefore, while whole forest cover is maintained, the biodiversity of such mono-crops is much lower and does not provide equal levels of ecosystem services in terms of watershed management, erosion prevention, soil fertility management and provision of non-timber forest products (NTFP) for local population's livelihoods and nutrition purpose. Within the AFOLU sector, agriculture is the main emissions source and the most significant driver of deforestation and forest degradation, in turn driven by market demand for agriculture commodities. Other key drivers include infrastructure development, unregulated logging because of ineffective law enforcement, poor forest governance and weak community land tenure rights (see Annex 2 Feasibility study).

Therefore, Reducing Emissions from Deforestation and Forest Degradation (REDD+) is a central key instrument to Viet Nam's National Climate Change Strategy. The National Action Program on REDD+ 2011-2020 (NRAP) approved in 2012 and updated in 2017 for the period up to 2030 provides the country's framework for REDD+ implementation.. RECAF will trigger the implementation of these policies at the nexus of forestry and agriculture, to directly address the major drivers of land-use change in Dak Lak, Dak Nong, Lam Dong, and Ninh Thuan provinces where cash crop expansion has been a primary driver of forest loss and degradation. Working with national and provincial governments, the project will provide a blueprint for implementing sustainable forest and land-use policies across the country.

RECAF will be deployed in the poorer, forested areas of the country where institutions tend to be weak, local communities have very limited access to public and private investment, and productive infrastructure deficits impede the inclusion of smallholder producers and ethnic minorities in poverty-reducing agricultural and forestry supply chains and their adoption of climate resilient, sustainable production systems and practices. On the one hand, RECAF will facilitate access to technical assistance and capacity building required to support the successful implementation of reforms for mainstreaming REDD+ into the Social Economic Development Planning (SEDP) processes; for the development, roll out and validation of the low emission/climate smart agriculture credit products, including the systematization and validation of eco-region and crop specific climate smart practices to be extended to smallholder producers; and the implementation of deforestation-free supply chains and local CFM livelihoods. On the other hand, the project will directly leverage government policy and public investment planning mechanisms to fully mainstream REDD+ relevant policies and leverage critical public infrastructure investments and co-financing to achieve reductions in emissions from deforestation and degradation associated with the expansion of agricultural export commodity production and weak conservation and protection of forest resources. In line with IFAD mandate and Government of Viet Nam policy, such mechanisms will provide room for forest rehabilitation/enrichment efforts of production forests land to be associated to livelihood improvements for local communities through establishment of multi-purpose species and NTFPs.

1.2.1. Summary description of poverty situation in Viet Nam

Viet Nam has made tremendous progress in poverty reduction. The proportion of the population living below the national poverty line (using the General Statistics Office of Viet Nam and World Bank poverty line) reached 9.8 percent in 2016—down by over 70 percent from 1993. More than 40 million people escaped poverty over the period. A similarly strong trend is observed for people living on less than $1.90/day (in 2011 purchasing power parity terms), where the rate fell from above 50 percent in 1993 to 2.0 percent in 2016. Poverty reduction has been coupled with significant improvements in shared prosperity, with the average consumption level of Vietnamese in the bottom 40 percent growing by 6.0 percent annually from 2010 to 2016 (World Bank, 2018).

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[1] BUR 3 https://unfccc.int/sites/default/files/resource/Viet%20Nam_BUR3.pdf In 2016, AFOLU is no longer divided in agriculture and LULUCF. This is the total emissions without the absorbtion from forestland.
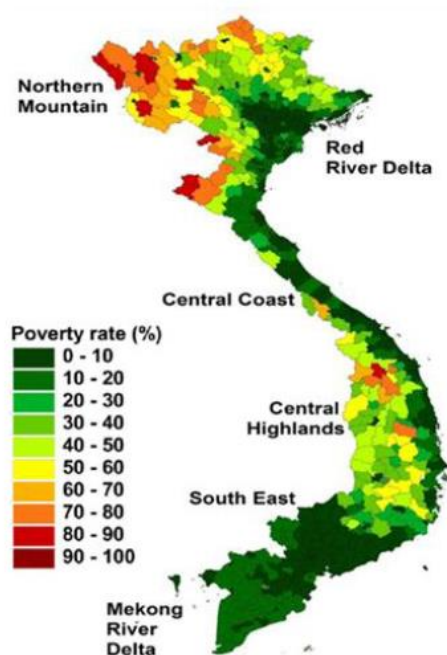
The success in reducing poverty has come largely from rapid economic growth that has created more and better jobs. Government investments have significantly improved service delivery, education, and public infrastructure, which facilitated growth and enabled broad participation in the economy. The transformation from an agrarian economy to labor-intensive manufacturing and services industries has been key, where these sectors created 15 million jobs over the past 20 years (World Bank, 2018). Improved education has been an important pathway to obtaining better jobs. Migration to cities presented rural households with nonfarm opportunities. These factors have contributed to households diversifying their income sources from agriculture. Those earning a higher share of income from non-agriculture enterprises and non-agriculture wages are more likely to be non-poor.

Despite remarkable progress, the task of poverty reduction in Viet Nam is not complete. Poverty gains are fragile, with remaining poverty concentrated in rural areas and among ethnic minorities. Although tens of millions of Vietnamese households have risen out of poverty, many have incomes very close to the poverty line and remain vulnerable to falling back into poverty as a result of idiosyncratic shocks and related economy-wide shocks, such as the effects of climate change on rainfall and temperatures, human and animal influenza pandemics, and impacts of the 2008–09 global financial crisis (WB, 2017). Economic growth has faltered in recent years as a result of continuing macro instability and sharp bouts of inflation.

The task of poverty reduction has become more difficult. Viet Nam's success has created new challenges. The remaining poor are harder to reach; they face difficult challenges of isolation, limited assets, low levels of education, poor health status, gender discrimination, limited policy for youth employment. Poverty reduction has become less responsive to economic growth. Ethnic minority poverty is a growing and persistent challenge. Although Viet Nam's 53 ethnic minority groups make up less than 15 percent of the population, they accounted for 47 percent of the poor in 2010, compared to only 29 percent in 1998 (WB, 2017). Using a new poverty line that better reflects living conditions of the poor, 66.3 percent of minorities are poor in 2010 compared to only 12.9 percent of the Kinh majority population (OECD, 2017). Women are a crucial part of the agricultural labour force in Viet Nam and make an essential contribution to poverty reduction and national economic development. However, they are still less privileged than men. The primary reason lies in the unequal access to and control over key resources in agriculture, as well as the lack of gender sensitivity in agricultural services (UNDP, 2016b). Rural youth accounts from 67% of total youth population (OECD, 2017). Most of this force took informal jobs with low wage and bear a lot of social and heal risks. Amongst the reasons, limited access to education including vocational training (VET) was considered the key reason.

Rural and mountainous areas remain the poorest, with poverty increasingly concentrated among ethnic minorities' communities. Poor minorities are heavily concentrated in the East and West Northern Mountains, upland areas in the North Central Coast, and the Central Highlands. Map 1 below shows the distribution of poverty in 2014.

Map 1. Poverty rate distribution in 2014 (Source: WB, 2017a)

Throughout the Doi Moi process, government policies have had a tremendous influence on the poverty reduction hence rural development (Tuan, 2011; World Bank, 2014). In this period, land use and decollectivisation policies were confirmed to have the overriding importance affecting the agricultural growth (Tuan, 2011; Rudengren et al. 2012). The land use reform started by Resolution 10 in 1988 in which large parts of agricultural land were revoked from ineffective state cooperatives and enterprises and allocated to households for long term cultivation. At later stages, more comprehensive land policies including Law on Forest Protection and Development in 1991 (revised in 2004), and Land Law in 1993 (revised in 2003 and 2013) have extended the initial successes of Resolution 10 to wider scopes (forests and forestlands) and stakeholders (private enterprises, Vietnamese living oversea). Land policies ensured the essential rights to transfer, donate, lease, mortgage, and guarantee hence encouraged people to invest in their lands (Rudengren et al., 2012). In parallel with land use reform, the institutional reform with various decollectivisation policies laid the foundation for rapid rural development (Coxhead et al., 2010; World Bank, 2014). The decollectivisation policies reduced the overwhelming role of state and expanded the role of private sector in economic development (World Bank, 2014).

Apart from overarching policies which guide the economic development, special policies and programs were designed by the government to target the poverty reduction in Viet Nam. According to Pinter and colleagues (2015), poverty-related documents issued by the state from 2005 to 2015 alone numbered around 70. They included more than 10 government decrees, 30 decisions of the Prime Minister and, most notably, two main government resolutions, including a Resolution dated 27 December 2008 on rapid and sustainable poverty reduction for 61 poor communes, and a Resolution dated 19 May 2011 on the direction of sustainable poverty reduction for the period of 2011–2020. There are typically two types of poverty-related policies: general policies for the poor and poor households across the country, and specific policies for the poor and poor households in the poor districts, coastal areas and exceptional, difficulty-stricken communes. The policies were concretized into various national target programs. In the context of this project, three key target programs are discussed including the National Target Program on Poverty Reduction - NTPPT (2006-2010, then changed to the National Target Program on Sustainable Poverty Reduction 2011-2015, 2016-2020, and 2012-2025), the National Target Program on New Rural Development - NTP NRD, and the National Target Program on Ethnic Minority (2021-2030).

Poverty situation and analysis of four provinces. Over the last five years, all four provinces have been successful in reducing poverty. Between 2016 and 2020, poverty rates were reduced by 64%, 61%, 65%, and 57% in Dak Lak, Dak Nong, Lam Dong, and Ninh Thuan provinces respectively. The impressive poverty reduction outcomes were due to: (i) support from government programs (P134, P135 and P30a) under the National Target Program for Sustainable Poverty Reduction (NTP-SPR), NTPNRD; (ii) support from various international programs, including the IFAD-financed TNSP (Ninh Thuan, Gia Lai) and 3EM (Dak Nong); and (iii) the efforts of the poor themselves (DOLISA Dak Lak, Dak Nong, Lam Dong, Ninh Thuan, 2021).

It is important to note that, while the reported rates of poverty reduction in the provinces are quite significant, the figures do not tell the entire story. Poverty reduction rates reflect the overall situation at provincial level. In general, however, two groups tend to enjoy a disproportionate share of the reduction benefit. Those are Kinh peoples (the ethnic majority) and urban residents. Among many of the rural ethnic minorities – including M'Nong, Ma, Ede, Tay, Dao, Nung, Raglei, and H'Mong – poverty rates remain high. Indeed, living in a rural area, being non-Kinh and being dependent on agricultural employment are three strong correlates of poverty and extreme poverty.

In addition, poverty reduction achievements in the target provinces are not stable. Apart from significantly higher rates amongst ethnic minority peoples, the risks of falling back into poverty are high. Secondary documents of provinces maintain that the rates of escaping poverty are not sustainable. Poor households become registered as "non-poor" due to one time or sporadic income from sales of livestock (especially, cattle) or due to the coincidence in timing between the poverty survey and a single, particularly good harvest season. Thus at any one time a significant number of "non-poor" households are on a path to "fall back" into poverty due the non-durable, short-term nature of the source for their improved economic status. In addition, the gap between the rich and the poor has increased in recent years.

Poverty still predominates in rural areas and increasingly concentrated in remote uplands. Poverty remains a rural phenomenon in four provinces. Database and information provided by DOLISA of four provinces reflected that more than 80 percent of the poor near poor live in rural areas. This spatial distribution of poverty has not changed since rural areas in four provinces had been dominated by poverty for a long time. However, the poverty reduction gap between urban and rural seems increasing significantly over the past ten years. Uneven progress of poverty reduction has resulted in substantial changes in the spatial distribution of poverty, with the remaining poor becoming more concentrated in the upland areas.

Low education attainment is still a factor influencing poverty. According to the documents provided by four provinces, one of the root causes to poverty was low education. However, there were not any further figures or justification reflecting this fact. This document therefore used the national figures and other sources to discuss this issue.

According to the Vietnam Human Development report in 2016 (UNDP, 2016a), Viet Nam has successfully achieved many global indicators regarding education. Primary completion rates were high already by the end of the 1990s. There is a rapid increase in enrolments at lower and upper secondary levels, leading to an increase in the number of students who attend colleges and universities. However, lack of education continues to be an important determinate of poverty (WB, 2013, UNDP, 2016b). The recent survey by World Bank (2013) showed that individuals living in households whose head did not complete primary school have the highest poverty rate (nearly 40 percent or twice the national average) as well as the highest extreme poverty rate (nearly 19 percent or two-and-a-half times the national average). The inverse relationship between education and poverty has become stronger over time: in 1998, households whose heads had completed primary or less schooling accounted for 55 percent of the total poor. By 2010, they accounted for 75 percent of the poor (WB, 2013, p.74). Rising levels of education coupled with rapid income diversification has been a powerful force for poverty reduction in Viet Nam since the late 1990s (ibid).

It is worrying to see that there is also a big gap in education between ethnic minorities and Kinh majorities. Even among the poor, minorities are substantially less educated than their Kinh economic peers: for example, 39 percent of poor minorities had not completed primary school compared to only 16 percent of poor Kinh majorities (WB 2009, 2013). Although the rate of enrolment of children in primary school in Viet Nam is equally high between the majorities and the minorities, the drop-off rate (often at last grade of primary school) among the minorities is much higher than the majorities (WB, 2013). Thus, another challenge with poor ethnic minorities needs to be tackled.

Gender gaps in minority school enrolments have received much attention in Viet Nam. These gaps have closed at the primary level but persist at the secondary level and above (WB, 2013). However, reverse gender gaps—substantially higher enrolments for girls compared to boys at the secondary level— have started to emerge at the secondary level, particularly among children from poor (majority) households and in the Central Highlands (ibid). Concerns have been raised that boys from poor households are leaving school earlier than girls to take up jobs in the service sector and manufacturing, "pushed" by poverty and economic imperatives and "pulled" by expanding employment opportunities in nearby cities and towns (WB, 2013, p76). While leaving school after six or eight years of education may make sense given short-run incentives, education choices made today will follow children for the rest of their lives. These young workers may not have the education and skills to get good jobs in the future as Viet Nam's economy continues to grow and modernize, and Viet Nam's economic development will be constrained by the lack of an educated and skilled labour force (ibid).

Many of the poor are farmers with livelihoods linked to agriculture. The poor in four provinces are predominately farmers. Although it is required further clarification during the upcoming design, statistics provided by four provinces reflected that approximately 35 percent of agricultural households live below the poverty line, which is nearly three times higher than the national poverty rate.

Farmers in four provinces (and/or in proposed project areas) are distinctive from the classified farmers in lower delta in which their livelihoods are mainly from crops and livestock production. Farmers in the proposed project areas had a complicated pattern of farming mixing between forest resources use, terraced rice, and industrial crop production. Livestock production of poor farmers in four provinces is not as popular as their peer in low land areas. Land use changes with more restrictions on forest resources use, quick commercialization of industrial crops/trees (coffee, pepper), and limited capacity building have dragged the poor, especially the ethnic poor. Because of producing unprofitable farming, many farmers have sold their lands and became hired workers classifying them as a new category of poverty - the landless groups.

It is interesting to find through database provided by four provinces that poor households derive roughly half their income from agricultural activities, including agricultural wages. However, what differentiates the incomes of the poor from wealthier households is not the level of income from agricultural activities. What differentiates the incomes of the poor from wealthier households is, instead, the extent to which households have successfully diversified into off-farm activities. This finding would mean a lot for the design of the new projects that target the poor. Design of previous projects was driven by on-farm diversification, for instance into cash crops, livestock, and fish and shrimp farming. The new designs should be additionally driven by diversification into business and trading and, even more importantly, by salaried employment in industry and manufacturing and jobs in the service sector. This indicates that on-farm and off-farm diversification is an important approach to poverty reduction.

Poor households are still vulnerable to weather shocks. Located in one of the earth's five typhoon centers, Viet Nam is prone to natural disasters, including frequent tropical storms and flooding (World Bank, 2013, FAO, 2015). Households in rural areas are much more likely to experience weather shocks than their urban counterparts, and the poor are more exposed to shocks than the non-poor (World Bank, 2013). Households in the Central Highlands are more likely than those in any other region to experience droughts, while those in the Central Coastal (e.g. Ninh Thuan) regions are most likely to experience storms or flooding (ibid).

The nexus between climate risk and poverty is of growing concern. Groups that are the most socially vulnerable (women, ethnic minorities, and the disabled) are likely to be disproportionly less able to adapt to climate changes. They are exposed to greater risk given their reliance of agriculture and natural resources for their livelihoods as well as their greater exposure to natural disasters and lack of assets and capital to recover or to shift to alternative livelihoods (UNDP, 2016b). It is important to understand the different vulnerabilities and capacities of all groups, especially the poor to best target adaptation initiatives in response to the immediate and long term challenges posed by weather shocks.

Poverty is still persistent among ethnic minority groups. Dak Nong Province is home to around 40 ethnic groups, which account for 33% of the total population. Lam Dong Province has 43 ethnic groups accounting for 23% of total population. Dak Lak Province has 44 ethnic groups that accounts for 30% of total population. The ethnic groups in three provinces of the Central Highlands share the same characteristics in view of originality. There are indigenous groups (e.g. Ede, Bana, Jarai) residing in the region for centuries; and there are migrants from the Northern provinces in the 1980s-1990s (Tay, Nung, H'mong). These two groups practiced different culture and traditions that strongly influenced their livelihoods[2]. Poverty remains persistence among the indigenous groups (Dak Nong DOLISA, 2021).

In Ninh Thuan Province there are three principal ethnic groups – the Kinh, comprising 78% of the population, the Cham 12%, and the Raglei 9.7%. There are other ethnic minority groups comprising the other 0.3% of the population. Raglei people were considered by the Government of Viet Nam as one of the most vulnerable groups in the country. All communes where the Raglei reside are in the list of the most difficult communes according to the 30a Programme[3]. Raglei people heavily depend on forests for their livelihoods. Deforestation and forest degradation threaten the source of living of the Raglei. Thus, promoting forest conservation, payment for forest ecosystem services, and zero-deforestation value chains would provide alternative options to significantly help improve their livelihoods (Ninh Thuan DOLISA, 2021).

Statistics reflected that although the living conditions of ethnic minorities groups in four provinces have improved significantly thanks to various poverty reductions efforts, the concentration of minorities among the

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[2] To be expanded during project design.
[3] https://thuvienphapluat.vn/van-ban/van-hoa-xa-hoi/Nghi-quyet-30a-2008-NQ-CP-chuong-trinh-ho-tro-giam-ngheo-nhanh-va-ben-vung-doi-voi-61-huyen-ngheo-83914.aspx

poor has nonetheless still persisted. Among the ethnic minorities, about 30% still lived below the poverty line and ~10 percent lived below the extreme poverty line in four provinces (Ninh Thuan DOLISA, 2021).

In view of livelihood strategies and employment patterns, there are also significant differences between poor majority and minority households. Poor minorities earn three-quarters of their total income from agriculture and allied activities, including wage employment in agriculture. In contrast, poor majority households earn about 40 percent from agriculture and allied activities and a much higher share from off-farm activities, both salaried non-farm employment and family enterprises. Forestry is important for minorities, but much less so for poor majorities, in large part reflecting differences in residential patterns (World Bank, 2013).

Ethnic minorities are neither a homogeneous group. Their poverty situation is also different from group to group. The World Bank (2013) disaggregated changes in living standards among four broad categories of ethnic groups that share certain cultural, geographic, and social similarities. Among these four categories, the Khmer and Cham have seen the largest increases in incomes and have the lowest overall poverty rates. From 1998 to 2008, poverty fell steadily for all groups except Central Highland minorities; however, there are some indications that progress is slowing. In 1998, minorities in the Central Highlands had the highest poverty and lowest expenditures, but by 2010, this distinction had passed to groups in the other Northern Uplands category, including the Hmong and Dao and many smaller ethnicities.

Thus, ethnic minority poverty presents a particular and persistent challenge for Viet Nam and in four provinces. The causes of persistent ethnic minority poverty have been researched in depth by various institutions including ADB (2003), DFID and UNDP (2003), World Bank (2009, 2013), IFAD (2019). In the context of four provinces, the causes and reasons can be summarized as follows:

- Ethnic minorities may have fewer physical assets – land, capital, credit – than Kinh. For example, while overall land holdings of minorities tend to be higher than Kinh, they tend to have less annual cropland and less wet rice or highly productive lands. They also tend to have larger households that are more likely to have young children (43 percent of ethnic minority households had a child below 6 years old, compared to 27 percent of Kinh) (WB, 2013).
- Ethnic minorities may have fewer social assets – education, health, access to social services – than Kinh. A study based on VHLSS data (2006) notes that living in a household with an illiterate head almost doubles an individual's chances of living in chronic food poverty. Data from the VHLSS show that minorities have worse health and report more illness than Kinh, and have significantly lower levels of education (23 percent of the household heads of ethnic minority households had no education compared to 6 percent of the Kinh heads of households) (WB, 2009).
- Ethnic minorities often are found in geographically remote areas, limiting their mobility and access to services and markets. Lack of physical mobility, caused by lack of access to roads and transportation, has been identified as a key factor in poverty. The expansion of road systems, electricity and schooling as a result of HEPR, P135, NTP-SPR investment in recent years has dramatically increased the number of ethnic households with access to these services, yet areas remain where roads, electricity, and schooling do not yet reach all villages and communes (WB, 2013).
- Ethnic minorities may not be benefiting from government poverty reduction programs as successfully as Kinh. This could be due to cultural factors such as lack of knowledge of the policies by minorities, their inability to read or hear about materials related to poverty programs due to language barriers, and a lack of poverty reduction cadres fluent in minority languages. There may also be cases of discrimination and power relations where minorities feel unable to access programs that are in place (ADB, 2003, IFAD, 2019).
- Ethnic minorities may possess other socio-cultural factors that are keeping them out of mainstream economic development. These may include such factors as language barriers; community levelling mechanisms that create social pressure against excess economic accumulation and cultural perceptions of social obligations and "shared poverty;" religious obligations that require economic expenditures; gender expectations grounded in different cultural models; and community ownership of land and assets (IFAD, 2019).

It is noted that there is no single factor that explains the difference in outcomes among ethnic minorities and Kinh, even among those who live in the same areas. Instead, differences in the above areas combine in a "vicious cycle" to influence ethnic minority livelihood outcomes and lead both directly and indirectly to persistent poverty (WB, 2013). The World Bank (2009) concluded that poverty reduction depends on comprehensive approaches to remove each of these pillars of disadvantage that minorities face.

If we summarize all of previous discussions on poverty of ethnic minorities, we see that these relate to the issues of assets, capacity, and voice. People may be poor if they lack endowments and assets, such as land, physical capital, and human capital (especially education). Similarly, people may also be poor because they have lower returns on the assets they do have. When minorities are not able to make their physical assets of land, labor and capital work for them, and when they suffer from lower levels of social capital, such as education and health, poverty is likely to result. World Bank (2009, 2013) grouped these issues into six specific sectoral "pillars" of disadvantage including lower levels of education; less mobility; less access to financial services; less productive lands; lower market access; and stereotyping and other cultural barriers.

Thus, there are substantial disadvantages for poor ethnic minorities compared to the majority. These require more efforts by the upcoming project to address these gaps.

Poverty is gender related. It was reflected in the documents provided by provinces that certain types of female-headed households are more vulnerable to poverty (divorced, separated or widowed women, particularly in rural areas) and this should be reflected in poverty reduction strategies.

Since poverty is measured in terms of households rather than individuals, it is difficult to disaggregate gender differences in poverty. Ethnic minority women often suffer more from the effects of poverty than do men, due to lack of decision-making power, lower education levels and fewer opportunities, making them the poorest of the poor. Due also to gendered social customs of many ethnic minority groups, in most groups men customarily control all assets including livestock and land-use certificates. Interestingly, however, there is a considerable difference in the incidence of poverty between male- and female-headed ethnic minority households: nearly 44 per cent of male-headed households were poor, while the poverty rate of the female-headed was only 33 per cent (UNDP, 2016b).

1.2.2. Implications for RECAF

Four project provinces record on economic growth and poverty reduction over the last decade has been remarkable. However, the task of poverty reduction has become more difficult. The remaining poor are harder to reach; they face difficult challenges— of isolation, limited assets, low levels of education, poor health status—and poverty reduction has become less responsive to economic growth. The rural and mountainous areas remain the poorest. Poverty is increasingly concentrated among ethnic minority groups with the smaller ethnic minority groups and those living in the northern and central mountains particularly affected.

Poverty reduction gains are fragile, with a significant portion of the population vulnerable to falling back into poverty. Sources of vulnerability include crop failure, induced by weather or climate shocks, insects or other pests; human disasters, including severe illness, death; and material crisis. In addition, many poor and near-poor households rely on informal sources of income, i.e. family farming, small household enterprises, and causal employment in the wage sector. Earnings in these sectors are typically variable and tend to be lower than in the formal sector. Small shocks can therefore relatively easily send households back into poverty (WB, 2017 b).

Significant economic and social gender gaps exist between women and men, and between ethnic minority women and Kinh women. Gender discrimination and stereotype are still popular, and prevent women from accessing many economic and social services.

Ethnic minority women have lower literacy rates and working knowledge of the Vietnamese language, higher maternal mortality ratios, and lower access to social and basic services, and are poorer than women from ethnic majority groups. Their opportunities for economic empowerment are also more limited: they often do not control productive assets and suffer from weak market skills and capacities for secure livelihoods. Many women from minority groups also do not benefit from or take advantage of existing legal protection.

As discussed earlier, the targeting approach of current poverty reduction policies and programmes, including IFAD projects, requires improvement. Currently, most policies and programs, such as programs for rural infrastructure and poverty funding, goes to poor communes and households in remote areas; while this will capture some minorities, it does not capture all, and these blanket geographical policies do not distinguish between ethnic groups that are more vulnerable and those that are doing relatively well. A discussion about the specific targeting needs of minorities is long overdue (WB, 2013). Potentially more vulnerable populations should be identified; minorities that are small in overall population size or small relative to neighbouring groups might need special

assistance, as might groups that are the least assimilated to Kinh majority culture (such as the Ede, Mnong, Giarai, Raglei). However, currently there are almost no ethnic-specific policies.

As the poor and ethnic minority mainly relied on agriculture for livelihood, diversifying employment opportunities for these groups is essential. While it may not be easy to map out good strategies to change the occupation for these groups, it is important that the government as well as the new project include some preferential programs/instruments that generate employment opportunities for these groups. For example, tax incentives or preferential loans/grants can be given to enterprises (PPP) employing more poor and ethnic minority people. Or special vocational training programs can be developed targeting also poor and ethnic minority people.

Provided documents have shown that educational achievements take an important part in reducing poverty, increasing cognitive skills and earnings. Furthermore, education also has strong intergenerational impacts on increasing educational accomplishments for future generations. There seems to be no overemphasizing the role of education in improving welfare and reducing the disparities between ethnic groups. Therefore, it is important to emphasize the importance of improving educational outcomes for the poor and ethnic minority groups in all development plans and activities.

Below are some suggestions areas for the upcoming project (RECAF) to consider in addressing the poverty:

•   Minorities need special policies, such as affirmative action programs, to make up for past and current deficiencies that have left them on an uneven playing field. Affirmative action and preferential policies can and should be expanded into new areas and made more effective for specific minority groups that are underrepresented and underserved. For example, there are currently no specific credit policies for ethnic minorities, only policies for poor people generally. Specific variable rates could be developed exclusively for ethnic minorities to try to reduce the disparities in loan availability and loan sizes that they experience. Finally, minorities need better legal recourse (including on legal education) for increased awareness of and as a means to better protect their rights. This could be addressed through the grievance redress system of the upcoming project by legal anti-discrimination statutes enshrined in a Law on Minorities with sanctions for those who discriminate, and the formation of government offices, ombudsmen or grievance boards focused on civil rights. (WB, 2009)

•   Support to agricultural transformation. Throughout the discussions, agriculture including crops, livestock, and forestry is a key sector for the provinces continued work to reduce poverty and ensure shared prosperity. Special attention should be paid to the agriculture and food sector, including support to the provision of public goods and improvements in the regulatory environment. Based on the successes of the value chain instruments in the past years, IFAD should engage with the public and private sectors—farmers and agribusinesses—to support agricultural transformation, focusing on sustainable and climate smart agricultural production; diversification and value addition; inclusive and competitive food value chains; food safety; and job creation within the food system. This should include:

        □   Remunerative climate smart value chain action planning.

        □   Establishment of public private partnership (PPP) platform that promote value chain linkage.

        □   Facilitation of access to value chain financing including PPP fund, CIG fund, micro credit (e.g. WDF), and loans from other financial institutions.

        □   Capacity building and technical assistance with a focus on climate smart agriculture (CSA), verification and traceability that meet the international markets.

        □   Policy advocacy and development for scaling up and institutionalisation of good practices.

•   Agricultural extension services. The current extension and support system for agriculture is based on top-down, lowland models of mono-crops of fruit or rice, with less attention given to the particular socio-economic factors, including if the crop can be sold or if it is suitable for local social or labour conditions. Overemphasis on mono-crops, high inputs of fertilizer and pesticides, and hybrid seeds are not a sustainable model for production in cash-poor areas too remote from markets or in communities with little ability to negotiate for higher prices or in order to process goods to add value. Besides more bottom-up extension services, assistance in agriculture could also be targeted to help

minorities reduce their dependence on outside traders. Such assistance should prioritize setting up community credit funds and capacity building in financial management to set up local organizations such as community marketing cooperatives. The extension service needs to focus on more culturally inclusive policies for minorities. Currently, the extension service is largely modelled on narrow and top-down assumptions about what ethnic minorities plan and what they need. A more market-oriented approach—in which the farmer gets to choose the seeds he/she wants, the training he/she wants, who provides the training, etc.—would induce competition and increase options for farmers. (WB, 2009, IFAD, 2015)

•	Access to financial services. As mentioned earlier, specific credit programs/policies are needed to target minorities as a special group. Currently very few credit policies specifically target ethnic minorities. Specific interest rates could be developed exclusively for ethnic minorities to try to reduce the disparities in loan availability and loan sizes. Average loan sizes could also be raised for ethnic minorities, particularly in areas with more commercial crops liked Dak Nong, Dak Lak, Lam Dong, which has high investment costs in cash-crop agriculture (e.g. coffee, pepper). Besides, apart from the WDF, RECAF project should also help facilitate ethnic minorities to access to more diverse options of credit. Only better-off ethnic households can usually obtain loans from the Bank for Agriculture and Rural Development and other commercial banks. For poor ethnic people in study areas, small loans from the Bank for Social Policy are the main source of credit. While this scheme is important, the limited loan sizes and small number of loans available per village mean many minorities are underserved in access to credit (WB, 2009, IFAD, 2012, 2015). Furthermore, regulations on private money lending and mortgaging should be developed to protect vulnerable communities. Landlessness and indebtedness are increasing trends among the ethnic minorities, especially in Central highlands, as moneylenders have increasingly taken over mortgages and others have become trapped in cycles of indebtedness from high interest rates. While it is difficult to regulate private trading in remote areas, the practice of charging nearly 100 percent interest when buying on credit, as was seen in some villages, needs to be addressed by local authorities.

•	Markets, Trading. The poor and the ethnic minorities suffer more from changing prices by season (due to a lack of information, limited capacity to negotiate price), and face difficulties in post-harvest preservation for crops such as coffee, pepper, maize. Without adequate preservation measures, many households are forced to sell products in the harvest seasons when prices are lowest, and to sell raw, unprocessed goods rather than value-added ones. This is a greater challenge than an issue arising from an absence of marketplaces (WB, 2013, IFAD, 2015). Over the past years, IFAD has done well at this aspect through implementation of CIF, CIG, and PPP tools. However, the outreach is still limited. More attention is suggested to agricultural and processing co-ops in minority villages to take advantage of community sentiment and commitment to build in stronger bargaining power in the market for minority producers. Besides, information access should be strengthened in minority areas. Full and regular provision of information about market price should be made through different channels: agricultural promotion staff, the mass media, service centers, etc, and be in languages minorities can understand. Market information is one aspect, but another that is often overlooked is the structure of the coffee value chain (the main crop on many Central Highlands areas) and this has implications for other crops as well. In the Vietnamese coffee sector, there are very few purchases direct purchases by processor-exporters from farmers. Circular 08/2013/TT-BCT issued by the Ministry of Industry and Trade, mandates that foreign-owned companies are not permitted to source directly from farmers but must instead buy through a registered local company (or cooperative). This has resulted in significant challenges to trace coffee beans to the farm level, and overall traceability in the sector. It has also restricted the ability of international buyers of coffee to invest in the value chain. Thus, international investments have been focussed largely on the company assets, not the supply chain they source from. Lack of traceability in the supply chain has restricted deforestation-free value chain development, which requires proving that coffee comes from areas that did not suffer recent deforestation. Collection of coffee usually occurs between October and January. Collection agents operate at the commune and township level. Formal contract arrangements are not very common in Robusta coffee value chains. Local collectors or aggregators are therefore very important actors in the chain, who collect coffee from farmers. Contract farming and other forms of regularised direct business relations between farmers and processing/exporting companies are rare. As a result, most deals are conducted between farmer and collector agent through mutual trust between parties. Agents are therefore typically local and have transportation facilities and warehouses spread throughout the area. The resultant high flexibility allows traders to purchase and transport agricultural products in remote areas with poor transport infrastructure. Depending on their scale, they may deal in one or a number of commodities, and that means in some areas, growers are

selling all their products to one trader. Additionally, agents are often responsible for providing smallholders with agricultural inputs, when and if required. Collection agents will sell to larger collection agents who in turn sell to international traders. For non-coffee crops, such as cashew, pepper and others, market information should be timed to provide farmers with information about key planting decisions early in the agricultural cycle in order to maximize crop yields. Finally, capacity and investment support for minority trading is needed since non-minorities currently dominate petty trading in minority areas. Minorities need assistance in developing trading and business relationships that take into account cultural factors, such as minorities' unwillingness to demand repayments or to deny requests for loans. Community-oriented shops—where trading is done for the benefit of the community rather than individuals— could present an important pilot to try in minority areas. Such shops could be set up with the assistance of mass organizations including the Farmers' Union, and could focus on providing needed inputs for production and buying outputs at reasonable prices, to enable minorities to break out of the cycle of buying on credit and paying in kind after harvest that now dominates in some minority areas.

•   Strengthen private sector and agri-business development. A stronger private sector is needed to effectively play its role in the economy as a provider of quality jobs, a contributor to economic growth and revenue, and an investor in infrastructure development, and to enhance provincial competitiveness. With 600,000 smallholder coffee farmers in the Central Highlands alone, the number of actors in the private sector is large. RECAF might consider to play a more active role in providing technical assistance to provinces to (i) strengthen the competitiveness of the private sector; (ii) enhance the integration of this sector into global/sustainable value chains; and (iii) improve the investment climate.

1.3 IFAD portfolio in Viet Nam

IFAD comparative advantages. IFAD has maintained a long and productive collaboration with Viet Nam through its support to the country's rural population and smallholder farming sector. Through its previous and ongoing operations, IFAD has consistently addressed rural livelihood development for the rural poor focusing its interventions on landless, women, youth, and ethnic minority groups, and incrementally supporting a market-oriented, climate informed, poverty reduction approach, described in the 2012-2017 COSOP (extended to 2019) and the 2019-2025 COSOP.

IFAD's comparative advantage is centered on supporting and encouraging innovation and experimentation with value chain development, small-scale infrastructure and financing, payment for ecosystem services (PES), market-oriented planning and public investment, land and forest land planning and allocation, private sector engagement, and climate smart agriculture. In addition, IFAD has also focused on strengthening grass-root community institutions with strong mainstreaming of social, climate and environmental issues so that investments in climate mitigation benefit poor rural households and the most vulnerable rural groups including ethnic minorities.

The experience of previous IFAD-funded project in the region (3EM project in Dak Nong and TNSP in Ninh Thuan province) introduced new and innovative instruments such as the climate-informed Social Economic Development Planning (SEDP), the climate resilient value chain action planning, the common interest group development mechanism, the private-public-producer partnerships (4P) approach, the last mile's climate resilient infrastructure, and the saving and credit groups (SCG), which will be all deployed as key building blocks in the formulation and implementation of RECAF.

Lessons learned from previous IFAD experience in Viet Nam. This section provides a summary of the lessons learned from previous IFAD's experience in the country in co-financing partnerships.

Capacity development of both implementers and beneficiaries through trainings and peer-to peer learning. Capacity development was required to assist government executing agencies (Provincial People's Committee, district, communes, village development board) implement new process such as value chain and climate sensitive planning, public-private partnership and co-financing instruments, REDD+, as well as to learn about climate change mitigation and adaptation, zero deforestation value chain, and targeting. Developing capacities of CIG and SCG and linking them to farmer and women unions was central to increase efficiency of agricultural production and household income of smallholders by linking them to value chain lead firms and supporting them to access rural finance.

Regular exchange between participating provinces and shared technical assistance and guidance development was also important to ensure peer learning and improve local capacities. IFAD regular

supervision missions were also considered instrumental in systematically reviewing progress and helping projects address challenges building on a wider portfolio of experiences in Viet Nam and beyond.

Strengthening implementation capacity in local government structure and mass organisations

Investing in development of local capacities is crucial for ownership, efficiency and sustainability of project interventions. In this case, implementation was mainstreamed in local government structure and mass organizations (women and farmers union) and this facilitated community ownership of the project and its sustainability. Early attention to exit strategy and post-project sustainability helped the project to strengthen such local implementation modality.

Multi-stakeholders partnerships are critical to ensure adoption of climate resilient technologies. Public private producer partnerships (4P) were crucial to ensure adoption of climate resilient practices but can benefit from even more systematic approach to ensure that innovations are fully relevant and adoptable by farmers.

- ❖ *effective joint coordination mechanism* which shall include both provincial management agencies, project districts and communes, but also research institutes, independent experts and the private sector in order to get breakthrough solutions and ensure higher applicability; This shall also help ensure that validated technologies are integrated into both SEDP and value chain action planning to facilitate convergence of resources to implement them;
- ❖ *stronger participation of farmer organizations in participatory research and extension* to ensure technologies are relevant to their constraints and needs. In addition, systematic consideration of cost-benefit, market potential and affordability shall be considered for different target farmers; Partnership with farmer union and women union is key to mobilize and support groups as well as to enhance farmer to farmer learning through trained lead farmers ; and
- ❖ *expanding financing options* beyond project window and WDF to also include commercial banks and leveraging potential value chain finance and capacities. Value chain partnership were shown to generate additional value for farmers and could also help co-finance farmers' investments and capacity development to adopt relevant climate resilient practices. However, in order to attract businesses to invest in the priority VCs, project need to facilitate inter-communal and inter-district collaborations to achieve sufficient scale for key value chain products.

Importance of non-financial support. Beside the financial support, other non-financial supports such as technical assistance, capacity building, land acquisition, farming contract management, etc. are also equally important. Such support shall both target lead enterprise but also groups linked to lead enterprise. In addition, vocational training helped target households get employed within 4P and can also help lead enterprise have qualified workforce. For the selected VCs, synchronous and adaptive infrastructure development is extremely important as it can contribute to reduce transaction cost to reach more remote areas (through road, bridge, market infrastructure etc.) as well as production risks thanks to adapted water infrastructure and salinity monitoring equipment. This requires a high level of commitment from the provincial, district, and commune authorities in integrating resources from different programs and projects. Further, support to integrated planning helped mobilize other local value chain programs, such as with the OCOP (One Commune One Product program) and organic/ VietGAP/ GlobalGAP certification that facilitated co-finance of CSA investments in VC partnership. Finally, efforts to increase market and demand for nutritious food, safety and green products can leverage value addition and facilitate environmental and climate smart agriculture adaptation and protect forest. For instance, in the Commodity-oriented Poverty Reduction Programme in Ha Giang Province (CPRP), the adoption of environmental practices such as VietGAP orange plantations, FSC forest plantation, natural tea plantation, honeybee rearing in forest, and cardamom farming under the forest cover are enhancing and protecting local forests, soils, and water. In mountain areas, about 178 products are certified with a cooperative trademark and 23 have been issued geographical tracking identification; as a result, values have increased by 20 to 50%[4].

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[4] FAO, 19, MOUNTAIN AGRICULTURE Opportunities for harnessing Zero Hunger in Asia

Dedicated efforts are required to ensure that public-private producerpartnership benefit the rural poor. Experience showed that value chain development might not be feasible in all communes targeted on poverty grounds. Therefore, the project had to give higher priority to key products that have both market potential and poverty reduction potential. For the poorest communes and villages without potential VCs, the project should give priority to support the poor HHs to diversify their livelihoods. In addition, vocational training helped target households get employed within 4P. Engaging poorer households with better-off households in groups and supporting their financial inclusion enabled them to improve their capacity and capital resources to carry out production and link with businesses.

Addressing climate resilience require an adaptive and inclusive approach that consider both climate variability, local mitigating capacities and farmers' socio-economic conditions. Not all promising farm innovations were replicable and adoption level depended on the farming zone & supporting infrastructure, technical and financial capacities of farmer HHs. To further improve scalability, the innovations need to match specific agro-ecological conditions (i.e. salinity levels & mitigation from infrastructure) but also suitability for targeted households, reviewing their affordability, market potential, and productivity potential.

As practices are often dis-adopted if yields are not higher in "normal" years, it is important to consider impacts of climate adapted practices in normal and bad conditions. In addition, it is crucial to develop in parallel quality climate advisory services and capacities of extension agents and lead farmers to use them to guide farmers on most relevant CSA models depending on climate and salinity forecasts. Also, it was seen Investment in participatory research and extension was crucial to build capacities of government extension agencies to identify and scale better adapted innovations.

Forest resources contribute remarkably to poverty reduction. Forest resources including timber and NTFPs, agroforestry practices, forest services (ecotourism, PES, REDD+), and related employment opportunities can support stable economic livelihoods for million people. Knowledge and practices at the interface of poverty alleviation and forest resources would be greatly served by more systematic collaboration and planning between and among the relevant ministries/sectors. Improved governance and allocation of user rights can help improve sustainable forest management. For instance, in Nepal, IFAD supported forestry lease rights to groups of poor households, which led both to improved income and improved forest management. Similarly, pilot actions in northern Viet Nam demonstrated added value of strengthened community actions and user rights[5].

Gender and youth. The convergence of multiple and complementary project activities to promote gender equality and women's empowerment has been an important factor in improving local gender roles and responsibilities. A strong partnership with the Women's Union (WU) was instrumental, especially in the WDF activities. Continued collaboration with the WU will enable a gender transformative approach across the Central Highland and Southern Coastal regions. Partnership with Farmer Union (FU) can also enhance engagement of youth. For instance, FU provides small loan packages from their own resources to encourage youth to develop business models and had over 90% success bringing best ones to commercial bank.

ODA policies and counterpart finance. During the last years, the country programmes of IFAD and other IFIs have experienced a number of challenges. Provision of ODA funding against the approved AWPB was released twice, at the beginning and the end of each fiscal year, and often the first tranche was not sufficient to cover the expenditures foreseen. In the case of IFAD-funded projects, project management units adapted quickly and adjusted their work plans and mobilised additional provincial government funds to pre-finance activities. A second major set-back was the change of ODA policies in 2019. Now, they require that less concessional loans such as the IFAD ordinary loan should be used for infrastructure investments only, while additional grant finance should be mobilised for soft investments such as capacity building and technical assistance. The scaling out of successful IFAD approaches, notably the matching grant mechanism and financial support to the Women Development Fund, require additional grant resources which are here planned to come from GCF.

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[5] Collective action to protect upland forests in Vietnam | EU REDD Facility (efi.int)

1.4 Opportunities with the GCF

GCF resources, combined with climate smart productive public infrastructure investments funded by IFAD, jointly create the opportunity to de-risk, incentivize and therefore leverage private sector financing from entrepreneurs, private sector entities, and financial institutions. This, in turn, would open doors to increased investments by international organizations and foster new partnerships, whose collective impact will be much larger than if they were operating separately. RECAF will influence the current national Payment for Forest Ecosystem Services (PFES) and collaborative forest management to extend successful approaches to additional provinces and to additional commercial production systems.

Chapter 2 - DEFORESTATION AND FOREST DEGRADATION HOTSPOT ANALYSIS

2.1 Introduction

The project's objective is to improve communities' livelihoods and adapt to climate change, while reducing GHG missions and enhance carbon. The project's district selection was based on a combined analysis of deforestation and forest degradation hotspots and poverty indices. This chapter provides that analysis.

The geographical area of the project lies in the Central Highlands and into the South Central region of Viet Nam, within the boundaries of Dak Lak, Dak Nong, Lam Dong, and Ninh Thuan province. These provinces represents approximately 2% of the national territory, 5% of the country's forests, yet is expected to lose 20% of its forest area from deforestation and forest degradation in the next 10 years under a business as usual scenario, representing 4% of the national deforestation and degradation. At the same time, these provinces accounted for 6% (about 800,000ha) of the degraded land and forests of Viet Nam in xx [year]. Taking a landscape approach, the project will address some of the most intact forests in Viet Nam, which are of global concern for biodiversity conservation. The project site is also home to many ethnic minority people and within the region with the lowest socio-economic conditions of the country. This is Viet Nam's final frontier for large-scale deforestation, which is being primarily fuelled by agriculture.

To support the project district selection, deforestation/ forest degradation hotspot areas were identified and the drivers of change analyzed. This chapter summarizes: (i) forest loss in the four provinces and its drivers; (ii) results of the selection of prioritized districts and communes for the project's interventions. Specifically, the chapter will answer the following questions:

    (1)   Where and how much were the forests lost/ gained?

    (2)   What are the drivers of forest loss?

    (3)   Which specific locations should the project's interventions focus on?

The analysis combines information from various data sets and criteria established during the virtual pre-design mission of May 2021 (i.e. before the province of Gia Lai joined the project).
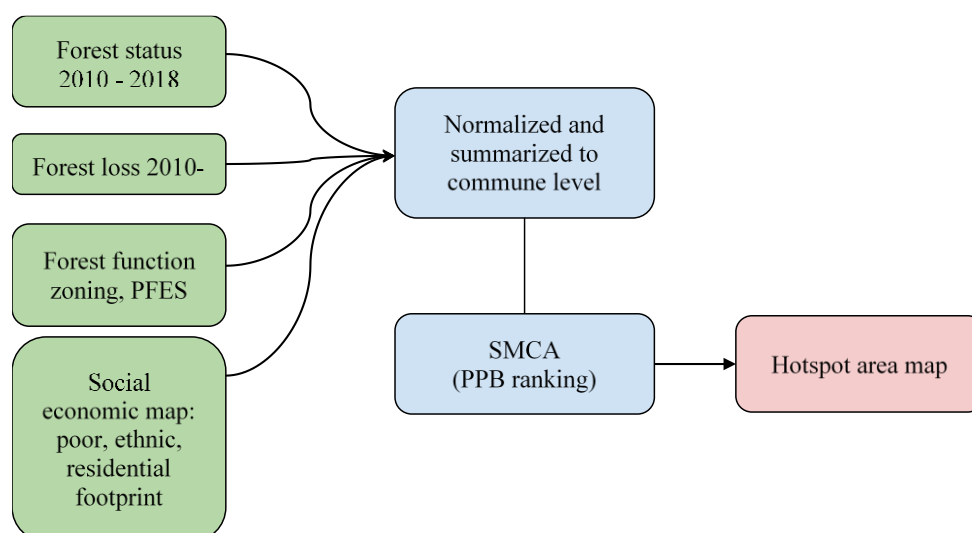

Figure 1: Framework for hotspot analysis

See working paper 1 on details on data sources, methodology of quantifying forest change and criteria for project site selection.

2.2. Forest changes between 2010 and 2018

2.2.1 Net change in forest area and cover between 2010 and 2018

At the provincial level

Forest area and cover

Lam Dong had the highest forest area of all four provinces (607,729 ha in 2010) and was closely followed by Dak Lak (578,310 ha), while Ninh Thuan had the lowest forest area (142,678 ha) (Table 1). Forest cover of Lam Dong was also highest (62%) and far greater than that of the three other provinces (42-45%).

After 8 years, forest area and cover of most provinces declined, except Ninh Thuan experienced a slight net increase in both forest area and cover (1,111 ha, 0.3%) (Table 1). The highest net forest loss occurred in Lam Dong (77,052 ha, 7.9%), followed by Dak Nong (54,242 ha, 8.3 ha). This large reduction bridged the gap of forest cover between Lam Dong and the other provinces. Due to this large forest loss, forest cover of Dak Nong became the lowest of all four provinces.

Table 1: Forest area and coverage in 2010 and 2018

Province	2010		2018		Net loss/ gain in area (ha)	Net loss/ gain in cover (%)
	Area (ha)	Cover (%)	Area (ha)	Cover (%)		
Forests						
Lam Dong	607,729	62	530,677	54.1	-77,052	-7.9
Dak Lak	578,310	44.3	534,866	41	-43,444	-3.3
Dak Nong	290,565	44.6	236,324	36.3	-54,242	-8.3
Ninh Thuan	142,678	42.3	143,789	42.6	1,111	0.3
Gia Lai	763,167	49.2	644,291	41.5	-118,876	-7.7
Total	2,382,449		2,089,947		-292,503	
Natural forests						
Lam Dong	560,271	57.1	442,698	45.1	-117,573	-12
Dak Lak	537,613	41.2	480,402	36.8	-57,211	-4.4
Dak Nong	263,994	40.5	191,821	29.4	-72,173	-11.1
Ninh Thuan	140,033	41.5	133,155	39.5	-6,878	-2
Gia Lai	654,488	42.2	559,730	36.1	-94,759	-6.1
Total	2,156,400		1,807,806		-348,594	

Natural forest area and cover

Most of forest area in the four provinces (91-98% of forest area in 2010 and 81-93% of those in 2018) were natural forests. In general, natural forest loss occurred at a far higher rate than those of forest loss (1.3-6.2 times) (Table 1). Similar to the cover of forests, cover of natural forests of Lam Dong was highest (57.1%) and far greater than that of the three other provinces (appx. 41%). After 8 years, natural forest cover of all provinces declined. Natural forest loss of Lam Dong was highest of all provinces (a net of 117,573 ha was lost, 12%), followed by Dak Nong (72,172 ha, 11.1%). Although natural forest in Dak Lak lost a net of 4.4%, it was equivalent to 57,211 ha. Natural forest of Ninh Thuan lost 2% over the last 8 years (6,878 ha).

At the district level

In Lam Dong province

Forest area and cover

Four districts including Lac Duong, Di Linh, Bao Lam and Dam Rong topped the province in terms of the forest area, ranging from 71,500-120,000 ha (Table 2). Bao Loc city had the lowest forest area (appx. 1500 ha), while the other districts had forest area ranging from 20,000 to 42,500 ha. Compared with other provinces, forest cover in most districts of Lam Dong was high. Nine of the 12 districts of Lam Dong had a forest cover > 50%.

After 8 years, many districts lost significant areas of forests. Five districts lost a net of more than 10,000 ha of forest including Da Teh (14,597 ha, equivalent to 37.7%), Di Linh (12,941 ha or 13.5%) and Dam Rong (10,834 ha or 15.2%), Duc Trong (10,741 ha or 25.3%) and Bao Lam (10,183 ha or 11.5%) (Table 2). Lam Ha and Bao Loc city also lost significant forest area (23.3% and 17.5%, respectively). The other districts mostly lost < 2,500 ha.

Table 2: Forest area and cover in Lam Dong in 2010 and 2018

District	Year 2010		Year 2018		Lost/gained area (ha)	Lost/gained area (%)
	Area (ha)	Cover (%)	Area (ha)	Cover (%)		
Forest						
Lạc Dương	116,146	88.5	113,589	86.6	-2,557	-2.2
Di Linh	96,065	59.3	83,124	51.3	-12,941	-13.5
Bảo Lâm	88,900	60.6	78,717	53.7	-10,183	-11.5
Đam Rông	71,425	82.5	60,590	70	-10,834	-15.2
Đức Trọng	42,435	46.8	31,693	34.9	-10,741	-25.3
Đạ Tẻh	38,689	73.3	24,092	45.6	-14,597	-37.7
Đơn Dương	37,681	61.4	35,787	58.3	-1,894	-5
Đạ Huoai	34,280	69.1	32,484	65.5	-1,796	-5.2
Lâm Hà	30,175	32	23,147	24.6	-7,028	-23.3
Cát Tiên	27,791	65	26,221	61.4	-1,570	-5.6
Tp. Đà Lạt	22,528	57.1	19,900	50.4	-2,627	-11.7
Tp. Bảo Lộc	1,616	6.9	1,333	5.7	-282	-17.5
Total	*607,729*		*530,677*		*-77,052*	*-12.7*
Natural forest						
Lạc Dương	111,031	84.6	105,651	80.5	-5,380	-4.8
Di Linh	87,793	54.2	70,969	43.8	-16,824	-19.2
Bảo Lâm	82,409	56.2	65,196	44.4	-17,213	-20.9
Đam Rông	69,693	80.5	51,903	59.9	-17,791	-25.5
Đức Trọng	34,871	38.4	18,812	20.7	-16,059	-46.1
Đạ Tẻh	37,336	70.7	17,802	33.7	-19,534	-52.3
Đơn Dương	34,248	55.8	30,523	49.7	-3,726	-10.9
Đạ Huoai	32,581	65.7	26,599	53.6	-5,982	-18.4
Lâm Hà	26,054	27.7	18,389	19.5	-7,666	-29.4
Cát Tiên	26,417	61.8	22,663	53	-3,754	-14.2
Tp. Đà Lạt	16,657	42.2	13,172	33.4	-3,485	-20.9
Tp. Bảo Lộc	1,180	5.1	1,020	4.4	-160	-13.5
Total	*560,271*		*442,698*		*-117,573*	*-21*

Natural forest area and cover

Most of the forest areas in the districts are natural forests. Similar to forest cover, four districts including Lac Duong, Di Linh, Bao Lam and Dam Rong topped the province in terms of natural forest area, while Bao Loc city had the lowest natural forest area (1,180 ha) (Table 2). In terms of natural forest cover, 8 out of 12 districts had a cover above 50% in 2010. Due to forest loss, this figure was reduced to 5 districts in 2018. Natural forest loss occurred at a far higher rate than those of total forest loss. Specifically, five districts in Lam Dong each lost 16,000-19,500 ha of natural forest after 8 years. The highest rate of natural forest occurred in Da Teh (19,500 ha or 52.3% its original area). This reduction moved Da Teh from the group of districts with highest natural forest areas to the group of districts with lowest natural forest areas.

Dak Nong province

Forest area and cover

Forest area in both 2010 and 2018 of Dak Glong was highest of all districts, and distantly followed by Tuy Duc and Cu Jut (Table 3). These three districts also topped the province in terms of forest cover (all >50%), while the other districts had a cover <40%. After 8 years, all districts experienced a net loss of forest with the highest loss occurred in Dak Glong (lost nearly 20,000 ha or 23.2% its area), Tuy Duc (10,402 ha or 17.5%), Dak Song (9,173 ha, 33.1%) and Krong No (7,592 ha, 23.7%). Other districts loss <3000 ha. Noticeably, Cu Jut ranked the second highest forest cover in 2010 and thanks to the insignificant loss (1,518 ha) compared to the other districts, Cu Jut topped the province in forest cover in 2018 (54%). Cu Jut was also the only district retained a forest cover >50% in 2018, while Gia Nghia lost 62% of its forest area in only 8 years.

Table 3: Forest area and cover in Dak Nong in 2010 and 2018

District	Year 2010		Year 2018		Lost/gained area (ha)	Lost/gained area (%)
	Area (ha)	Cover (%)	Area (ha)	Cover (%)		
Forest						
Đăk Glong	85,262	58.8	65,489	45.2	-19,773	-23.2
Tuy Đức	59,393	52.9	48,991	43.7	-10,402	-17.5
Cư Jút	40,469	56.1	38,951	54	-1,518	-3.8
Krông Nô	31,991	39.1	24,399	29.8	-7,592	-23.7
Đắk Song	27,688	34.4	18,516	23	-9,173	-33.1
Đăk Mil	22,002	32.3	21,028	30.8	-974	-4.4
Đắk R'Lấp	19,158	30.1	17,206	27.1	-1,952	-10.2
Gia Nghĩa	4,602	16.3	1,744	6.2	-2,859	-62.1
Total	*290,565*		*236,323*		*-54,242*	*-18.7*
Natural forest						
Đăk Glong	79,385	54.7	50,668	34.9	-28,717	-36.2
Tuy Đức	54,938	49	37,919	33.8	-17,019	-31
Cư Jút	38,161	52.9	36,290	50.3	-1,870	-4.9
Krông Nô	28,722	35.1	18,981	23.2	-9,741	-33.9
Đắk Song	24,926	31	15,434	19.2	-9,491	-38.1
Đăk Mil	20,038	29.4	19,326	28.3	-713	-3.6
Đắk R'Lấp	13,536	21.3	12,188	19.2	-1,348	-10
Gia Nghĩa	4,289	15.2	1,014	3.6	-3,275	-76.4
Total	*263,994*		*191,821*		*-72,172*	*-27.3*

Natural forest area and cover

The majority of forest area in all districts is natural forests. Similar to forest, natural forest area and cover of Dak Glong, Tuy Duc and Cu Jut were the tops of the province. After 8 years, the highest net loss of natural forest area was observed in Dak Glong (lost 28,717 ha, equivalent to 36.2% its original area), followed by Tuy Duc (17,019 ha, 31%) (Table 3). Krong No and Dak Song also lost nearly 10,000 ha of natural forest (34% and 38% its area, respectively), while the other districts lost < 4000 ha. Noticeably, natural forest area in Gia Nghia was lowest of all districts (4,298 ha in 2010), and the district lost 76.4% of its forest after 8 years, remaining only around 1000 ha of natural forest. In contrast, natural forest area in Cu Jut was high and the district lost a modest area (1,870 ha), making it the only district in the province with natural cover above 50% in 2018.

Dak Lak province

Forest area and cover

Ea Sup and Buon Don were tops of the province in terms of forest area (>100,000 ha) and forest cover. Lak, Krong Bong, M'Drak and Ea H'leo also had a high forest area and cover (Table 4). Seven out of

16 districts and cities had < 10,000 ha of forests and mainly below 10% forest cover (including Krong Nang, Krong A Na, Cu Kuin, Krong Buk, Buon Ho town, Buon Ma Thuot city and Krong Pac). Compared to Dak Nong and Lam Dong, district-level forest loss in Dak Lak was far lower (most districts lost <10,000 ha). Ea H'leo had the highest net forest loss (nearly 10,500 ha, equivalent to 18% of its area), followed by Ea Sup (8,259 ha, 7.5%). Three districts with a loss of nearly 5,000 ha of forest after 8 years were Lak, Krong Bong and Ea Kar. Most of the remaining districts lost <1,000 ha, yet in some districts, this small loss accounted for more than 20% of its forest area. Of the districts, only Krong Nang experienced a slight increase of 726 ha (9.1%).

Table 4: Forest area and cover in Dak Lak in 2010 and 2018

District	Year 2010		Year 2018		Lost/gained area (ha)	Lost/gained area (%)
	Area (ha)	Cover (%)	Area (ha)	Cover (%)		
Forest						
Ea Súp	109,449	61.9	101,190	57.3	-8,259	-7.5
Buôn Đôn	108,780	77.1	107,035	75.9	-1,745	-1.6
Lắk	86,506	68.7	81,364	64.7	-5,142	-5.9
Krông Bông	76,186	60.4	71,196	56.5	-4,990	-6.5
M'Đrắk	59,617	47.8	57,368	46	-2,249	-3.8
Ea H'leo	58,275	43.4	47,790	35.6	-10,485	-18
Ea Kar	36,390	35	31,496	30.3	-4,894	-13.4
Cư M'gar	19,432	23.6	16,219	19.7	-3,213	-16.5
Krông Năng	7,957	13	8,683	14.2	726	9.1
Krông A Na	4,563	12.8	3,380	9.5	-1,184	-25.9
Cư Kuin	2,485	8.6	1,898	6.6	-587	-23.6
Krông Búk	2,868	8	2,534	7.1	-334	-11.7
TX.Buôn Hồ	1,539	5.4	1,343	4.7	-196	-12.7
Tp. BMT	1,774	4.7	1,360	3.6	-415	-23.4
Krông Pắc	2,489	4	2,010	3.2	-478	-19.2
Total	*578,310*		*534,866*		*-43,444*	*-7.5*
Natural forest						
Ea Súp	109,403	61.9	97,164	55	-12,239	-11.2
Buôn Đôn	108,646	77	106,439	75.5	-2,208	-2
Lắk	82,619	65.7	75,160	59.7	-7,459	-9
Krông Bông	75,066	59.6	69,752	55.3	-5,315	-7.1
M'Đrắk	53,859	43.1	49,849	39.9	-4,011	-7.4
Ea H'leo	53,472	39.9	37,693	28.1	-15,779	-29.5
Ea Kar	33,733	32.5	28,392	27.3	-5,341	-15.8
Cư M'gar	11,200	13.6	8,048	9.8	-3,152	-28.1
Krông A Na	3,436	9.6	2,321	6.5	-1,115	-32.4
Krông Năng	5,497	9	5,349	8.7	-149	-2.7
Krông Pắc	559	0.9	125	0.2	-435	-77.7
Cư Kuin	22	0.1	50	0.2	27	122.4
Krông Búk	51	0.1	2	0	-49	-96
Tp. BMT	50	0.1	60	0.2	11	21.8
TX.Buôn Hồ	0	0	0	0	0	
Total	*537,613*		*480,402*		*-57,211*	*-10.6*

Natural forest area and coverage

In 2010, nearly 100% of forest area in Ea Sup and Buon Don districts were natural forest. Area and cover of natural forests in the districts showed a similar pattern with those of forests. Ea Sup and Buon Don topped the province in terms of natural forest area and cover (Table 4). In all districts, the loss of natural forests was higher than those of forests. After 8 years, the highest loss of natural forest in Dak Lak occurred in Ea H'leo (15,779 ha), followed by Ea Sup (12,239 ha). Due to the large reduction in area, cover of natural forests in Ea Sup reduced by 4%, while stayed almost unchanged in Buon Don.

Ninh Thuan province

Forest and natural forest area in Ninh Thuan showed two distinct patterns: districts with high and low forest area and coverage (Table 5). Specifically, Bac Ai topped the province with 61,795 ha of forest (60% cover), followed by Ninh Son with 40,693 ha (52.5%). Most other districts had less than 10,000 ha of forest with a forest cover of < 30%. After 8 years, Ninh Son experienced a highest loss of forest area (3,100 ha, 7.6% its area), followed by Ninh Phuoc (1,107 ha, 14.6% area). Three provinces experienced a slight increase of forest area including Thuan Nam, Thuan Bac and Ninh Hai, yet equivalent to significant proportion (13.5%-21.2%) of its original area in 2010.

Natural forest area in Ninh Thuan showed the same pattern with forest area. Bac Ai and Ninh Son had the highest natural forest areas of the province (Table 5). These two districts also experienced the highest loss of natural forests with a total of 5,172 ha in Ninh Son and 3,430 ha in Bac Ai. While forest area in Thuan Bac increased by 18.6%, its natural forest area decreased by 0.4%.

Table 5: Forest area and coverage in Ninh Thuan in 2010 and 2018

District	Year 2010		Year 2018		Lost/gained area (ha)	Lost/gained area (%)
	Area (ha)	Cover (%)	Area (ha)	Cover (%)		
Forest						
Bắc Ái	61,795	59.8	60,999	59	-797	-1.3
Ninh Sơn	40,693	52.5	37,593	48.5	-3,100	-7.6
Thuận Nam	16,264	28.7	19,709	34.8	3,445	21.2
Thuận Bắc	8,764	27.5	10,397	32.6	1,633	18.6
Ninh Phước	7,594	22.1	6,487	18.9	-1,107	-14.6
Ninh Hải	7,568	29.6	8,590	33.6	1,022	13.5
Tp. PR - TC	0	0	16	0.2	16	
Total	*142,678*		*143,789*		*1,111*	*0.8*
Natural forest						
Bắc Ái	61,536	59.6	58,106	56.2	-3,430	-5.6
Ninh Sơn	40,553	52.3	35,381	45.6	-5,172	-12.8
Thuận Nam	15,169	26.8	18,015	31.8	2,847	18.8
Thuận Bắc	8,165	25.6	8,133	25.5	-32	-0.4
Ninh Phước	7,180	20.9	6,015	17.5	-1,165	-16.2
Ninh Hải	7,432	29.1	7,505	29.4	74	1
Tp. PR - TC	0	0	0	0	0	
Total	*140,033*		*133,155*		*-6,878*	*-5*

Gia Lai province

Forest area in both 2010 and 2018 of KBang was highest of all districts, and distantly followed by Chu Prong, Krong Pa and Kong Chro. KBang also topped the province in terms of forest cover (69.3% and 64.7% in 2010 and 2018 respectively). After 8 years, almost all districts experienced a net loss of forest with the highest loss occurred in Mang Yang (16,650 ha or 14.8% of its area), Ia Grai (16,046 ha or 14.3%) and Dak Doa (15,285 ha or 15.5%). The highest percentual change occurred in Duc Co with a 17.8% reduction in total forest area in 8 years.

| District | Total Area of District (ha) | Forest | | | | | |
| | | Year 2010 | | Year 2018 | | | |
		Area (ha)	Cover (%)	Area (ha)	Cover (%)	Lost/gained area (ha)	Lost/gained area (%)
An Khê	19,975.1	2,783.9	13.9%	2,870.0	14.4%	86.1	0.4%
Ayun Pa	28,706.5	18,708.5	65.2%	16,088.8	56.0%	-2,619.7	-9.1%
Chư Prông	169,417.3	90,115.8	53.2%	82,869.1	48.9%	-7,246.7	-4.3%
Chư Păh	97,893.1	36,693.1	37.5%	31,936.6	32.6%	-4,756.5	-4.9%
Chư Pưh	71,832.9	28,454.5	39.6%	22,940.3	31.9%	-5,514.2	-7.7%
Chư Sê	64,387.3	23,335.4	36.2%	14,873.4	23.1%	-8,462.0	-13.1%
Ia Grai	111,939.2	39,887.3	35.6%	23,841.3	21.3%	-16,046.0	-14.3%
Ia Pa	86,695.2	57,605.3	66.4%	54,878.0	63.3%	-2,727.2	-3.1%
KBang	183,667.1	127,261.4	69.3%	118,902.2	64.7%	-8,359.3	-4.6%
Krông Pa	162,243.5	81,158.7	50.0%	78,325.7	48.3%	-2,833.0	-1.7%
Kông Chro	144,384.2	85,782.9	59.4%	73,376.3	50.8%	-12,406.5	-8.6%
Mang Yang	112,641.3	61,951.1	55.0%	45,301.1	40.2%	-16,650.0	-14.8%
Phú Thiện	50,454.2	18,194.6	36.1%	15,452.9	30.6%	-2,741.7	-5.4%
Thành phố Pleiku	26,103.7	1,378.0	5.3%	2,344.5	9.0%	966.4	3.7%
Đăk Pơ	50,324.7	20,002.2	39.7%	18,551.9	36.9%	-1,450.3	-2.9%
Đăk Đoa	98,562.0	40,711.9	41.3%	25,427.5	25.8%	-15,284.5	-15.5%
Đức Cơ	72,150.9	29,142.5	40.4%	16,311.5	22.6%	-12,831.0	-17.8%

| District | Total Area of District (ha) | Natural Forest | | | | | |
| | | Year 2010 | | Year 2018 | | | |
		Area (ha)	Cover (%)	Area (ha)	Cover (%)	Lost/gained area (ha)	Lost/gained area (%)
An Khê	19,975.1	768.5	3.8%	521.5	2.6%	-247.0	-1.2%
Ayun Pa	28,706.5	18,708.5	65.2%	15,816.3	55.1%	-2,892.1	-10.1%
Chư Prông	169,417.3	78,674.2	46.4%	69,603.9	41.1%	-9,070.3	-5.4%
Chư Păh	97,893.1	26,910.1	27.5%	23,964.3	24.5%	-2,945.9	-3.0%
Chư Pưh	71,832.9	26,556.6	37.0%	21,097.6	29.4%	-5,459.0	-7.6%
Chư Sê	64,387.3	11,502.4	17.9%	10,234.9	15.9%	-1,267.5	-2.0%
Ia Grai	111,939.2	22,914.4	20.5%	17,882.1	16.0%	-5,032.3	-4.5%
Ia Pa	86,695.2	57,392.5	66.2%	53,394.0	61.6%	-3,998.5	-4.6%
KBang	183,667.1	125,539.4	68.4%	116,260.8	63.3%	-9,278.7	-5.1%
Krông Pa	162,243.5	79,743.2	49.2%	74,310.8	45.8%	-5,432.5	-3.3%
Kông Chro	144,384.2	82,673.7	57.3%	68,270.8	47.3%	-14,402.9	-10.0%
Mang Yang	112,641.3	46,907.6	41.6%	34,534.7	30.7%	-12,372.9	-11.0%
Phú Thiện	50,454.2	18,187.1	36.0%	15,194.0	30.1%	-2,993.1	-5.9%
Thành phố Pleiku	26,103.7	59.6	0.2%	15.9	0.1%	-43.7	-0.2%
Đăk Pơ	50,324.7	15,235.0	30.3%	13,277.2	26.4%	-1,957.8	-3.9%
Đăk Đoa	98,562.0	30,354.1	30.8%	19,175.9	19.5%	-11,178.2	-11.3%
Đức Cơ	72,150.9	12,361.5	17.1%	6,175.2	8.6%	-6,186.3	-8.6%

Natural forest area in both 2010 and 2018 of KBang was highest of all districts by far, and distantly followed by Kong Chro, Krong Pa and Chu Prong. KBang also topped the province in terms of natural forest cover (68.4% and 63.3% in 2010 and 2018 respectively). After 8 years, almost all districts experienced a net loss of natural forest with the highest loss occurred in Kong Chro (14,403 ha or 10% reduction in natural forest area in 8 years), followed by Mang Yang (12,373 ha or 11%) and Dak Doa (11,178 ha or 11.3%).

2.2.2 Net change in forest types between 2010 and 2018

Analysis at the provincial level

In 2010, total forest areas of all five provinces was 2,379,049 ha (including 2,153,246 ha of natural forest and 225,803 ha of plantation, Table 6). The most dominant type of natural forests in the region was deciduous forest (537,345 ha, 22.6%), followed by medium evergreen broadleaved forest (380,813 ha, 16%). Other common natural forest types of the region include mixed wood-bamboo forest (187,475 ha, 8%), poor evergreen broadleaved forest (240,578 ha, 10.1%), rehabilitation evergreen broadleaved forest (337,538 ha, 14.2%) and coniferous forest (152,915 ha, 6.4%). Noticeably, the region remained

quite a large area of rich evergreen broadleaved forest (187,506 ha, 7.9% of natural forests) but also plantation area (225,803 ha, 9.5%).

Table 6: Forest types in the four provinces in 2010 and 2018

Forest type (code)	Forest type	Area in 2010 (ha)	Area in 2018 (ha)	Lost/gained area (ha)	Lost/gained area (%)
1	Rich evergreen broadleaved forest	187,505.5	143,755.0	-43,750.5	-23.3%
2	Medium evergreen broadleaved forest	380,813.3	373,473.5	-7,339.8	-1.9%
3	Poor evergreen broadleaved forest	240,577.6	166,740.3	-73,837.2	-30.7%
4	Rehabilitation evergreen broadleaved forest	337,538.0	268,349.1	-69,188.9	-20.5%
5	Deciduous forest	537,345.3	474,369.1	-62,976.1	-11.7%
6	Bamboo forest	90,368.9	25,188.5	-65,180.3	-72.1%
7	Mixed wood-bamboo forest	187,475.4	215,919.8	28,444.4	15.2%
8	Coniferous forest	152,914.5	111,682.5	-41,231.9	-27.0%
9	Mixed broadleaved-coniferous forest	35,347.5	19,213.1	-16,134.5	-45.6%
10	Mangrove forest	-	5.1	5.1	-
11	Forest on rocky mountain	3,359.6	6,425.7	3,066.0	91.3%
12	Plantation	225,803.4	281,735.0	55,931.6	24.8%
13	Rocky mountain without forest	16,017.6	5,296.8	-10,720.8	-66.9%
14	Bare land	377,272.1	270,146.5	-107,125.6	-28.4%
15	Water body	54,445.5	55,215.0	769.5	1.4%
16	Residential area	141,036.6	170,640.8	29,604.2	21.0%
17	Other land	1,851,043.5	2,230,708.2	379,664.7	20.5%
	Total	4,818,864.2	4,818,864.2		
	Area of natural forest loss			-351,194.9	
	Area of natural forest gain			3071.2	
	Area of plantation gain			55,931.6	
	Net of forest change			-292,192.1	

After 8 years, together all five provinces lost a net of 292,192 ha of forest (including a loss of 351,195 ha of natural forest, an increase of 3,071 ha of natural forest and an increase of 55,932 ha of plantation) (Table 6). The largest net loss was observed in poor evergreen broadleaved forests (73,837 ha or 30.7% of its original area), followed by rehabilitation evergreen broadleaved forest (69,189 ha or 20.5%) and bamboo forest (65,180 ha or 72.1%). Coniferous and deciduous forests, which are two typical forest types of the region also experienced a net loss of 41,232 ha (27%) and 62,976 ha (11.7%), respectively. Noticeably, rich evergreen broadleaved forests lost a net of 43,750 ha (23.3%) after 8 years and mixed broadleaved-coniferous forest decreased by 45.6% (16,135 ha). Medium evergreen broadleaved forest experienced the lowest loss of all forest types (7,340 ha, 1.9%). In contrast, mixed wood-bamboo forest increased a significant area of 28,444 ha (15.2%).

Analysis at the district level

Lam Dong

Total forest area of Lam Dong was the highest of all four provinces. The province has 10 different forest types with a total of 607,729 ha, including 47,457 ha plantations (in 2010) (Table 7). Coniferous and mixed wood-bamboo forest were the most common forest types in the province, accounting for 129,152 ha and 113,250 ha, respectively. Medium evergreen broadleaved forest and rehabilitation evergreen broadleaved forest accounted for around 80,000 ha each. The area of bamboo forest (66,795 ha) and the four above mentioned forest types in Lam Dong was largest and far higher than those of all other provinces. Rich evergreen broadleaved forest in Lam Dong was small compared to the other natural forest types of the province (only accounted for 5% of the natural forest area).

Table 7: Forest types in Lam Dong in 2010 and 2018

Forest type (code)	Forest type (Full name)	Area in 2010 (ha)	Area in 2018 (ha)	Lost/ gained area (ha)	Lost/ gained area (%)
8	Coniferous forest	129,152.2	93,041.6	-36,110.6	-28
7	Mixed wood-bamboo forest	113,250.1	143,177.7	29,927.6	26.4
2	Medium evergreen broadleaved forest	80,842.7	81,488.6	645.9	0.8
4	Rehabilitation evergreen broadleaved forest	80,158.1	54,427.5	-25,730.6	-32.1
6	Bamboo forest	66,795.9	15,147.4	-51,648.5	-77.3
1	Rich evergreen broadleaved forest	28,272.3	24,496.9	-3,775.4	-13.4
9	Mixed broadleaved-coniferous forest	26,512.6	10,133.0	-16,379.6	-61.8
5	Deciduous forest	20,965.4	10,826.7	-10,138.7	-48.4
3	Poor evergreen broadleaved forest	14,322.1	9,958.6	-4,363.5	-30.5
10	Mangrove forest				
11	Forest on rocky mountain				
12	Plantation forest	47,457.3	87,978.8	40,521.5	85.4
	Total area of forest types	*607,728.7*	*530,676.8*		
	Net loss of natural forest			*-148,146.9*	
	Net gain of natural forest			*30,573.5*	
	Net gain of plantation gain			*40,521.5*	
	Net change of forest			*-77,051.9*	

After 8 years, Lam Dong experienced the highest net loss of natural forest area (-148,146 ha) of all provinces (Table 7). Together the natural forest lost and gained and the plantation gained, the province lost a net of 77,052 ha of forests over 8 years. Noticeably, the province lost an impressive area of bamboo (51,648 ha or 77.3% of its original area). Lam Dong is the central of coniferous forest in the Central Highlands and perhaps in Viet Nam and this was the most common forest type in 2010, yet after 8 years, the province lost 36,111 ha or 28% of its coniferous forest. The large net loss downgrade coniferous forest to the second most common forest type of the province in 2018, instead of the first position.

In terms of percentage, mixed broadleaved-coniferous lost 61.8% of its area (16,379 ha), while plantation forest of Lam Dong increased 85.4% (40,521 ha). Mixed wood-bamboo forest was the only natural forest type with a net increase of 29,928 ha (26.4%). Figure 2 features forest types of Lam Dong province in 2010 and 2018.
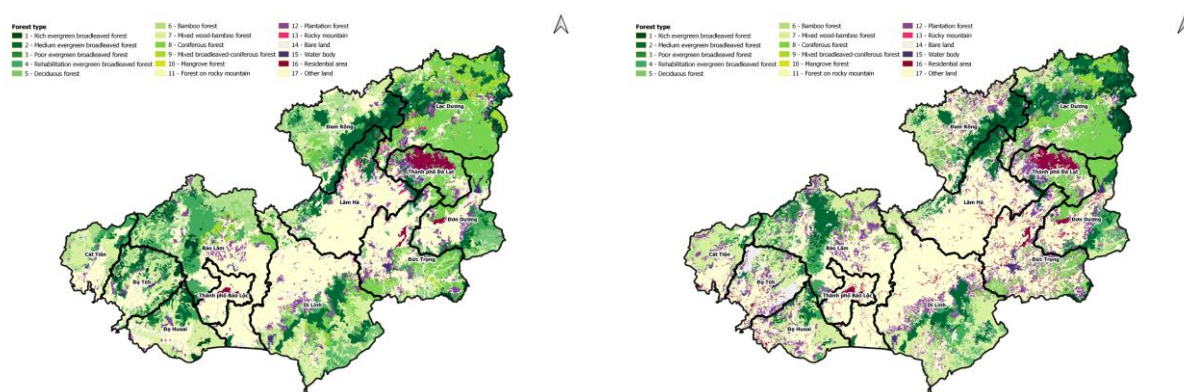

Figure 2: Forest types in 2010 (left) and in 2018 (right) of Lam Dong

Dak Nong province

Dak Nong also had 10 different forest types with five of them (mixed wood-bamboo forest, medium evergreen broadleaved forest, deciduous forest, poor evergreen broadleaved forest and plantation) accounted for the majority of forest area of the province (Table 8). The most common forest type of the

province was poor evergreen broadleaved forest (76,456 ha), while area of rich evergreen broadleaved forest was quite low (19,121 ha, around 7% of natural forest area).

After 8 years these two poor and rich evergreen broadleaved forest types both lost 46% of its area. Other forest types lost large areas including mixed wood-bamboo forest (13,416 ha, 25.2%), bamboo forest (10,854 ha, 69.2%). Dak Nong was the only province that experienced the loss of mixed wood-bamboo forest. Rehabilitation evergreen broadleaved forest and deciduous forest were the only two natural forest types with a net increase after 8 years (but insignificant). Plantation areas increased significantly (nearly 18,000 ha, 67.5%). In total, Dak Nong lost a net of 73,743 ha of natural forests. Together with the gained area, the province lost a net of 54,242 ha of forests after 8 years. Figure 3 features forest types of Dak Nong province in 2010 and 2018.

Table 8: Forest types in Dak Nong in 2010 and 2018

Forest type (code)	Forest type (Full name)	Area in 2010 (ha)	Area in 2018 (ha)	Lost/ gained area (ha)	Lost/ gained area (%)	
8	Coniferous forest	2,168.6	1,856.0	-312.6		-14.4
7	Mixed wood-bamboo forest	53,285.3	39,869.3	-13,416.0		-25.2
2	Medium evergreen broadleaved forest	47,099.8	41,591.9	-5,507.9		-11.7
4	Rehabilitation evergreen broadleaved forest	15,978.0	17,548.3	1,570.3		9.8
6	Bamboo forest	15,674.4	4,820.9	-10,853.5		-69.2
1	Rich evergreen broadleaved forest	19,121.5	10,188.1	-8,933.4		-46.7
9	Mixed broadleaved-coniferous forest	177.1	108.2	-68.9		-38.9
5	Deciduous forest	34,032.9	34,386.7	353.8		1
3	Poor evergreen broadleaved forest	76,456.1	41,451.8	-35,004.3		-45.8
10	Mangrove forest					
11	Forest on rocky mountain					
12	Plantation forest	26,571.9	44,502.4	17,930.5		67.5
	Total	290,565.6	236,323.6			
	Net loss of natural forest			*-73,742.8*		
	Net gain of natural forest			*1,570.3*		
	Net gain of plantation gain			*17,930.5*		
	Net change of forest			*-54,242.0*		
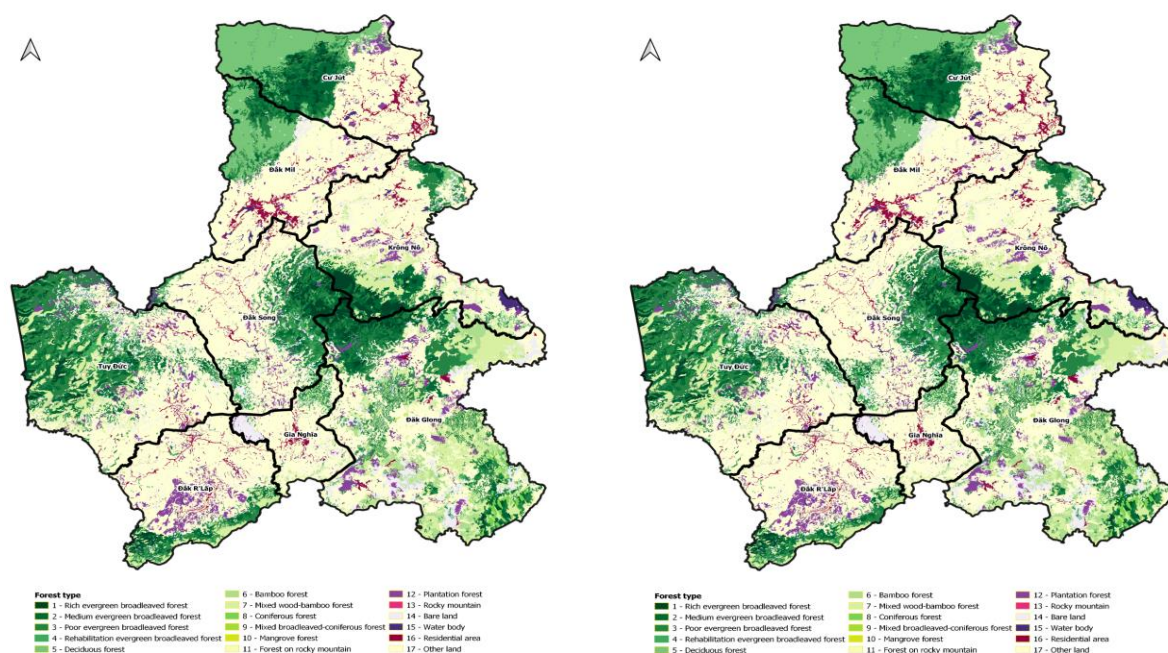
Dak Lak province

In 2010, Dak Lak had the second largest forest area of all provinces, with a total of 578,310 ha (including 40,696 ha of plantations) of 10 different forest types (Table 9). Deciduous forest was the most common forest type (228,702 ha) of Dak Lak. Noticeably, Dak Lak had the largest area and proportion of rich evergreen broadleaved forest of all four provinces (89,114 ha, 16.6%) and the area of medium evergreen broadleaved forest in the province was also high (69,938 ha). Poor and rehabilitation evergreen broadleaved forest were common forest types of the province.

Table 9: Forest types in Dak Lak in 2010 and 2018

Forest type (code)	Forest type (Full name)	Area in 2010 (ha)	Area in 2018 (ha)	Lost/ gained area (ha)	Lost/ gained area (%)
8	Coniferous forest	12,988.3	10,994.6	-1,993.7	-15.3
7	Mixed wood-bamboo forest	15,393.5	21,281.8	5,888.3	38.3
2	Medium evergreen broadleaved forest	69,938.1	62,983.5	-6,954.6	-9.9
4	Rehabilitation evergreen broadleaved forest	42,490.3	40,157.3	-2,333.0	-5.5
6	Bamboo forest	7,309.6	4,264.5	-3,045.1	-41.7
1	Rich evergreen broadleaved forest	89,114.6	73,885.1	-15,229.5	-17.1
9	Mixed broadleaved-coniferous forest	142.0	118.9	-23.1	-16.3
5	Deciduous forest	228,702.5	212,881.1	-15,821.4	-6.9
3	Poor evergreen broadleaved forest	71,534.5	53,835.3	-17,699.2	-24.7
10	Mangrove forest				
11	Forest on rocky mountain				
12	Plantation forest	40,696.6	54,464.4	13,767.8	33.8
	Total	*578,310.0*	*534,866.5*		
	Net loss of natural forest			*-63,099.6*	
	Net gain of natural forest			*5,888.3*	
	Net gain of plantation gain			*13,767.8*	
	Net change of forest			*-43,443.5*	

After 8 years, the province lost a total of 63,100 ha of natural forest. Together with natural forest and plantation gained, the province lost a net of 43,444 ha of forest. The highest forest loss was observed in poor evergreen broadleaved forest (17,699 ha, 24.7% of its original area), closely followed by deciduous (15,821 ha or 6.9%) and rich evergreen broadleaved forest (15,229 ha or 17.1%). Noticeably, bamboo forest of the province lost a net of 41.7% its area (3,045 ha) after 8 years. Mixed wood-bamboo forest was the only natural forest type with a significant net increase in area of 5,888 ha (38.3%). Plantation area of the province also increased significantly (13,768 ha or 33.8%). Figure 4 features forest types of Dak Lak province in 2010 and 2018.
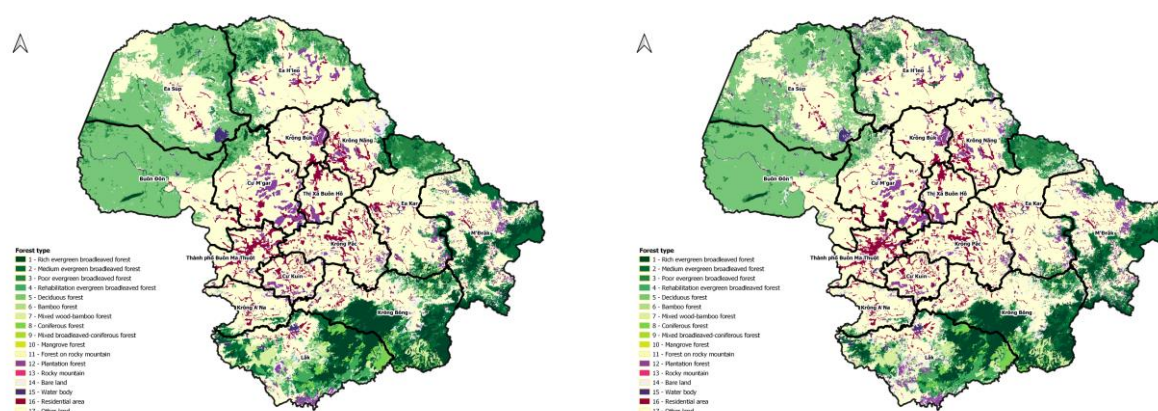

Figure 4: Forest types in 2010 (left) and in 2018 (right) of Dak Lak

Ninh Thuan

Ninh Thuan had the lowest forest area of all provinces (142,678 ha, including 2,645 ha of plantation) (Table 10). This is the only of all provinces with all 11 natural forest types. Similar to Dak Lak province, deciduous forest was the most common type (51,090 ha) and this well surpassed the area of the other forest types. Rehabilitation and poor evergreen broadleaved forest were also common forest types, accounting for 34,721 ha and 20,204 ha, respectively. However, the area of rich evergreen broadleaved forest (484 ha) and bamboo forest (97 ha) in Ninh Thuan were negligible.

Table 10: Forest types in Ninh Thuan in 2010 and 2018

Forest type (code)	Forest type (Full name)	Area in 2010 (ha)	Area in 2018 (ha)	Lost/ gained area (ha)	Lost/ gained area (%)
8	Coniferous forest	9,015.1	6,097.5	-2,917.6	-32.4
7	Mixed wood-bamboo forest	5,825.7	11,939.7	6,114.0	104.9
2	Medium evergreen broadleaved forest	6,608.1	8,762.8	2,154.7	32.6
4	Rehabilitation evergreen broadleaved forest	34,721.5	31,959.9	-2,761.6	-8
6	Bamboo forest	96.9	720.7	623.8	643.8
1	Rich evergreen broadleaved forest	483.6	493.9	10.3	2.1
9	Mixed broadleaved-coniferous forest	8,615.1	8,909.0	293.9	3.4
5	Deciduous forest	51,090.6	40,222.7	-10,867.9	-21.3
3	Poor evergreen broadleaved forest	20,204.0	17,593.5	-2,610.5	-12.9
10	Mangrove forest	0.0	5.2	5.2	
11	Forest on rocky mountain	3,372.3	6,450.3	3,078.0	91.3
12	Plantation forest	2,645.2	10,634.3	7,989.1	302
	Total	*142,678.1*	*143,789.5*		
	Net loss of natural forest			-19,157.6	
	Net gain of natural forest			12,279.9	
	Net gain of plantation gain			7,989.1	
	Net change of forest			1,111.4	

After 8 years, the province lost 19,158 ha of natural forest (Table 10). However, the large increase of three other types of natural forests and plantations resulted in a net increase by 1111 ha of forest in the province. Of the forest types, deciduous forest lost the most (-10,867 ha or 21.3%). Three other forest types lost nearly 3000 ha each including coniferous forest, rehabilitation and poor evergreen broadleaved forest. The other remaining types of the province experienced an increase in area. Noticeably, plantation experienced the highest increase (7,989 ha or 302% of its original area), followed by mixed wood-bamboo forest (6,114 ha or 104.9%), forest on rocky mountain (3,078 ha or 91.3%) and medium evergreen broadleaved forest (2,155 ha or 32.6%). The other types increased less than 1000 ha each. Although bamboo forest increased by only 624 ha, this was equivalent to 644% of its areas. Figure 5 features forest types of Ninh Thuan in 2010 and 2018.
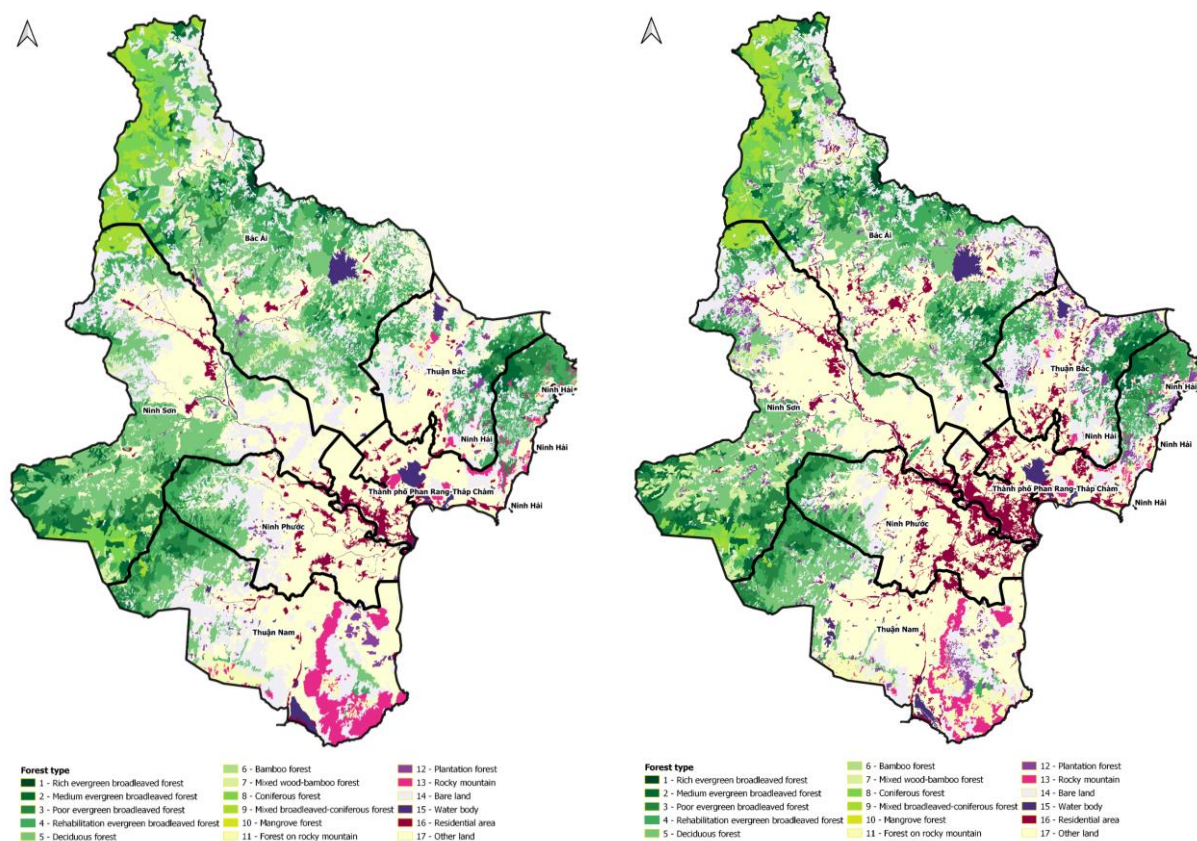
Figure 5: Forest types in 2010 (left) and in 2018 (right) of Ninh Thuan

Gia Lai province

Gia Lai had the largest forest area of all provinces in 2010 (763,167 ha, including 108,679 ha of plantation). It is also the province with the largest area of plantations. Similar to Dak Lak province, deciduous forest was the most common type (203,164 ha) and this well surpassed the area of the other forest types. Rehabilitation and medium evergreen broadleaved forest were also common forest types, accounting for 164,594 ha and 176,778 ha, respectively.

Table 11 Forest types in Gia Lai in 2010 and 2018

		Year 2010		Year 2018		Lost/gained area (ha)	Lost/gained area (%)
		Area (ha)	Cover (% Gia Lai province)	Area (ha)	Cover (% Gia Lai province)		
1	Rich evergreen broadleaved forest	50,855.5	3.3%	34,981.0	2.3%	-15,874.6	-31.2%
2	Medium evergreen broadleaved forest	176,777.5	11.4%	179,088.8	11.5%	2,311.3	1.3%
3	Poor evergreen broadleaved forest	58,412.9	3.8%	44,156.9	2.8%	-14,256.0	-24.4%
4	Rehabilitation evergreen broadleaved forest	164,594.7	10.6%	124,608.1	8.0%	-39,986.6	-24.3%
5	Deciduous forest	203,164.4	13.1%	176,572.6	11.4%	-26,591.7	-13.1%
6	Bamboo forest	641.1	0.0%	279.1	0.0%	-362.0	-56.5%
7	Mixed wood-bamboo forest	42.2	0.0%	43.1	0.0%	0.9	2.2%
8	Coniferous forest	-	0.0%	-	0.0%	0.0	
9	Mixed broadleaved-coniferous forest	0.2	0.0%	-	0.0%	-0.2	
10	Mangrove forest	-	0.0%	-	0.0%	0.0	
11	Forest on rocky mountain	-	0.0%	-	0.0%	0.0	
12	Plantation	108,678.6	7.0%	84,561.3	5.5%	-24,117.3	-22.2%
13	Rocky mountain without forest	191.4	0.0%	81.2	0.0%	-110.2	-57.6%
14	Bare land	205,113.9	13.2%	118,431.8	7.6%	-86,682.1	-42.3%
15	Water body	17,693.4	1.1%	14,858.4	1.0%	-2,835.0	-16.0%
16	Residential area	56,206.6	3.6%	59,532.0	3.8%	3,325.3	5.9%
17	Other land	509,801.4	32.9%	714,979.5	46.1%	205,178.1	40.2%
	Total natural forest	654,488.5	42.2%	559,729.7	36.1%	-94,758.8	-6.1%
	Total plantation forest	108,678.6	7.0%	84,561.3	5.5%	-24,117.3	-1.6%
	Total forest	763,167.1	49.2%	644,291.0	41.5%	-118,876.1	-7.7%
	Total non-forest	789,006.8	50.9%	907,882.9	58.5%	118,876.1	7.7%

After 8 years, the province lost 94,759 ha of natural forest. Of the forest types, rehabilitation evergreen broadleaved forest lost the most (39,986 ha or 24.3%), followed by deciduous forest (26,592 ha or 13.1%) and rich evergreen broadleaved forest (15,875 ha or 31%). It is also noticeable the 56.5% reduction in the area of bamboo forest (362 ha).

2.3 Drivers of forest loss

Direct drivers of deforestation and forest degradation: Data used to construct the reference level (FRL) for REDD+ implementation found that pressures on land and forests in the Central Highlands are greater than in other regions of the country. Forest cover change (between 1976-2015) in the Central Highlands decreased from 67% to 47%, and the natural forest area decreased by about 32%. Between 2005 – 2015, it is estimated that the loss of natural forests was 582,657 ha (IPSARD, 2015; General Statistics Office, 2017). The FRL showed that about 2.4 million ha of forests in the Central Highlands was degraded over the period 2005-2010 (MARD 2016b).

The largest driver of deforestation, and thus conversion of forest to other uses between the years 2005–2015 was commercial agriculture. Primary direct drivers and corresponding underlying drivers were assessed for the development of the National REDD+ Action Plan. The largest direct driver was rubber, closely followed by coffee. Between 2005 and 2015, rubber area increased by over 172,308 ha (a 198% increase), coffee area increased by 106,000 ha (a 29% increase), cassava area reached 157,292 ha and pepper planting area increased by 52,000 ha (106% increase) (General Statistic Office of Viet Nam, 2017). Coffee expansion was highest between 1990 and 2000, when 500,000 ha was converted across the Central Highlands, and in the five year period between 1995 and 2000, Lam Dong Province saw coffee area increase by 77%. Cassava is a crop that quickly depletes soil nutrients (MARD, 2017). and is a transition crop. The establishment of forest plantations also drove conversion of forests for the

international woodchip market after 1995, but this has slowed, and more recent policies favour native tree species and long-term rotation plantations for saw-log production.

Table 1: Change of key land uses in Central Highlands (2005-2015)

Land uses	2005	2010	2015	Change 2005-2015 (ha)
Total forests	2,973,076	2,874,400	2,562,000	-411,076
Natural forests	2,828,657	2,653,900	2,246,000	-582,657
Plantations	144,420	220,500	315,900	171,480
Rubber	86,892	183,090	259,200	172,308
Coffee	449,400	485,600	532,500	83,100

Source: IPSARD, 2015.

Underlying drivers: Working behind the direct drivers of natural forest loss are the underlying drivers, which are often harder to identify and quantify, but which must be addressed in any effort to reduce pressures on forests. McNally et al (2016) prepared a key report for Viet Nam's National REDD+ Action Plan, which identified key underlying drivers as: a) high poverty rates in the forest dwelling communities, and a lack of access to land and forests, especially in the Central Highlands where much of the forest remains under the management of State Forest Management Units and Commune Peoples Committees; b) unclear or weak rights to land and forests, and a lack of alternative income opportunities for local people; c) prioritisation of economic growth over forest protection. Such cases result in forest being lost legally (such as planned loss due to hydropower development), and illegally (such as illegal expansion of agriculture into forested areas); d) current agronomic practices are generally of poor quality and therefore yield increases often come at the expense of forests; e) inadequate implementation of national policies to promote sustainable development at the provincial level remains an underlying cause, particularly in the more remote regions (McNally et al, 2016).

Another observed underlying driver is the perception of abundant land resources in the Central Highlands, compared to other regions. It is known for its agricultural suitability for cash crops such as rubber, coffee, and vegetables. As a result, the region has attracted large investments in cash crop development, combined with high levels of in-migration which have exacerbated pressures on land and forest resources.

The increasing impact of climate change on agricultural production can also be viewed as a growing underlying driver of land use change. The Global Climate Risk Index 2018 ranked Viet Nam as the 5th most affected country by extreme weather events in 2016, and the 8th most affected between 1997 and 2016 (Eckstein et al, 2018). The Central Highlands are drier than other regions, thus risks to agriculture due to climate change are notable (Government of Viet Nam, 2016). Unsustainable farming practices risk future production, particularly in the winter months when rainfall is expected to decrease (ibid) contributing to over exploitation of surface and ground water, with possible economic consequences, if not well managed. Climate models project that droughts may last longer in the Central Highlands, with a shift towards wetter rainy season and longer dry season.

Another key underlying driver is the declining yields and economic strain on local farmers. The region, where agricultural commodities grown include rubber, coffee, cassava, is also of strategic importance for national economic growth, political stability, security and environmental protection as well for regions downstream: the South-East Central Coast, South-East and the Mekong Delta. A major threat to the forest is ageing coffee and the need for replanting, which may encourage farmers and companies to expand into new areas, rather than clearing currently unproductive plantations. There is a gradual shift

to more sustainable agricultural production, but it is necessary to actively engage with and incentivise agricultural producers, processors and buyers to support them in accelerating the transition towards sustainable and deforestation-free production. Meeting sustainable production will be challenging for the poorest households, which include those closer to the forest fringes. It is exactly these groups who have the least means and who are forced into forested areas to increase production. Many of the smallholders are facing low and/or declining yields and quality of their products due to a variety of agronomic and institutional factors that result in lower incomes. Farmers require better training on agronomical practices than currently is provided (presently there are gaps in the provision of extension services and weaknesses in the services themselves) as well as help in farmer group formation in order to provide them more bargaining power along the value chain. Importantly, they also lack access to finance on terms that would enable them to transition to sustainable and deforestation-free production.

2.3.1 Conversion of natural forests to plantation and other non-forest type

Analysis of changes in forest types at the provincial level

Lam Dong

After 8 years, Lam Dong experienced large changes in most forest types. These changes include the shift of one to another forest types and the conversion from natural forest to other land uses (details in Annex 1). After 8 years, four natural forest types experienced >50% change in its area include bamboo forest, mixed broadleaved-coniferous, deciduous forest and rehabilitation evergreen broadleaved forest (Figure 6).

For example, after 8 years, only 14% of bamboo forest area remains unchanged, 50% of its area was shifted to other forest categories in 2010 and another 13.9% and 23% was converted to plantation and non-forest types, respectively. Conversion of natural forest to plantation and non-forest types resulted in the loss of 10-37% of all forest types in Lam Dong. The largest forest conversion in Lam Dong was observed in the following forest types:

- From bamboo forest to plantation (13.9%) and non-forest types (23%)
- From poor evergreen broadleaved forest to plantation (11%) and non-forest types (21.1%)
- From deciduous forest to plantation (8.8%) and non-forest types (20.3%).

Noticeably, Lam Dong also lost 10.7% of its rich evergreen broadleaved forest due to conversion to plantations and non-forest types.
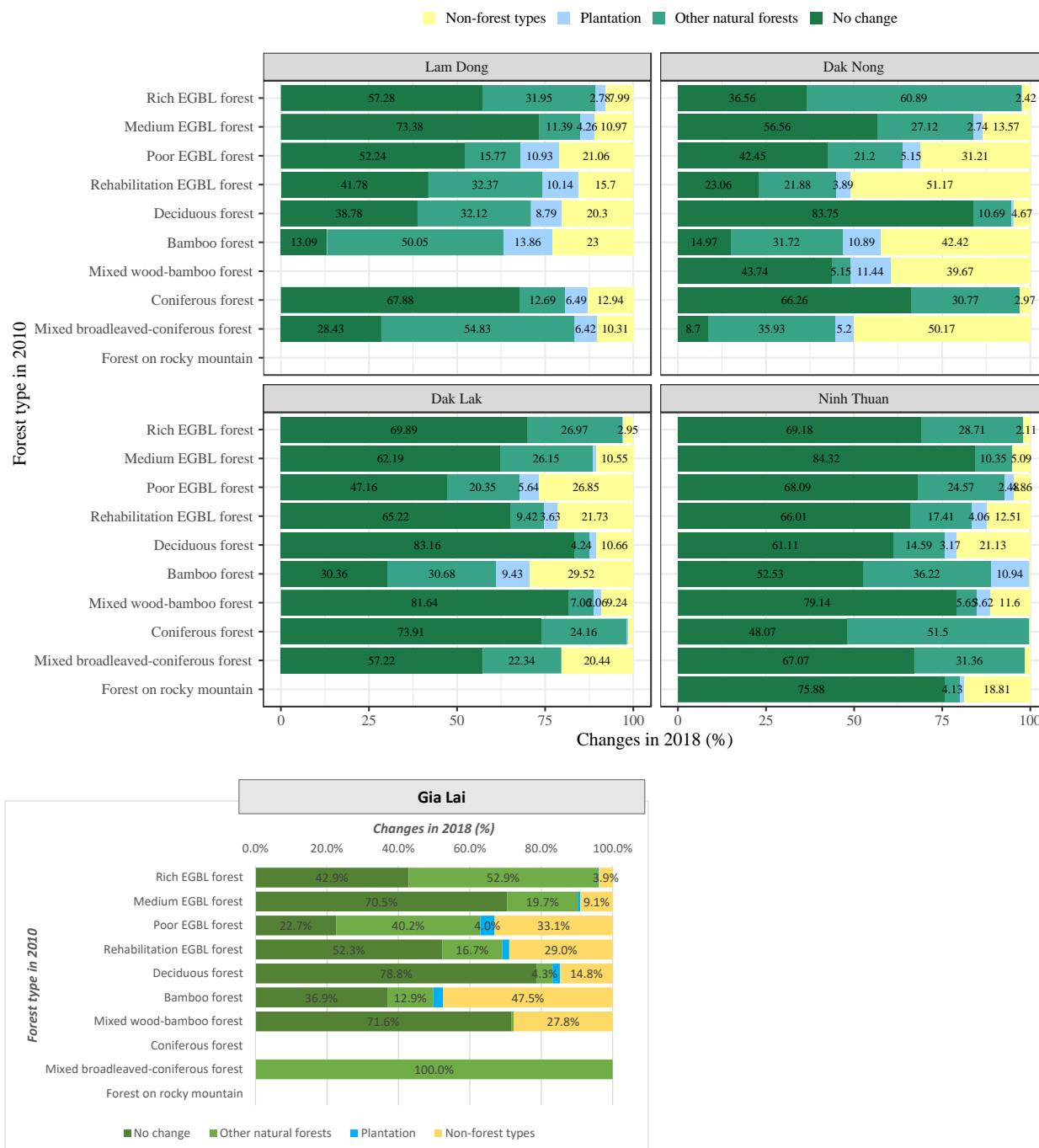
Figure 6: Forest conversion of the five provinces between 2010 and 2018

Direct drivers in Lam Dong and relationship to underlying drivers (1990-2010)

The USAID Leaf (2013) assessment found significant differences between the five-year periods assessed. These are summarized as follows:

1990 - 1995 – Food shortages existed during this time, and the government encouraged the expansion of agricultural land to meet food security needs. Lam Dong Province, in particular, faced

food shortages. Due to a lack of land for rice cultivation, people relied on slash and burn farming methods on steep areas. Yields were low, and forests were impacted.

1995 – 2000 – According to LEAF survey results at the commune level, intense pressure was caused by soaring coffee prices and population growth, mostly driven by free migration due to loose management by local government authorities. Most of the area deforested was eventually replaced by perennial crops such as coffee, cashew, pepper and some other food crops as well as fruit farms.

The main causes of deforestation during this period were: (i) lack of human resources and equipment for forest protection management, and (ii) lack of access, and therefore control, to the remote areas where deforestation mainly took place. As Figure 3 depicts, coffee plantings were the leader in new plantings, and much of this occurred on recently- or freshly-cleared forest. Between 1995 and 2000, coffee area increased by 77%, and commodity production area increased overall by 69%. Coffee prices increased during this time, spurring plantings by farmers seeking to earn profits.
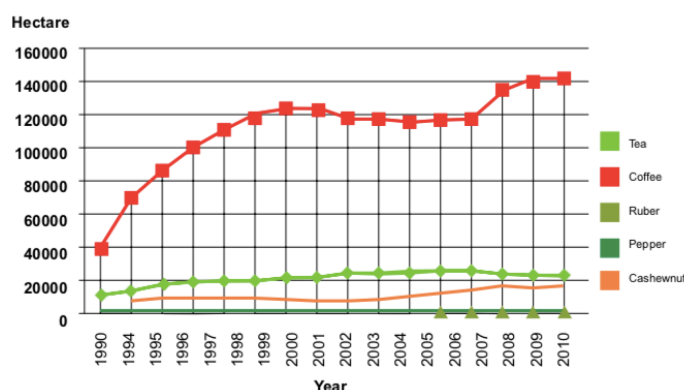
Figure 1: Area of perennial crops in Lam Dong Province (1990-2010)

2000 - 2005 – Deforestation rates declined due to reduced market demand and excess supply for coffee between 2001 and 2005. In 2001 and 2002 the coffee price was only 6,000 to 8,000 VND/kg, which was less than the cost of the investment. The area under coffee production fell from 124,359 ha in 2000 to 117,538 ha in 2005 (Refer to Figure 3 above). The area of tea cultivation expanded in this period, from 21,616 ha in 2000 to 25,535 ha in 2005. The area of annual crops increased considerably during this time, essentially doubling between 2000 and 2010.

2005 – 2010 – Market demand for coffee picked up again after 2006, which lead to further expansion of the coffee estate. The decline in market conditions also coincided with further restrictions on the expansion of the perennial crop estate under the province's land use plan through to 2010. From 2006 - 2012, 106 forest conversion projects were implemented with a total area of 21,654 ha, accounting for 13.9% of the total area of forest conversion in this period. There are notable examples of poor plantation management during this time, with private companies implementing conversion projects but then not replanting the land, and ultimately abandoning it. An increasing number of infrastructure (impacting 1,954 ha of forest, accounting for 4.1% of the total area of conversion) and hydroelectric projects (converting 5,842 ha of forest land for the construction) were undertaken in this period. Hydroelectric facilities also resulted in indirect impacts such as road construction, which allowed for more wood exploitation.

Table 2: Summary of perennial commodities produced in Lam Dong Province (1990-2016)

Total area (ha) by year						
	1990	1995	2000	2005	2010	2016
Total commodities:	49,825	91,416	154,377	155,282	185,586	212,119
Coffee	38,678	70,104	124,359	117,538	143,285	160,610
Tea	11,067	13,970	21,606	25,535	23,557	20,375
Rubber					2,538	9,064
Cashew		7,342	8,149	11,806	15,925	20,108
Pepper	80	27	263	403	281	1,962
Yield of perennial trees (tonne)						
Coffee	25,460	61,656	167,360	211,804	322,036	426,245
Tea	36,000	53,703	125,179	161,938	204,031	229,522
Rubber					29	1,268
Cashew		1,750	990	4,833	9,380	17,262
Pepper	29	21	66	744	539	2,177

Sources: Lam Dong statistical yearbooks 1995 – 2000, as reported by USAID LEAF (2013); Lam Dong statistic book 2005, Lam Dong statistic book 2016.

Similar to the observed pattern in Dak Nong with regards to rubber planting, areas planted for crops sometimes fell far short of the goals identified in the original investment certificates, indicating some actors cleared land and sold the trees (e.g. conversion timber), but never followed through on establishing plantations (Lam Dong DARD, 2013).

Post-2010, the emphasis on coffee as the largest driver of forest clearing seems to be shifting. During the past 2-3 years, more farmers were switching from producing coffee to growing other cash crops such as black pepper, avocado, and passion fruit in order to generate higher incomes. This change is reducing coffee areas especially in Dak Lak, where arable land is limited. In other provinces like Dak Nong and Lam Dong, where arable land reserve is still available, the new arable land is used more for growing black pepper and avocado. In short, coffee production is facing strong competition from black pepper production and this ongoing situation is impacting the expansion of coffee planted area in Dak Nong and Lam Dong (USDA, 2017).

Dak Nong

Natural forest types in Dak Nong experienced the largest change of all provinces and the proportion of forest areas being converted to non-forest types in Dak Nong was also highest of all provinces (Figure 6). Six out of nine natural forest types in Dak Nong experienced >50% changes in its area after 8 years. The largest change was observed in mixed broadleaved-coniferous forest with only 8.7% of its areas in 2010 remains unchanged in 2018. The remaining 91.3% of this forest type was shifted to other forest types. Significantly, 50% of the area in 2010 was converted to non-forest types. Similarly, other forest types with large changes after 8 years including bamboo forest (only 15% remained), rehabilitation evergreen broadleaved forest (23.1% remained). The majority of forest types in Dak Nong lost >30% of its areas due to conversion to non-forest types. Details of the change of all land use types from 2010 to those in 2018 was presented in Annex 2. Highest loss due to forest conversion occurred in the following natural forest types:

- Mixed broadleaved-coniferous forest converted to plantation (5.2%) and non-forest types (50.2%);
- Rehabilitation evergreen broadleaved forest converted to plantation (3.9%) and non-forest types (51.2%);
- Bamboo forest converted to plantation (10.9%) and non-forest types (42.4 %);

- Mixed wood-bamboo forest converted to plantation (11.4%) and non-forest types (40%);
- Poor evergreen broadleaved forest converted to plantation (5.2%) and non-forest types (31.2%);

Few studies have assessed driver activity in Dak Nong. There may have been updated assessments completed by IDH to advance their activities under ISLA and EU funding in Dak Nong. Underlying drivers have included a range of issues, including previously high prices for natural rubber, lack of ability by Central government to limit rubber area (land allocation decisions occur at district levels and Provincial planning), and loopholes which allowed for conversion of natural forest to rubber. These are explored further below, as is the relationship between direct and underlying drivers.

The impact of the commodity prices clearly had a large effect driving rubber expansion, and this is first notable underlying driver. When rubber prices were high (US$6.26/kg on world markets in February of 2011), the quantity produced in Dak Nong Province between 2008 and 2011 increased over 400%. Only after record low prices of US$1.23/kg in early 2016, did planted area significantly contract, and this also illustrates the delay in response to the downturn in price signals (Dak Nong DARD, 2018). Current prices today are around US$2.26/kg (Index Mundi, 2024). Though overall production remains strong, the return on the investment is very low.

Another key underlying driver was the lack of ability by Central government to limit rubber area, lack of coordination and enforcement at Provincial levels, and gaps in policies regarding forest conversion for plantations that weakened enforcement processes. Though the Central government sought to limit expansion, rubber area is expected to reach 343,893 ha in the Central Highlands by 2020, far exceeding the 280,000 ha target identified in the Rubber Development Strategy[6] (Government of Viet Nam, 2015). In many areas, it was also found the areas planted fell far short of the goals identified in the original investment certificates, indicating some actors cleared land and sold the trees (e.g. conversion timber), but never followed through on establishing plantations (Dak Nong DARD, 2018; Lam Dong DARD, 2013). By 2012, 79% of the rubber plantation areas in the Central Highlands were converted from natural forest and were not necessarily classified as degraded forest, which would have been the suitable forest type to covert to other uses under Vietnamese law (To Xuan and Tran Huu, 2014). The criteria to classify poor forest was based on volume of trees (with diameter >8cm) being less than 100m^3/ha, which resulted in other attributes such as biodiversity or protection functions not being part of the selection criteria. Also, decisions on converting natural forest on less than 200 ha is authorized as a provincial level decision, rather than requiring central level approval. This resulted in mistakes in implementation at the local level, without central level input or monitoring (To Xuan and Tran Huu, 2014). These aspects, combined with high expectations based on rubber prices, resulted in rapid expansion.

Poor governance of the sector's production standards and practices is an underlying driver, and this extended into neighboring countries, notably when Viet Nam Rubber Group's Forest Stewardship Council (FSC) certification was revoked in 2015 (FSC, 2015).

Dak Lak

Forest types in Dak Lak and Ninh Thuan appeared to be more stable than those of Dak Nong and Lam Dong (Figure 6). Similar to Lam Dong and Dak Nong, bamboo forest in Dak Lak experienced the largest change after 8 years. Specifically, only 30.4% of bamboo forest area remained unchanged, while 30% of its areas in 2010 was converted to non-forest types. Together, conversion of natural forest to plantation and non-forest types accounted for >50% of the changes in most forest types in Dak Lak. Details of the change of all land use types from 2010 to those in 2018 was presented in Annex 3. The largest conversion of natural forests in Dak Lak was observed in the following natural forest types:

- Bamboo forest converted to plantation (9.4%) and non-forest types (29.5%);

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[6] Decision No. 750/QD-TTg of the Prime Minister on rubber development to 2015 and vision to 2020

- Poor evergreen broadleaved forest converted to plantation (5.6%) and non-forest types (26.9%);
- Rehabilitation evergreen broadleaved forest converted to plantation (3.6%) and non-forest types (21.7%)
- Mixed broadleaved-coniferous forest converted to non-forest types (20.4%).

Ninh Thuan

Compared to the other three provinces, forest types in Ninh Thuan were more stable during the period 2010-2018 (Figure 6). Forest changes in Ninh Thuan occurred largely due to the shift among natural forest types. Specifically, nearly all change in areas of coniferous forest was induced by the shift. The shift between forest types was also the major driver of the changes observed in bamboo forest, mixed broadleaved-coniferous forest, and rich evergreen broadleaved forest. Conversion of natural forest to plantation and other non-forest types accounted for 2-21% of the change in the forest types. Details of the change of all land use types from 2010 to those in 2018 was presented in Annex 4. Conversion was most common in the following natural forest types:

- Deciduous forest converted to plantation (3.2%) and non-forest types (21.1%),
- Forest on rocky mountain converted to plantation (<2%) and non-forest types (18.8%),
- Rehabilitation evergreen broadleaved forest converted to plantation (4.1%) and non-forest types (12.5%).
- Bamboo forest converted to plantation (11%).

Analysis of changes in forest types at the district level

Lam Dong

Figure 7 revealed detailed changes in each forest type of every district in Lam Dong province. Generally, natural forest types in Lac Duong appeared more stable than those in all other districts. Da Teh lost 52.3% of its natural forest in 2010 (Table 2) and this was largely due to the conversion to non-forest types and plantations (Figure 7). Specifically, in Da Teh, 32.5%-48.6% of natural forest types in 2010 was converted to non-forest types and another 9.3%-20.9% was converted to plantation. In total, forest conversion accounted for up to 63.5% of forest loss in Da Teh district. Similarly, on average, Duc Trong lost 46.1% of its natural forest area in 2010, mainly due to conversion. Specifically, 15-38% of Duc Trong's natural forest types in 2010 was converted to plantation and 9-55% of them was converted to non-forest types. In total, forest conversion accounted for up to 76% of forest loss in Duc Trong.

Noticeably, most and sometime even 100% bamboo forest in Da Lat and Bao Loc city, Da Huoai, Lac Duong, Don Duong, Da Teh, Di Linh, Duc Trong were changed in 2018. Forest conversion accounted for up to 87% of the loss of bamboo forest. Similarly, 100% of rich evergreen broadleaved forest in Cat Tien was converted to non-forest types and almost 50% of rich evergreen broadleaved forest in Da Teh was also converted to non-forest types and plantation. In opposite, a large proportion (60%-95%) of the rich and medium evergreen broadleaved forests remain unchanged in Lac Duong, Lam Ha, Da Lat city, Dam Rong, Di Linh. Nearly 100% of deciduous forests in Lam Ha was lost due to conversion to plantation (83.1%) and non-forest types (16.3%) and so did the deciduous forest in Dam Rong, Duc Trong.
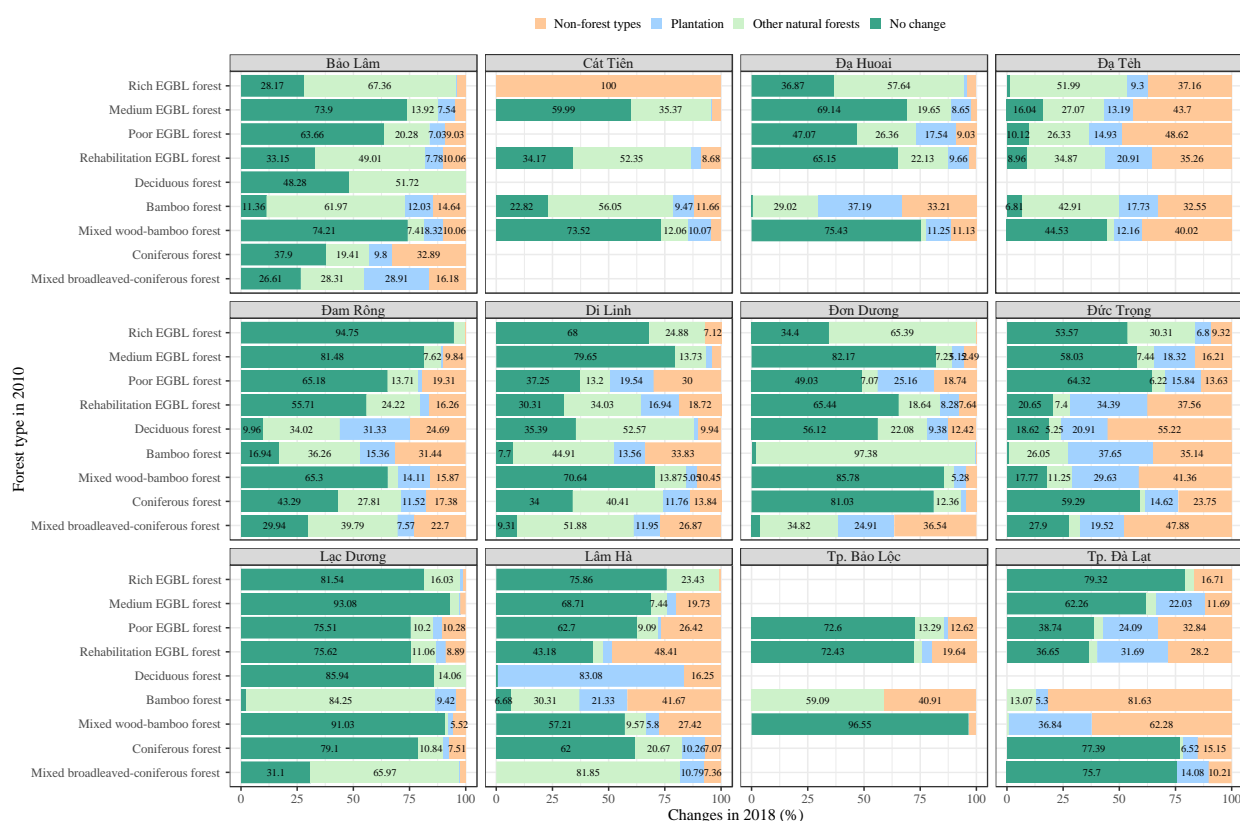
Figure 7: Forest shift in Lam Dong between 2010 and 2018

Dak Nong

Compared to Lam Dong, the proportion of unchanged forest area in Dak Nong was lowest, while the proportion of forest types being converted to non-forest types in Dak Nong was highest of all provinces (Figure 8). Of all districts, forest change in Gia Nghia was highest, followed by Dak Glong, Dak Song, Tuy Duc, and Krong No. In these five districts, conversion to non-forest types and plantations was the major drivers of the loss of most forest types. Noticeably, Gia Nghia had the lowest natural forest area of the province (4,289 ha in 2010) (Table 3) and this was due to the conversion to non-forest types (64.5-78.7%) and to plantation (1.5-9.5%).

In terms of forest type, poor evergreen broadleaved forest of the province changed the most with a reduction of 35,000 ha (Table 3). Conversion to non-forest types was the main cause of the loss of this poor evergreen broadleaved forest, especially in districts with high forest areas such as Dak Glong, Tuy Duc, Cu Jut and Krong No (Figure 8). Similarly, nearly 11,000 ha of bamboo forest in Dak Nong was changed largely due to conversion to non-forest types (Figure 8).

While rich evergreen broadleaved forest remained quite a high proportion in Dak Song (74.6%) and Krong No (56.9%), only 14-31% of this forest type remained in the other districts and the shift to other natural forest types was the main cause of this difference (Figure 8).
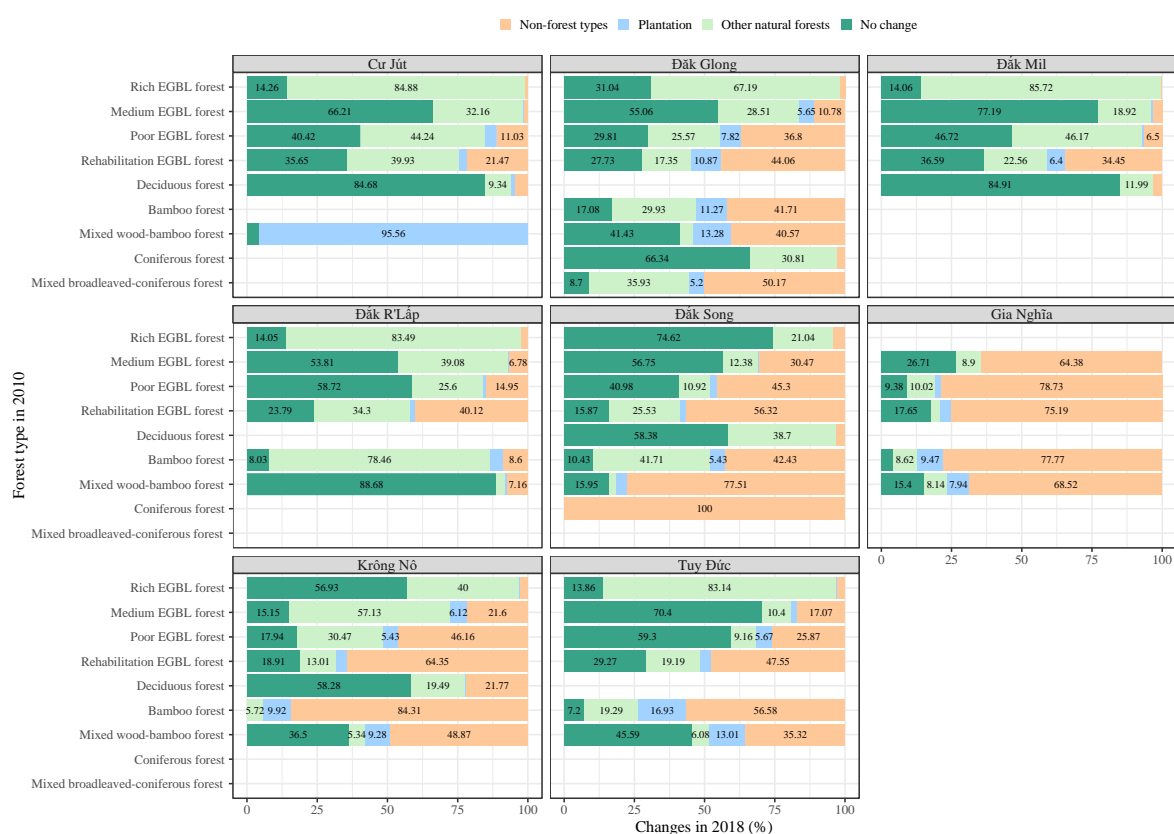
Figure 8: Forest shift in Dak Nong between 2010 and 2018

Dak Lak

The largest changes in natural forests after 8 years was observed in Ea H'leo and followed up by Ea Sup (Table 4). In these two districts and also the other districts of Dak Lak, conversion to non-forest types was the major driver of the loss of most forest types (Figure 9).

Changes in poor and rich evergreen broadleaved forest and deciduous forest in Dak Lak after 8 years were the largest of natural forest types. In poor evergreen broadleaved forest and deciduous forest, this change was largely attributed to conversion to non-forest types, while the change in rich evergreen broadleaved forest was due to the shift to other natural forest types (Figure 9).

In Buon Don district, 100% of its medium evergreen broadleaved forest was changed after 8 years with 27.3% of its area in 2010 was converted to plantation and another 9.1% converted to non-forest types. Similarly, only 22% of rehabilitation evergreen broadleaved forest type of this district remained unchanged, while 72.8% was converted to non-forest types and another 5.3% was converted to plantations.

In Buon Ma Thuot 100% of rehabilitation evergreen broadleaved forest and 83.4% of deciduous forest was converted to non-forest types and similar to Cu Kuin, 85.2% of the rehabilitation forest in 2010 was also converted to non-forest types in 2018. Noticeably, these are the only forest areas of Buon Ma Thuot and Cu Kuin (Figure 9).

In Ea H'leo, 100% of coniferous forest was converted to non-forest types, while a remarkably high area (51%) of bamboo forest was converted to plantation and another 16.1% bamboo forest area was converted to non-forest type (Figure 9).

In Krong A Na, 100% of deciduous and bamboo forest in 2010 was changed in 2018. While the majority of bamboo forest in the district was converted to plantation (64.7%), the majority of its deciduous forest (70.2%) was converted to non-forest types. 50% of poor evergreen broadleaved forest and 42.2% of rehabilitation forest in Krong A Na was also converted to non-forest types (Figure 9).

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It is clearly demonstrated in Figure 9 that nearly 100% of forest areas in Krong Pac and Krong Buk were converted to other non-forest types and plantation.
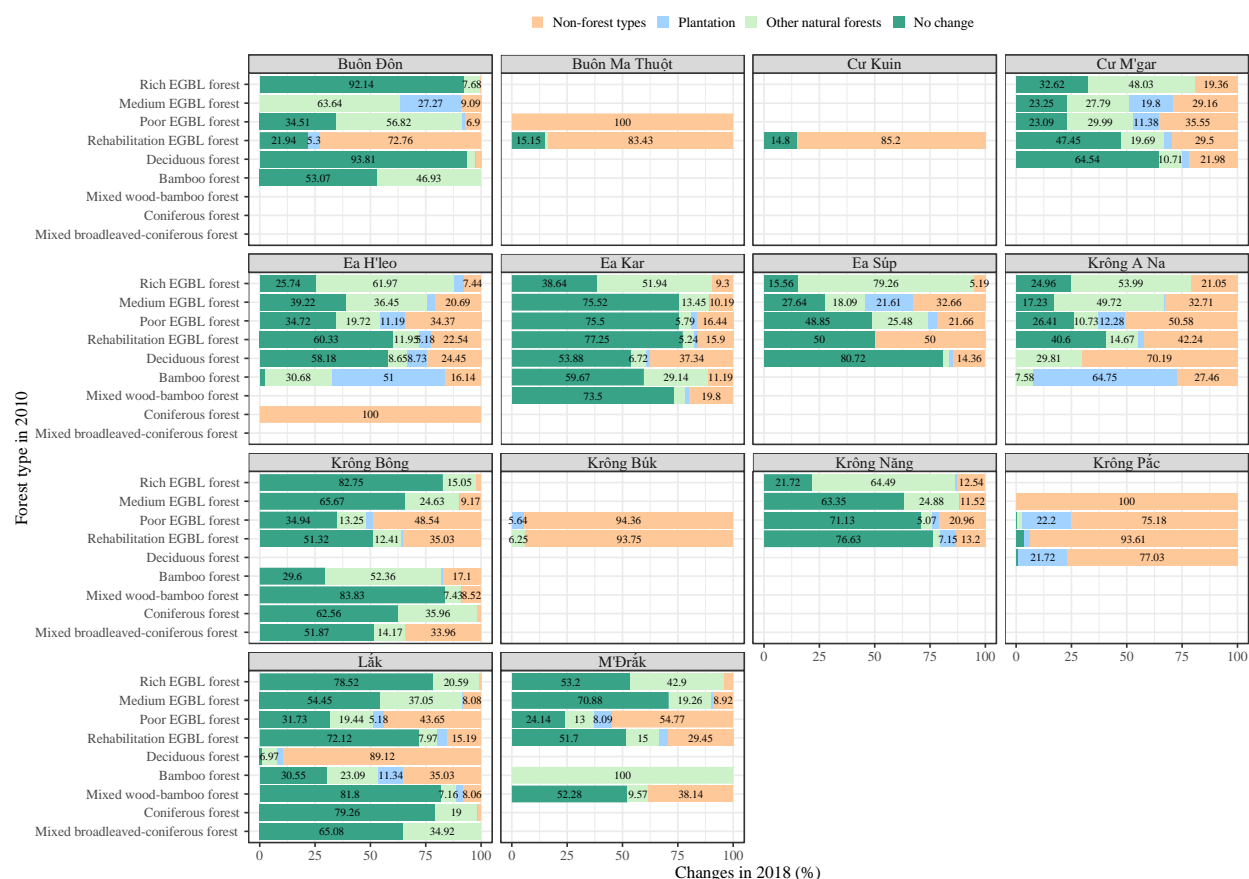

Figure 9: Forest shift in Dak Lak between 2010 and 2018

Ninh Thuan

Generally, the proportions of forest types remained unchanged after 8 years in Ninh Thuan was higher than those of all other provinces. The shift between one to another natural forest types in Ninh Thuan was the major cause for forest changes in all districts of this province (Figure 10).

The largest change occurred in Ninh Son, followed by Bac Ai (Figure 10) and the majority of the change was due to the shift to other natural forest types. However, in rehabilitation forest and deciduous forest, conversion to non-forest type accounted for a significant proportion of the change (around 20%).

Noticeably, 11% of bamboo forest in Ninh Son district was converted to plantation. Ninh Hai district also experienced a high proportion of natural forest conversion to plantation (10% of poor evergreen forest and 13% rehabilitation forest). 40% of forest on rocky mountains in Ninh Hai and 31.5% in Thuan Bac was also converted to non-forest types and plantation (Figure 10).
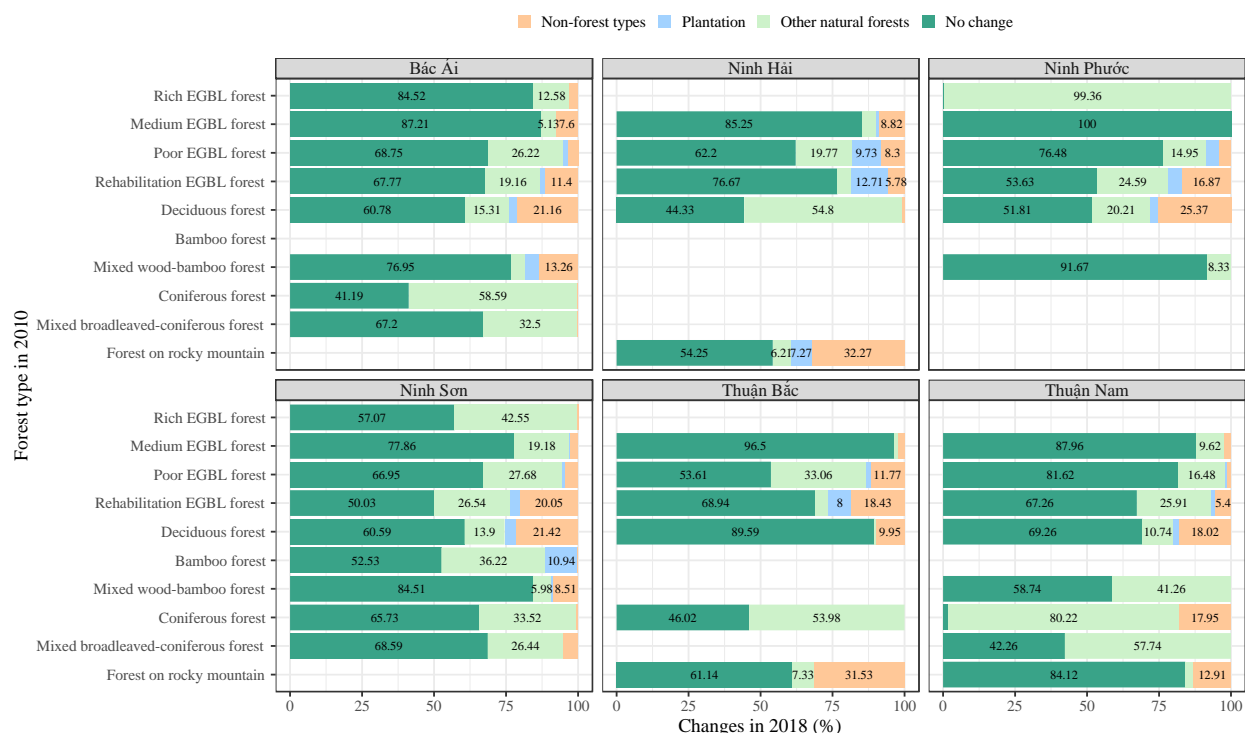
Figure 10: Forest conversion in Ninh Thuan between 2010 and 2018

Gia Lai

Generally, natural forest types in Gia Lai had slight to moderate losses from 2010 to 2018. Đak Đoa lost 11.3% of its natural forest in 2010 and this was largely due to the conversion to non-forest types. Specifically, in Đak Đoa, 4% to 56.2% of natural forest types in 2010 was converted to non-forest types and another 0-6% was converted to plantation. In total, forest conversion accounted for up to 63% of forest loss in Đak Đoa district.

Other districts with high percentage losses of natural forests are Kong Chro, Mang Yang and Ayun Pa, with 10-11% reduction from 2010 to 2018. In all these districts there are very high rates of conversion of forest types to other forest types, an indicator of probable forest degradation occurring in the area. The conversion to non-forest types is also high, particularly for poor and rehabilitation evergreen broadleaved forest in Ayun Pa, rehabilitation evergreen broadleaved in Kong Chro and poor evergreen broadleaved in Mang Yang.

Figure 11 Forest change in Gia Lai province

2.3.2. Exploring indirect variables – impact of roads, households in forest areas and agricultural cultivation in forest land

Deforestation and forest degradation can be driven from many different causes. Adequately addressing these causes are challenging. The results in the previous section revealed that conversion of natural forest to non-forest types and plantations were the main drivers of forest loss. In addition, forests can also be lost and degraded as the results of different social-economic activities of local people living near the forest. We explored other indirect variables that may reveal further drivers of forest loss and forest degradation including: (1) the development of the road network; (2) the presence of rural residential houses in forest areas; (3) agricultural cultivation on forestry land (ACFL). The following section presents the results of these indirect variables.

At the provincial level

- *Deforestation ratio within 1000 m of the buffer zone of the road network*: of all provinces, Lam Dong had the highest ratio of forest loss within 1000m of the road network (45%), closely followed by Dak Nong (43.9%) and these figures well surpassed those in Ninh Thuan (38.6%), Dak Lak (33.7%) and Gia Lai (28,5%) (Table 12). This may imply that the development of the road network has more impacts on forest loss and degradation in Lam Dong and Dak Nong than the other provinces.
- *The deforestation ratio within 1000m buffer zone of rural residential houses:* this ratio of all provinces (except Dak Nong) is high (56.8% in Lam Dong, 39% in Gia Lai and 47-48% in Dak Lak and Ninh Thuan), while it was only 22.3% in Dak Nong (Table 14). This suggested that the presence of residential population on forest land is significantly associated with forest loss and degradation in all provinces except in Dak Nong.
- *Deforestation ratio due to agricultural cultivation on forestry land*: these figures of all four provinces were not as high as the figures in the cases of roads and rural residential houses. The highest ratio occurred in Gia Lai (36%), followed by Dak Lak and Lam Dong (27-28%), while in Ninh Thuan and Dak Nong it is 21-22% (Table 14).

Table 12: Indirect variables associated with forest loss and degradation in the four provinces

No.	Province	Forest loss (%)			Proportion to 100%		
		Within 1000 m of roads	Within 1000 m of houses	Due to ACFL	Within 1000 m of roads	Within 1000 m of houses	Due to ACFL
1	Lam Dong	45	56.8	26.6	35	44.2	20.7
2	Dak Nong	43.9	22.3	21.2	50.2	25.5	24.3
3	Dak Lak	33.7	46.8	27.9	31.1	43.2	25.7
4	Ninh Thuan	38.6	47.9	21.7	35.7	44.3	20.1
5	Gia Lai	28.5	39.3	35.7	27.5	38.0	34.5

Considering all three indirect variables together, the presence of rural residential houses on forestry land appeared to be the main indirect drivers of forest loss in Lam Dong, Dak Lak and Gia Lai, while in Dak Nong the main indirect driver is the development of the road network (Table 12). Agricultural cultivation on forestry land appears to be a minor indirect driver of forest loss and degradation of all provinces except Gia Lai (compared to the other two indirect variables).

At the district level

Lam Dong

The highest ratio of forest loss within 1000m of the road network was observed in Lam Ha, followed by Bao Loc city, Lac Duong and Duc Trong district and Da Lat city (Table 13). The highest ratio of forest loss within 1000m of rural residential houses also occurred in Lam Ha, Da Lat and Bao Loc city (all >80%). This ratio in Don Duong, Duc Trong was also high (>70%). The highest ratio of forest loss due

to ACFL occurred in Lam Ha, Duc Trong, Di Linh, Dam Rong and Da Lat city (Table 15). Figure 11 features forest loss by these three indirect drivers in Lam Dong province.

Table 15: Indirect drivers of forest loss and degradation in Lam Dong

No.	District	Forest loss (%)			Proportion to 100%		
		Within 1000	Within 1000	Due to ACFL	Within 1000	Within 1000	Due to ACFL
1	Đạ Tẻh	20.2	32.7	1.7	37	59.9	3.1
2	Di Linh	39.7	52.9	40.4	29.8	39.8	30.4
3	Đơn Dương	42.1	70.1	22.5	31.3	52	16.7
4	Cát Tiên	42.5	43.7	0.6	49	50.3	0.7
5	Bảo Lâm	43.7	42.5	14.1	43.6	42.4	14.1
6	Đạ Huoai	44.4	38.4	3.9	51.2	44.3	4.5
7	Đam Rông	47.7	64.7	37.6	31.8	43.1	25.1
8	Tp. Đà Lạt	53	84	35.1	30.8	48.8	20.4
9	Đức Trọng	56.1	74.2	42.2	32.5	43	24.5
10	Lạc Dương	56.2	50.7	14.9	46.1	41.6	12.2
11	Tp. Bảo Lộc	56.5	81.4	27	34.3	49.4	16.4
12	Lâm Hà	64.1	83.4	48.6	32.7	42.5	24.8

Considering all three variables within each district, the presence of rural residential houses on forestry land was the dominant indirect driver of forest loss in all districts in Lam Dong (Table 13). In addition, the development of the road networks in Da Huoai, Lac Duong, Cat Tien, Bao Lam was also the co-main indirect drivers of forest loss and forest degradation. Agricultural cultivation on forestry land appeared to be a significant driver of forest loss in Di Linh only.
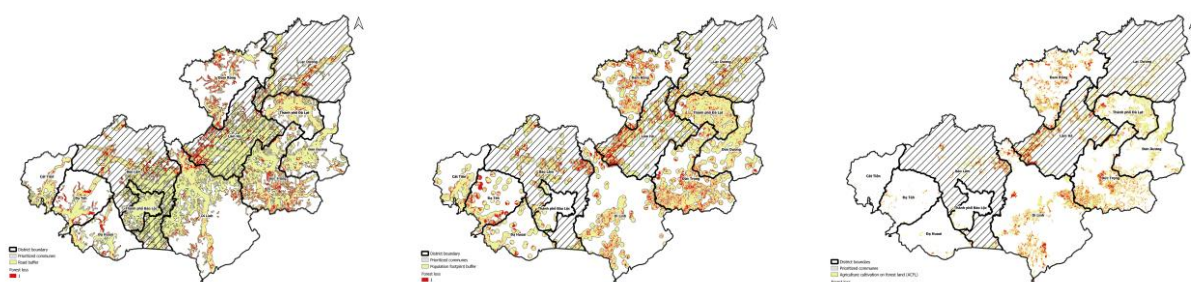

Figure 11: Forest loss within 1000m buffer zone of the road network (left), of the rural residential houses (middle) and ACFL (right) in Lam Dong

Dak Nong

Forest loss within 1000m of roads was high in all districts with the highest in Dak Mil (67.1%), Dak R'Lap (60.6%) and Cu Jut and Gia Nghia (58% each) (Table 14). Forest loss within 1000m of rural residential houses was generally quite low (mainly <20%) with a distinctively high ratio in Dak R'Lap (76.7%). Similarly, forest loss due to ACFL was quite low, generally <20%, with distinctively high ratio in Krong No (45.8%) and Gia Nghia (32.2%). Figure 12 features forest loss by the three indirect drivers in Dak Nong province.

Table 14: Indirect drivers of forest loss and degradation in Dak Nong

No.	District	Forest loss (%)			Proportion to 100%		
		Within 1000 m of roads	Within 1000 m of houses	Due to ACFL	Within 1000 m of roads	Within 1000 m of houses	Due to ACFL
1	Đắk Glong	34.5	18.3	22.3	45.9	24.4	29.7
2	Krông Nô	39.9	15.3	45.8	39.5	15.1	45.3
3	Tuy Đức	41.8	4.8	16.3	66.5	7.6	25.9
4	Đắk Song	54.5	33.1	13.6	53.9	32.7	13.4
5	Gia Nghĩa	58.3	18.3	32.2	53.6	16.8	29.6
6	Cư Jút	58.7	16.8	0.2	77.5	22.2	0.3
7	Đắk R'Lấp	60.6	76.7	0.6	43.9	55.6	0.4
8	Đắk Mil	67.1	21.5	8.3	69.2	22.2	8.6

Considering all three indirect variables, forest loss of all districts appeared to be most associated with the development of the road network (unlike in Lam Dong where the main indirect driver was the presence of rural residential houses). In several districts such as Dak R'Lap, Dak Song, Dak Mil and Cu Jut, forest loss was also highly associated with the presence of rural residential houses. In Krong No (most distinctively) and Dak Glong, Tuy Duc and Gia Nghia, agricultural cultivation on forestry land appears to be a significant indirect driver of forest loss.
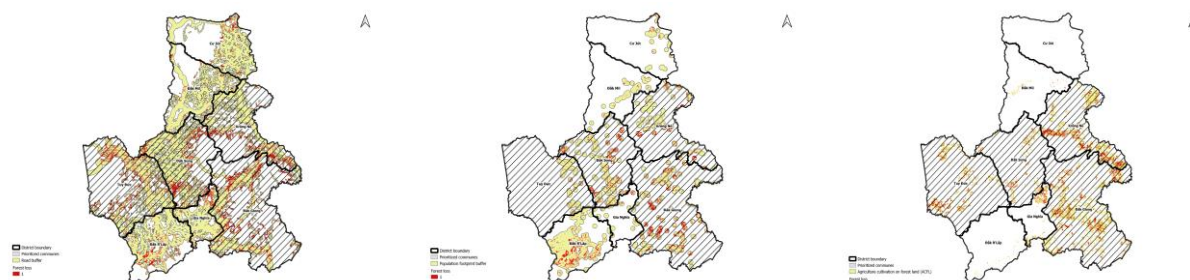

Figure 12: Forest loss within 1000m buffer of the road network (left), of the rural residential houses (middle) and ACFL (right) in Dak Nong

Dak Lak

The highest ratio of forest loss associated with the road network occurred in Buon Ho town (61.1%) and Buon Me Thuot city and Krong Buk, Cu Kuin, Buon Don and Cu M'gar (Table 15). High rate of forest loss within 1000m of houses occurred in Krong Park (81.8%), Ea H'leo (65.3%), Cu Kuin, Buon Ho town, Krong A Na. Forest loss due to ACFL occurred was generally quite low. The highest loss occurred in Krong Pac (63%), followed by Krong Bong (49.6%) and Buon Ho town (45.2%). Figure 13 features forest loss by the three indirect drivers in Dak Lak province.

Table 15: Indirect drivers of forest loss and degradation in Dak Lak

No.	District	Forest loss (%)			Proportion to 100%		
		Within 1000 m of roads	Within 1000 m of houses	Due to ACFL	Within 1000 m of roads	Within 1000 m of houses	Due to ACFL
1	Krông Năng	21.7	44.6	15.6	26.5	54.5	19
2	Krông Bông	26	34.1	49.6	23.7	31.1	45.2
3	Krông Pắc	26.5	81.8	63	15.5	47.8	36.8
4	Krông A Na	26.7	56.3	21	25.7	54.1	20.2
5	Lắk	28.3	36.6	9.1	38.2	49.5	12.3
6	Ea Kar	28.9	40.7	18.2	32.9	46.4	20.7
7	Ea Súp	34.2	34	30	34.8	34.6	30.5
8	Ea H'leo	36.3	65.3	32.2	27.1	48.8	24.1
9	M'Đrắk	37.6	45.9	23	35.3	43.1	21.6
10	Cư M'gar	43.8	48.9	30.4	35.6	39.7	24.7
11	Buôn Đôn	44	39.4	29	39.1	35.1	25.8
12	Cư Kuln	44.2	56.2	34.8	32.7	41.6	25.7
13	Krông Búk	50.7	39.9	15.8	47.7	37.5	14.8
14	Tp. BMT	51.6	50.9	14	44.3	43.7	12
15	Tx. Buôn Hồ	61.1	64	45.2	35.9	37.6	26.5

Considering all three indirect variables together, forest loss in most districts appeared to be associated with all three indirect variables with the presence of rural residential houses on forestry land being the most significant, followed by the development of the road network (Table 15). Unlike in Dak Nong and Lam Dong, ACFL appears to be a significant indirect driver of most districts except for Buon Me Thuot city, Lak and Krông Búk. Especially, ACFL seems to be the main drivers of forest loss in Krông Bông and Krông Pắc.
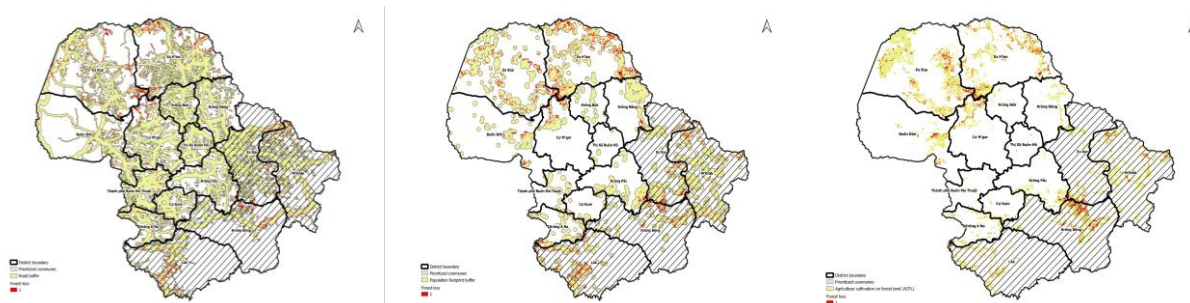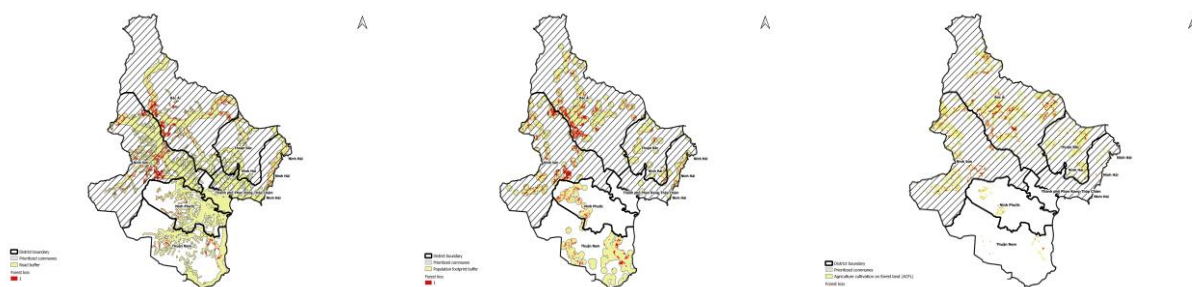

Figure 13: Forest loss within 1000m buffer of the road network (left), of the rural residential houses (middle) and ACFL (right) in Dak Lak

Ninh Thuan

The highest ratio of forest loss within 1000m of roads was highest in Ninh Hai district (55.8%), Ninh Son (49.2%) and Bac Ai (41.5%). The ratio of forest loss within 1000m of houses in Ninh Thuan was high in most districts (ranging from 43-53%) with an exception in Thuan Bac (28%). The ratio of forest loss due to ACFL was generally low (<10%), with the highest ratio in Bac Ai (33.9%), Ninh Son (21.3%) and Thuan Bac (20.5%). Figure 14 features forest loss by the three indirect drivers in Ninh Thuan province.

Table 16: Indirect drivers of forest loss and degradation in Ninh Thuan

No.	District	Forest loss (%)			Proportion to 100%		
		Within 1000 m of roads	Within 1000 m of houses	Due to ACFL	Within 1000 m of roads	Within 1000 m of houses	Due to ACFL
1	Thuận Bắc	12.9	28	20.5	21	45.6	33.4
2	Ninh Phước	24.3	52.9	6.6	29	63.1	7.9
3	Thuận Nam	26.3	49.8	2.4	33.5	63.4	3.1
4	Bác Ái	41.5	49.5	33.9	33.2	39.6	27.1
5	Ninh Sơn	49.2	49.7	21.3	40.9	41.3	17.7
6	Ninh Hải	55.8	42.7	4.2	54.3	41.6	4.1
7	Tp. PR-TC						

Considering all three indirect variables, forest loss in all districts appeared to be highly associated with the rural residential houses (particularly in Thuan Nam and Thuan Phuoc) and the road networks (particularly in Ninh Hai). Agricultural land on forestry land was also the major cause of forest loss in Thuan Bac, Bac Ai and Ninh Hai.

Figure 14: Forest loss within 1000m buffer of the road network (left), of the rural residential houses (middle) and ACFL (right) in Ninh Thuan

Gia Lai

Forest loss within 1000m of roads was high only in a few districts with the highest in Thành phố Pleiku (63.8%), Chư Sê (55.2%) and Đức Cơ (55%). Forest loss within 1000m of rural residential houses was generally high (mainly >30%) with a distinctively high ratio in Thành phố Pleiku (81.3%), Chư Sê (73.1%) and Đức Cơ (57.3%). Similarly, forest loss due to ACFL was high, generally >30%, with distinctively high ratio in Đăk Đoa (56.7%), Ia Pa (55.7%), Phú Thiện (54.3%) and Ayun Pa (52.1%).

Table 17. Indirect drivers of forest loss and degradation in Gia Lai

District name	Forest loss (%)			Proportion to 100%		
	Within 1000m of roads	Within 1000m of house	Due to ACFL	Within 1000m of roads	Within 1000m of house	Due to ACFL
KBang	28.9	44.4	43.7	24.7	37.9	37.4
Krông Pa	1.7	22.3	47.7	2.4	31.1	66.5
Ia Grai	46.2	45.7	11.6	44.6	44.2	11.2
Phú Thiện	8.1	44.2	54.3	7.6	41.5	50.9
Đăk Đoa	27.5	48.8	56.7	20.7	36.7	42.6
Chư Păh	21.5	29.8	27.8	27.2	37.7	35.1
Mang Yang	19.3	26.1	43.5	21.7	29.4	48.9
Đăk Pơ	19.8	21.1	39.3	24.7	26.3	49.0

Chư Sê	55.2	73.1	8.1	40.5	53.6	5.9
Ia Pa	13.6	29.1	55.7	13.8	29.6	56.6
Kông Chro	18.9	18	46.9	22.6	21.5	56.0
Ayun Pa	18.9	35.1	52.1	17.8	33.1	49.1
Chư Pưh	17.6	44.3	47.4	16.1	40.5	43.4
Thành phố Pleiku	63.8	81.3	42.3	34.0	43.4	22.6
Chư Prông	30.7	44.1	25.4	30.6	44.0	25.3
An Khê	43.5	40.6	13.3	44.7	41.7	13.7
Đức Cơ	55	57.3	15.6	43.0	44.8	12.2

Considering all three indirect variables, forest loss in all districts appeared to be highly associated with the rural residential houses and the ACFL.
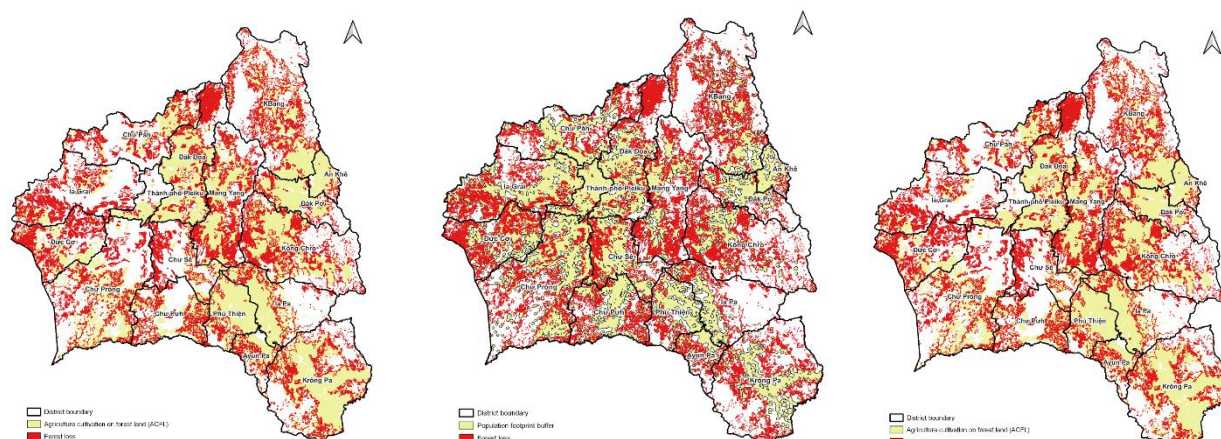
Figure XXX: Forest loss within
1000m buffer of the road network (left), of the rural residential houses (middle) and ACFL (right) in Gia Lai

About 210, 200 ha have been identified by Central Highlands Provinces

2.4 District selection.

With the data for hotspot scoring calculated as shown in working paper 1, we used the quantile approach to classify values of each criterion into 3 classes corresponding to low, moderate and high values. This resulted in the priority map for each criterion. Figure 15 features overall score map for all four provinces

Ranked scores for each criterion was then used as intermediate data to calculate the final weighted average score through applying the weight as defined by the working group (including province representatives). The quantile approach was again used to classify the weighted average score into three levels of priority (1,2,3) with 3 the most prioritized. This result will be used to produce a prioritized map for each province. Communes with the weighted average score of 3 will be suggested

to select for the project's interventions. The selection results were then consulted with the working group to decide the final selection. Figure 16 (left) present the results of weighted average score of all provinces and (right) presents the communes of final selection for the project's interventions.
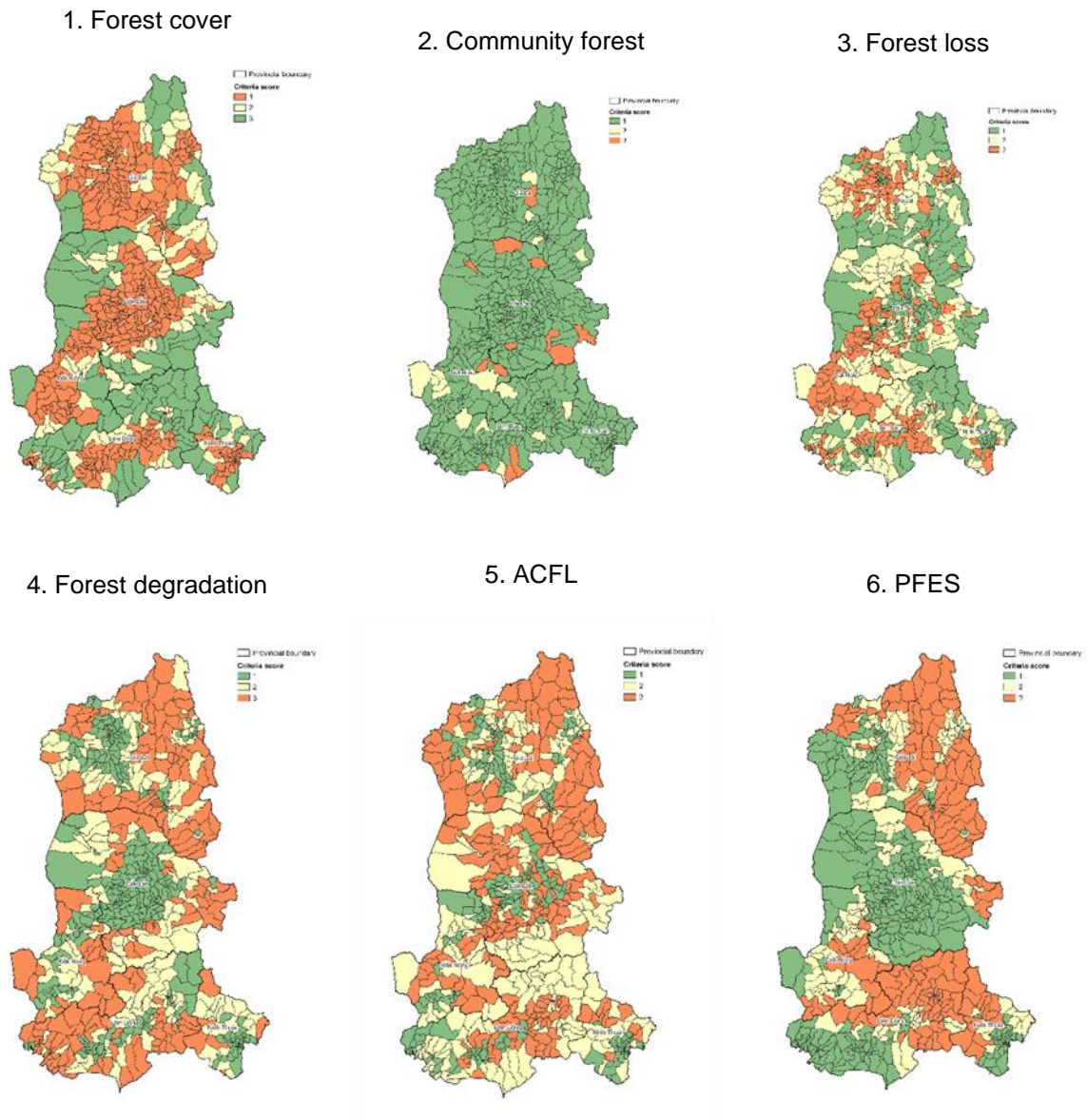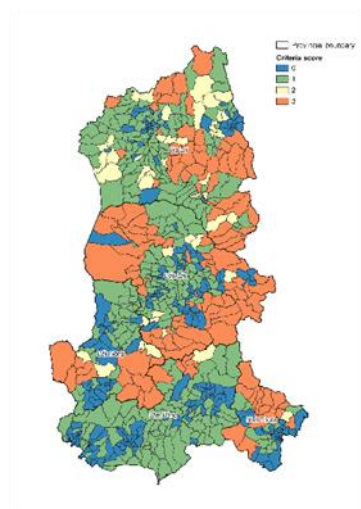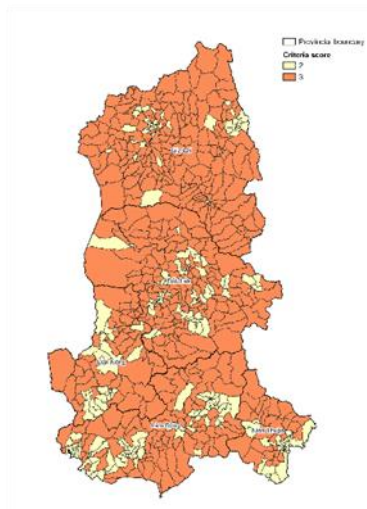
1. Forest cover

2. Community forest

3. Forest loss

4. Forest degradation

5. ACFL

6. PFES

Figure 15: Score of 9 criteria for hotspot selection in the five provinces

7. Socio-economic condition

8. Ethnic or non-ethnic regions

9. Population living in forest areas
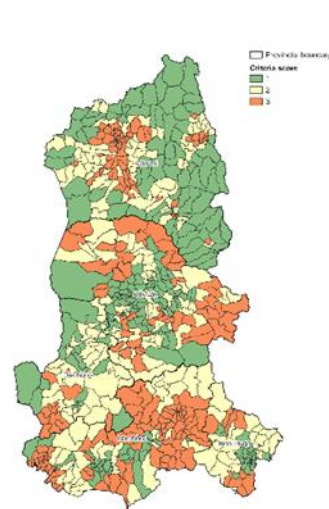
In addition to above criteria, also the following considerations were taken into account for final district selection:

- Other project in the district, to avoid duplication of efforts and activities.
- Four the original four provinces, as much as possible adjacent districts were selected, to be able to follow a landscape approach and address border trade issues (e.g. for combating illegal logging)
- For Gia Lai, districts in the south of the province were selected to be closer to the other provinces and districts, also in view of travel logistics and efficiency.

Table 18. Final districts selection:

Province	District	Province	District
Gia Lai		**Ninh Thuận**	
	Chư Prông		Bác Ái
	Krông Pa		Ninh Hải
	Kông Chro		Ninh Sơn
	Mang Yang		Thuận Bắc
	Đăk Đoa	**Đắk Lắk**	
Lâm Đồng			Ea Kar
	Bảo Lâm		Krông Bông
	Di Linh		Lắk
	Lâm Hà		M'Đrắk
	Đam Rông		
Đắk Nông			
	Krông Nô		
	Tuy Đức		
	Đăk Glong		
	Đắk Song		

See project area map for the final district selection (Annex 16 to the FP).

References:

Dak Nong DARD, 2018. Report on the 10-year review of the 7th Central Committee Resolution X.

Eckstein, D., V. Künzel, L. Schäfer, 2018. Global Climate Risk Index 2018. Germanwatch.

Forest Stewardship Council, 2015. Forest Stewardship Council disassociates from the Viet Nam Rubber Group. Press release: https://ic.fsc.org/en/news-updates/fsc-press-releases/id/1288

General Statistics Office of Vietnam, 2017. Statistics for Agriculture, Forestry and Fishing. Available at: https://www.gso.gov.vn/default_en.aspx?tabid=778

Government of Viet Nam, 2015. Decision No. 750/QD-TTg of the Prime Minister on rubber development to 2015 and vision to 2020.

Index Mundi, 2024. Monthly price summary: Rubber. https://www.indexmundi.com/commodities/?commodity=rubber&months=60

IPSARD, 2015. Action plan integrating REDD+ into rubber development. UN-REDD Vietnam, Hanoi.

Lam Dong DARD, 2013. Report: Approving the results of reviewing and adjusting the planning on development of rubber plantation in Lam Dong province. Submitted to Lam Dong People's Committee in response to Document No. 5102 / UBND-LN dated 29/8/2013.

MARD, 2017. Các tỉnh Tây Nguyên cần ngăn chặn tình trạng phát triển cây sắn ồ ạt. The Central Highlands provinces should prevent the development of mass cassava. Retrieved on July 30, 2018 at https://www.mard.gov.vn/Pages/cac-tinh-tay-nguyen-can-ngan-chan-tinh-trang-phat-trien-cay-san-o-at.aspx

MARD, 2016. Modified Submission of Reference Level for REDD+ Results Based Implementation in Vietnam. http://redd.unfccc.int/files/vietnam_frl_modified__submission_final_for_posting.pdf

McNally, R., Vu Tan Phuong, Nguyen The Chien, Pham Xuan Phuong, Nguyen Viet Dung, 2016. Issues and Options: Support for the revision of the Vietnams National REDD+ Action Programme (NRP) 2016-2020, Hanoi.

To Xuan Phuc and Tran Huu Nghi, 2014. Rubber Expansion and Forest Protection in Vietnam. Tropenbos International Viet Nam and Forest Trends. Hue, Viet Nam.

USAID Lowering Emissions in Asia's Forests, 2013. Land use, forest cover change and historical GHG emissions from 1990 to 2010: Lam Dong province, Viet Nam. Hanoi, Viet Nam.

USDA Foreign Agricultural Service, 2017. Vietnam Coffee Annual Report 2017.

Chapter 3 - CLIMATE CHANGE ANALYSIS

3.1 Historical Climate

3.1.1 Historical Climate (1979 – 2019)

Climate in Viet Nam

Viet Nam is characterized by a humid subtropical climate with four separate seasons in the North – spring, summer, autumn and winter –, and a tropical savannah climate with only two seasons in the South – dry and wet.

All of the country experiences the effects of the annual monsoon. Rainy seasons correspond to monsoon circulations, which bring heavy rainfall in the north and south from May to October, and in the central regions from September to January.

Viet Nam's climate is also impacted by the El Niño Southern Oscillation (ENSO), which influences monsoonal circulation, and drives complex shifts in rainfall and temperature patterns which vary spatially at a sub-national level. During El Niño years, the North-East monsoon influence weakens and the central and southern regions of Viet Nam deal with 10 to 30 percent less rainfall than usual and an increased drought risk. Conversely, during La Niña years the North-East monsoon is strengthened and the total rainfall for the same regions increases by about 10 percent compared to usual, increasing flood and landslide risks. The El Niño events in 1982-1983 and 1997-1998 were extremely strong and had severe impacts on the environmental and socio-economic sectors of Viet Nam. The Central Highlands is one of the region's most sensitive to El Niño effect, which often leads to serious drought during the dry season.

Climate in the RECAF project provinces

Both the Central Highlands and South-Central Coast are located in the tropical savannah climate zone, but have several local sub-climate zones due to the varied topography: upland or mountainous areas are on average wetter, lowland and coastal areas are drier, and the plateau regions of the Highlands are in between.

The annual rainfall in the Central Highlands ranges from 1 400 mm to 2 000 mm. The rainy season is from May to October, with maximum rainfall in August. The dry season is from November to March with rainfall of less than 50 mm. The average temperature of the warmest month ranges between 24 and 28°C, and the temperature of the coldest month is 21°C, with the lowest absolute temperature between 3 and 9°C. Strong winds occur over the plains, with average wind speeds of 1.5-3.5 m/s.

The annual rainfall in the South-Central Coast ranges from 700 to 800mm in the lowlands to 1,300mm in the upland areas, with 90 percent of it provided during the wet season. The main rainy season is from August to December, with a rainfall maximum in October. The southern part of the region– where Ninh Thuan is located – is one of the driest in Viet Nam. The average monthly rainfall during the rainy season is around 200-350mm. The average air temperature is between 22°C and 26°C, with highest in April and May, from 26°C to 28°C.

Figure 1. Historical Climate for the project provinces - Monthly averages 1979-2019 (ECMWF ERA5 data – obtained from EarthMap)
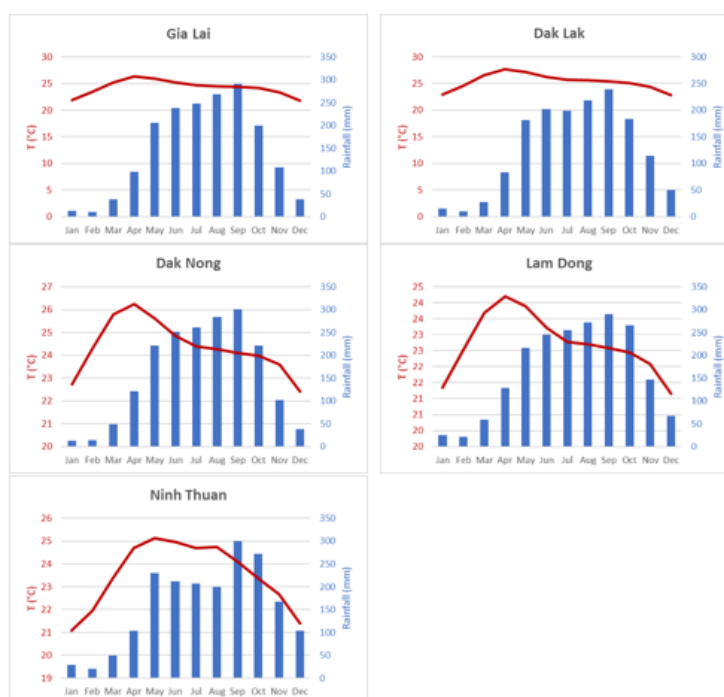
3.1.2 Historical trends
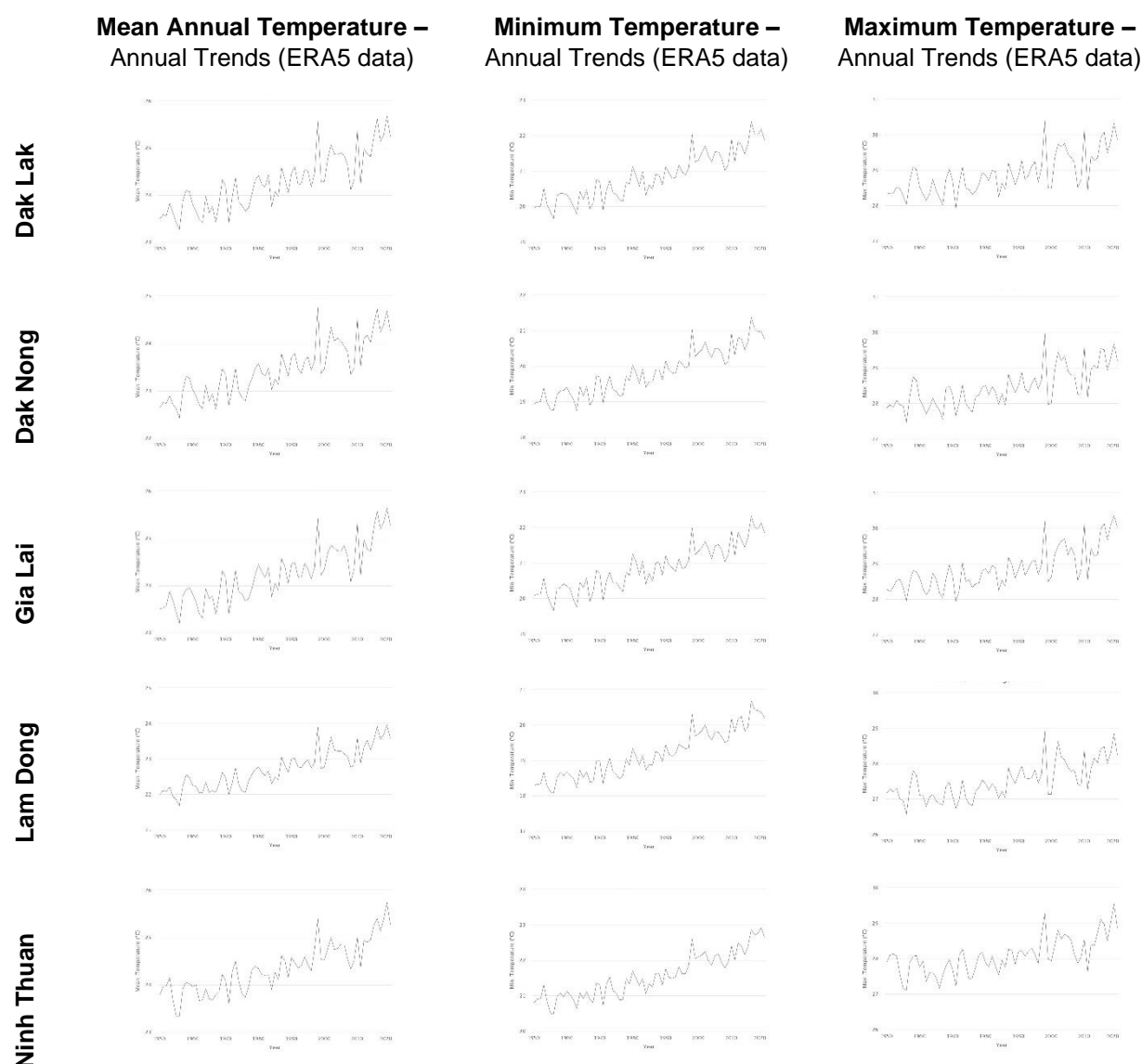
Historical trends on Temperature.

Mean annual temperature in Viet Nam has increased by 0.5°C – 0.7°C since 1960, with the rate of increase most rapid in southern Viet Nam and the Central Highlands. In the period 1971–2010 the rate of warming in Viet Nam is estimated at 0.26°C per decade, this is reported as being almost twice the rate of global warming over the same period. Greater warming has been identified in winter months (September to February) than in summer months (March to August). The frequency of 'hot' days and nights has increased significantly since 1960 in every season, and the annual frequency of 'cold' days and nights has decreased significantly (WB & ADB, 2021).

The historical trend in the RECAF project area based on ERA5 data shows a similar pattern as the rest of the country, with an average increase of 0.32°C per decade from 1951-1980 to 1991-2020. See Table 3 and Table 4 for detailed visualizations of the historical trends of Mean, Minimum and Maximum Temperatures for each province of the project. Thus, the mean temperature in the project area has already increased by 1°C since the 1951-1980 reference period.

Table 3. Change in Mean Temperatures (ERA5 data obtained from the World Bank Climate Change Knowledge Portal)

	Mean Temperature 1951 - 1980	**Mean Temperature 1971-2000**	**Mean Temperature 1991-2020**
Gia Lai	23.8 °C	24.2 °C	24.7 °C
Dak Lak	23.8 °C	24.2 °C	24.8 °C
Dak Nong	23.0 °C	23.4 °C	24.0 °C
Lam Dong	22.2 °C	22.7 °C	23.2 °C
Ninh Thuan	23.9 °C	24.3 °C	24.8 °C

Table 4. Annual Trends in Mean, Minimum and Maximum Temperatures (ERA5 data) for the RECAF project provinces

	Mean Annual Temperature – Annual Trends (ERA5 data)	**Minimum Temperature –** Annual Trends (ERA5 data)	**Maximum Temperature –** Annual Trends (ERA5 data)
Dak Lak			
Dak Nong			
Gia Lai			
Lam Dong			
Ninh Thuan			

Historical trends on Precipitation.

Mean rainfall over Viet Nam does not show any significant increase or decrease on a national level since 1960. The proportion of rainfall falling in heavy events has not changed significantly since 1960, nor has the maximum amount falling in 1-day or 5-day events. El Niño remains a major influencer of trends in precipitation. On a sub-national level some changes are significant: the general trend has been towards increased rainfall in central regions, and reduced rainfall in northern and southern regions (WB & ADB, 2021). The (CSIRO, 2014) report studied temperature and rainfall trends during the period 1961-2011 from station observational data and found a clear pattern with rainfall increases in the middle regions and decreases in northern and southern regions, as depicted in Figure 2. Similarly, MONRE (2016) reports that annual rainfall decreased by 5.8 percent to 12.5 percent in the North, while it increased by 6.9 percent to 19.8 percent in the South from 1958 to 2014.

The historical trend in the project area based on ERA5 data shows a similar pattern than the average of the country, with no significant change neither in annual precipitation nor in extreme rainfall events

over the last decades. See Table 5 and Table 6 for detailed visualizations of the historical trends of Annual Precipitation and Extreme Rainfall Events for each province of the project.

Table 5. Change in Annual Precipitation (ERA5 data obtained from the World Bank Climate Change Knowledge Portal)

	Mean Annual Precipitation 1951 - 1980	Mean Annual Precipitation 1971-2000	Mean Annual Precipitation 1991-2020
Gia Lai	1,619.8 mm	1,768.9 mm	1,700.2 mm
Dak Lak	1,471.2 mm	1,623.3 mm	1,577.8 mm
Dak Nong	1,738.9 mm	1,895.4 mm	1,841.0 mm
Lam Dong	1,800.5 mm	1,936.5 mm	1,917.5 mm
Ninh Thuan	1,532.7 mm	1,632.7 mm	1,659.0 mm

Table 6. Annual Trends in Annual Precipitation and Extreme Rainfall Events (ERA5 data) for the RECAF project provinces

Ninh Thuan
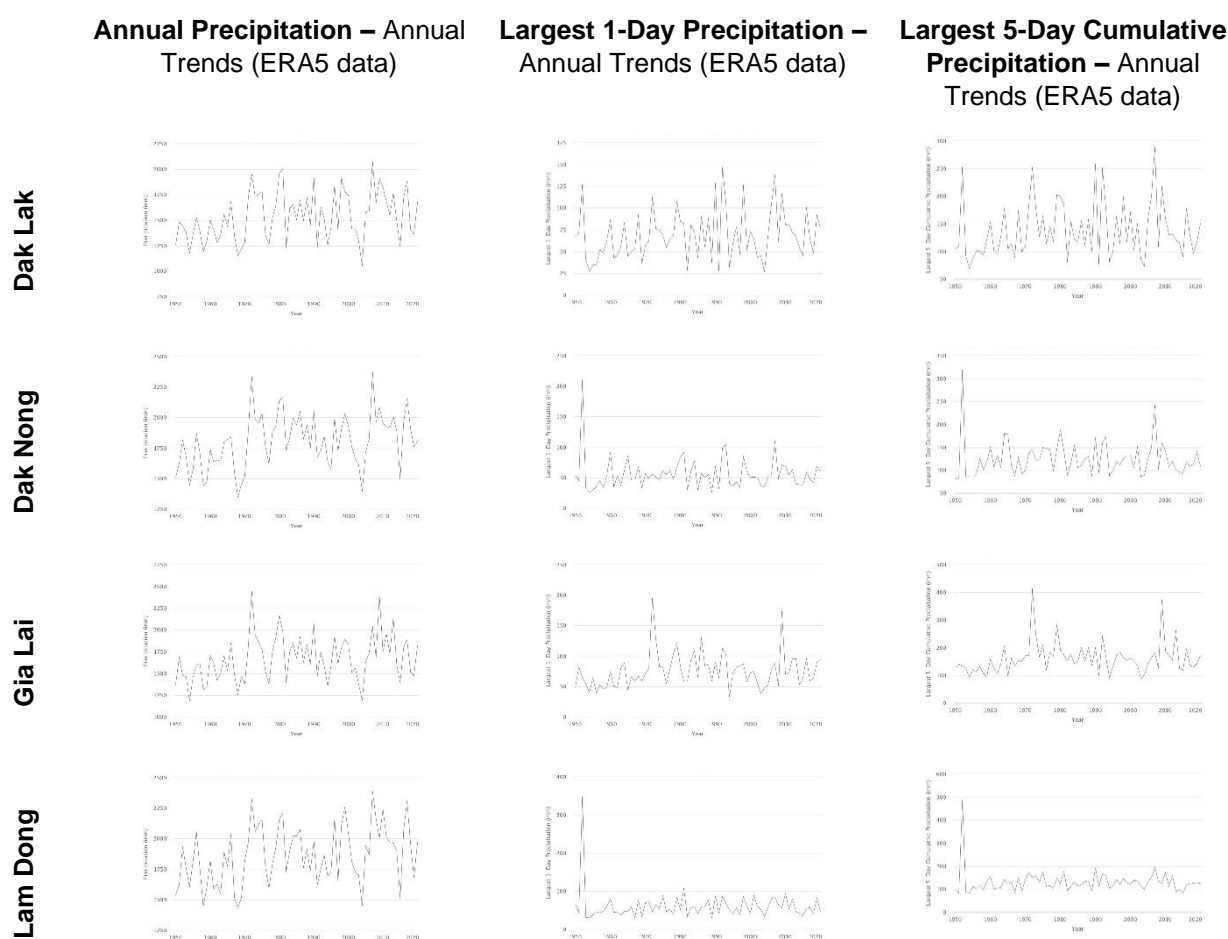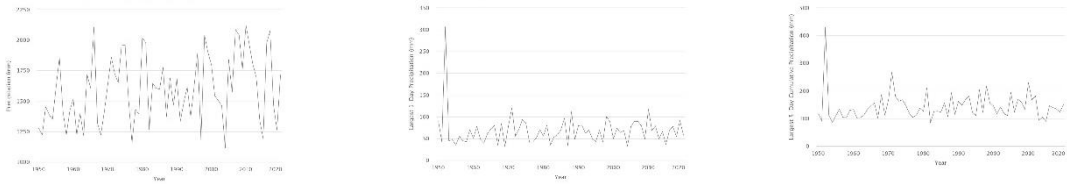
Figure2. Mean temperature and rainfall trends from 1961 to 2011 for each of the meteorological stations. Trends in temperature are shown as °C per decade and rainfall as percentage per decade. Source: Vietnam station observations. Filled circles show that the trend is significant at the 95% level. Source: CSIRO, 2014
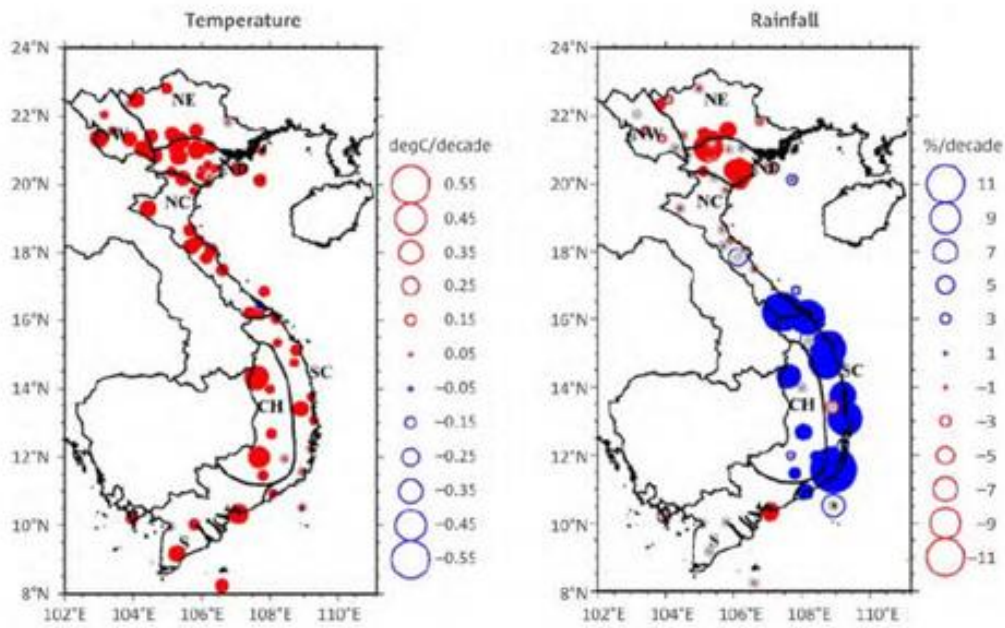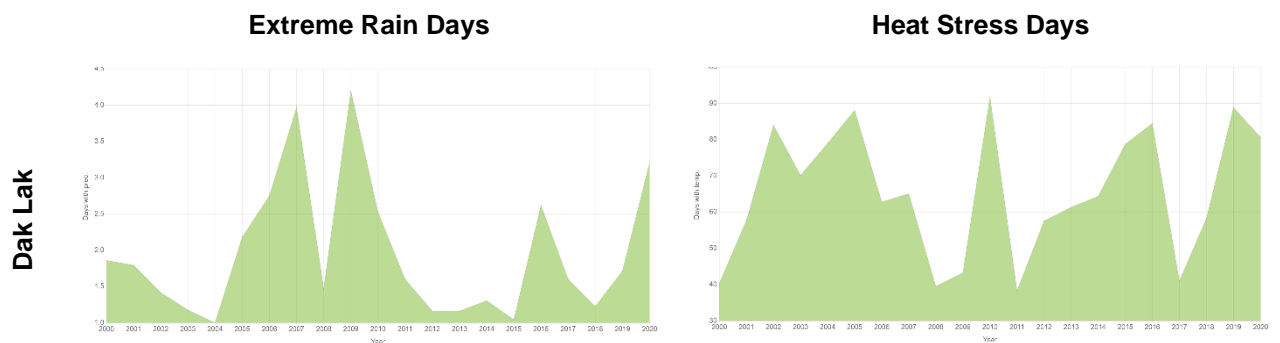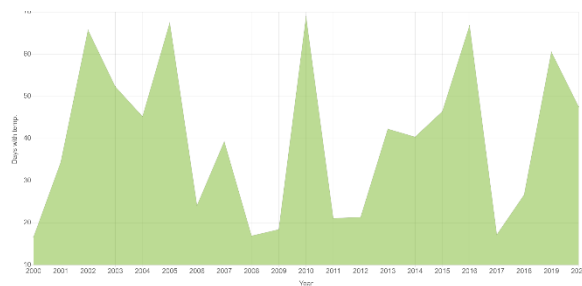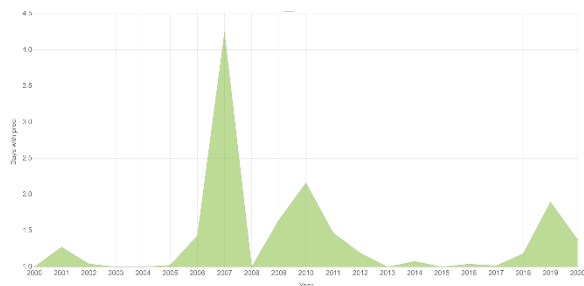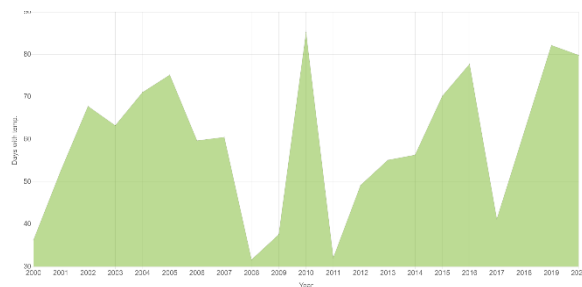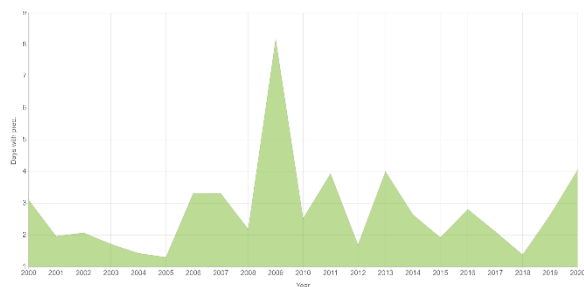

Table 7. Number of days with extreme rains (> 50 mm) per year (left) and number of heat-stress days (temp > 32° C) per year (right) for the timeframe 2000 – 2020 (left). Data comes from ECMWF ERA5 Land hourly reanalysis dataset that is reduced to daily maximums. Source: EarthMap
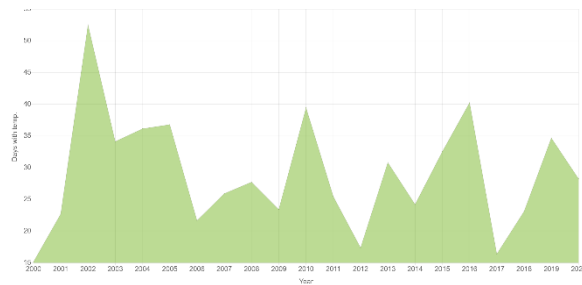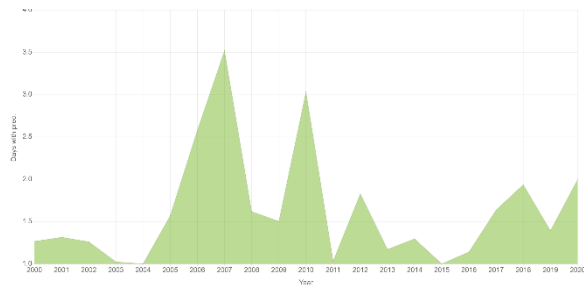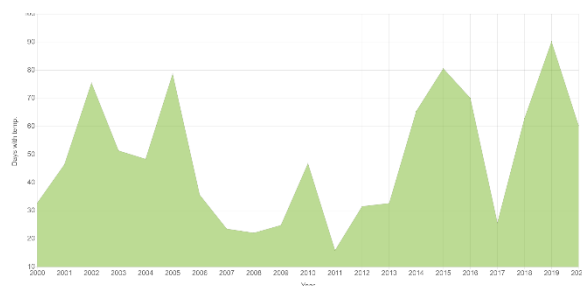
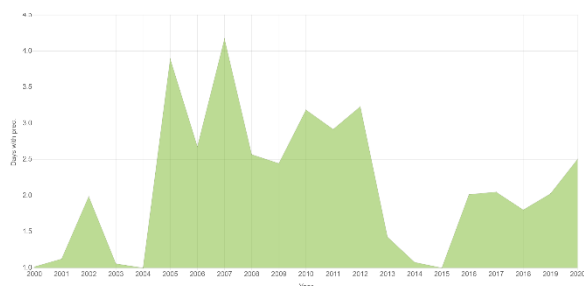**Extreme Rain Days**   **Heat Stress Days**

**Dak Lak**

Historical trends on Droughts

Another important climatic hazard in Viet Nam is drought that affects the agricultural sector, which largely depends on rainfall and plays an important role in Viet Nam's economy. Agricultural (time scale of 2-3 months, usually associated with a precipitation deficit) and hydrological (time scale of >12 months, usually associated with a deficit in surface and subsurface water flow, potentially originating in the region's larger river basins) droughts, which affect the agricultural sector and groundwater levels, are probably the most important types in Viet Nam.

An estimated 1-1.3 million people are estimated to be drought-affected in 9 provinces of the Mekong region of Viet Nam, representing 13-17% of the total population. Droughts can occur in every part of Viet Nam, but have been concentrated in recent years in the central and southern parts of the country, and the winter-spring crops (January-March) are usually most affected. The year 2016 was particularly severe, with an acute El Niño-induced drought and saline intrusion affecting a third of the country, followed by a sequence of typhoons, tropical depressions and heavy rainfall events causing flooding in the North and South-Central Coast and Central Highlands regions. In 2016 alone, more than 2.2 million people were affected, 230 people lost their lives, and an estimated US$1.7 billion of

damage and loss occurred, or approximately 0.83 percent of the country's Gross Domestic Product.[7] The 2015–2016 drought affected around 60,000 hectares of agricultural land in the Central Highlands, including the main area of coffee production, as well as 20%–30% of the areas growing rubber, pepper, cashew, and tea (ADB, 2020).

According to the results from (CSIRO, 2014), displayed in Figure 3 at pixel level, agricultural droughts occurred between 7 and 13 times from 1979 to 2007 in the RECAF project area, with an average duration of 6-12 months. When looking at the whole country, the number of droughts is less in southern Viet Nam than in northern Viet Nam, but they lasted longer on average. In the same period there were between 1 and 7 hydrological droughts in the RECAF project area, ranging from 11 to 25 months. Similar to the agricultural droughts, hydrological droughts in Viet Nam are less frequent in the southern Viet Nam than in other regions, but their duration is longer.

Figure 3. Number (a, b) and average duration (c, d, in months) of extreme and severe agricultural droughts (a, c) and hydrological droughts (b, d) based on APHRODITE rainfall from 1979 to 2007. Source: CSIRO, 2014
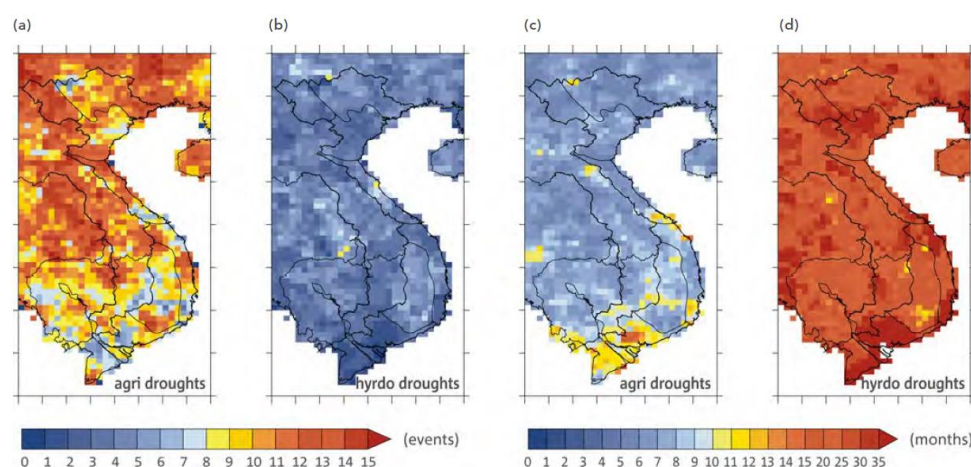

The Aridity Index (AI) is a simple but convenient numerical indicator of aridity based on long-term climatic water deficits and is calculated as the ratio P/PET. Aridity is commonly quantified by comparing water supply or precipitation (P) to the climatic water demand (known as potential evapotranspiration). Potential evapotranspiration (PET) is a measure of the "drying power" of the atmosphere to remove water from land surfaces by evaporation and via plant transpiration. If PET is greater than P, then the climate is considered to be arid. Anomaly water deficits may also occur over shorter time periods, e.g. seasonally or monthly, which are called droughts depending on their intensity and duration. The AI is a widely used measure of dryness of the climate at a given location.

Figure 4 shows the historical aridity index for the RECAF project provinces based on remote sensing derived data for rainfall and potential evapotranspiration. Ninh Thuan is the only province where P < PET during the dry spells of 2004-05, 2014-16 and 2019-20. This could indicate the increasing aridity of this province.

*Figure 4. **Historical Aridity Index** for the project provinces – Data for 2001-2021 (rainfall from CHIRPS data and potential evapotranspiration from MODIS – obtained from EarthMap)*

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[7] Central Committee for Natural Disaster Prevention and Control (2017). Annual Disaster Report 2016.
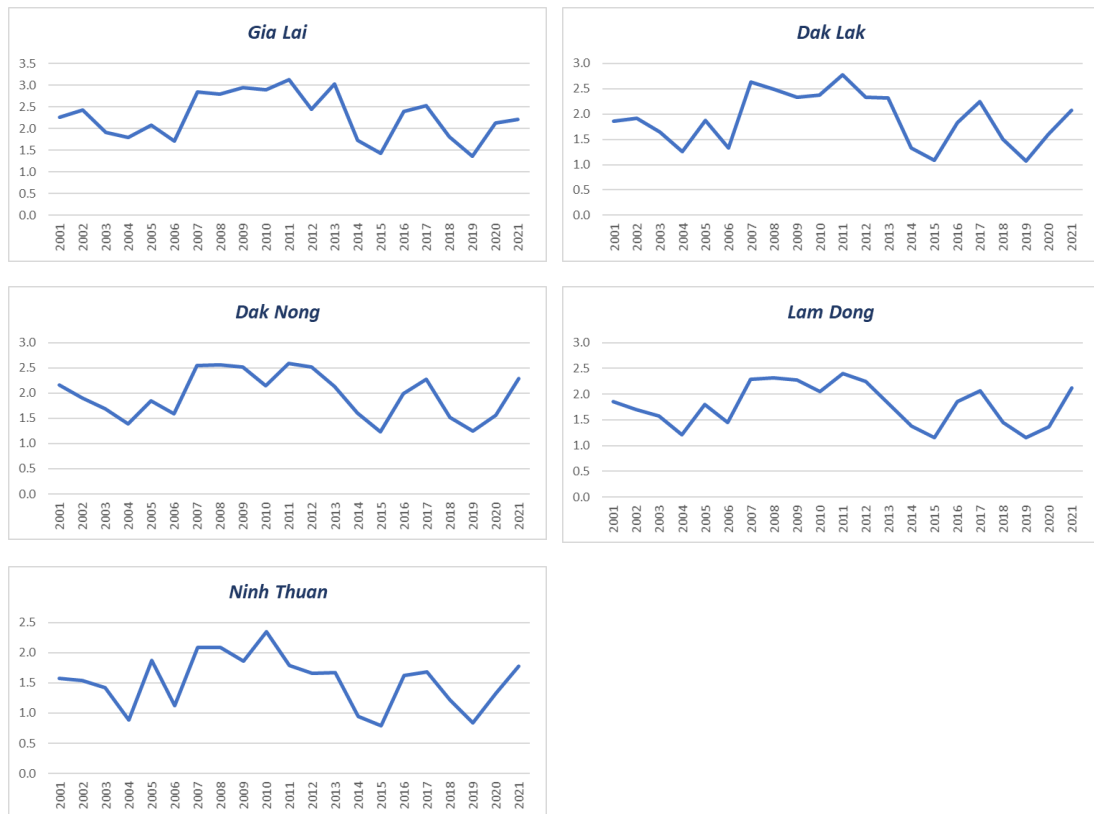
In recent years Viet Nam has experienced historical drought events possibly affected by climate change, but the analysis has been challenging due to lack of necessary observations for monitoring drought conditions. In (Manh-Hung Le et al., 2020), the authors analyze the characteristics of droughts over a 30-year period, using the MERRA-2 model dataset in Viet Nam. The results show that over the 30-year study period, southern Viet Nam underwent unfavorable climate conditions, exhibiting a reduction in rainfall and an increase in temperature which consequently increased the risk of drought frequency and severity. In this region of Viet Nam, the 2014-16 drought seems to have produced the worst conditions in terms of temporal duration and spatial extent. Figure 5 shows increases in both drought frequency and severity within the RECAF project area during the 1989-2018 timeframe.

Figure 5. Statistics of drought frequency (left) and severity (right) based on the Standardized Precipitation Evapotranspiration Index (SPEI) during 1989-2018 in Viet Nam. Source: Manh-Hung Le et al., 2020
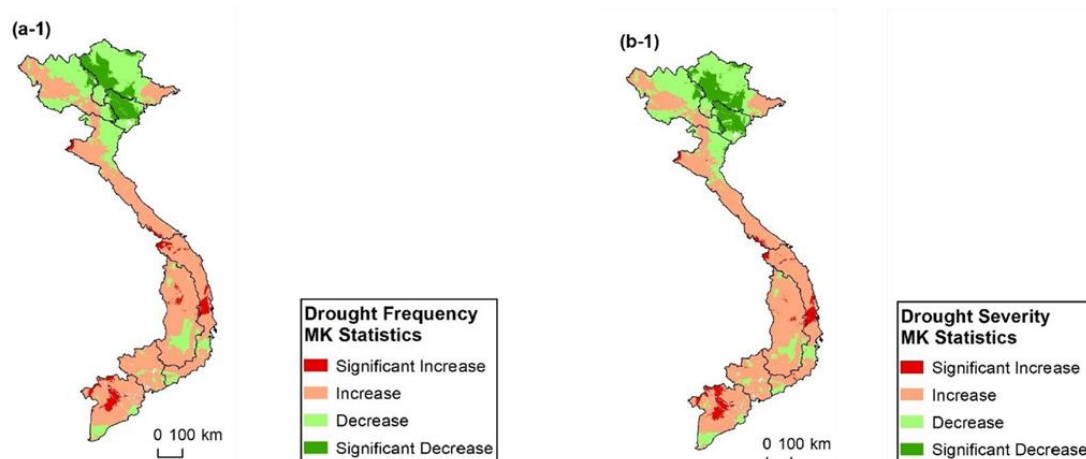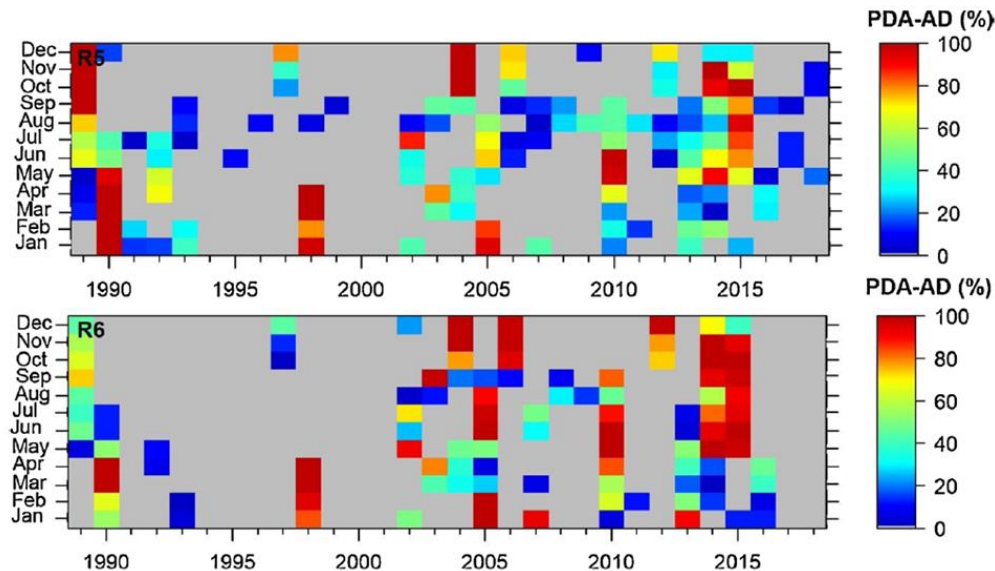
*Figure 6. Percentage drought area for agricultural land using dynamic land cover (PDA-AD) estimated from 1-km spatial resolution in **South Central Region** (R5) and **Central Highlands** (R6) sub-regions based on the Standardized Precipitation Evapotranspiration Index (SPEI) during 1989-2018. Grey color denotes no drought condition. Source: Manh-Hung Le et al., 2020*

Similar results appear in (Nguyen et al., 2016) where the authors show that droughts in the Central Highlands are becoming more severe and are impacting a larger area than before (7) based on satellite imagery. For example, the area most severely impacted by the drought in 2015-2016 was 2.1 to 2.5 times larger than in 2010. In addition, areas that have never experienced drought are now also increasingly affected. The main climate factors causing droughts in this region are reduced dry season rainfall and a longer than usual dry season.

Figure 7. Change in severe drought area and drought impacted area over the Central Highlands of Viet Nam in El Niño years from Landsat satellite imagery. Source: Nguyen et al., 2016
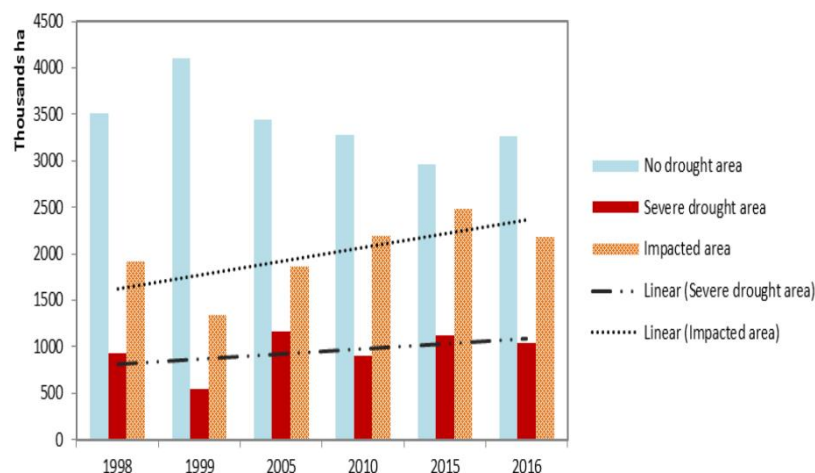
Within the RECAF project boundaries, special mention should be made of Ninh Thuan since it is a hotspot of drought in Viet Nam. Severe drought is often repeated every 10 years (Dang Thanh Binh et al., 2020). The drought situation in recent years in Ninh Thuan is more severe and complex, with drought events in 1993-1994, 2004-2005, 2014-2016, and 2019-2020, even though rainfall in Ninh Thuan province has actually been increasing over time. Increasing inter-annual variability -rather than any decline in long-term rainfall- and increasing demand for water are the two main drivers behind the

increasing incidence of drought. The province has witnessed a steady growth in the area under wet paddy cultivation and the production of maize and other perennial crops which need substantial amounts of water, compared with the dry rice grown in earlier years.

Ninh Thuan is the region with the scarcest surface water in the country, with an average annual rainfall of about 1,100 mm throughout the province. The rainfall itself is not distributed evenly over time and space. While the upstream area of Cai Phan Rang River has a rainfall of about 2,000 mm, the coastal area is only approximately 700 mm. Every year, Ninh Thuan is affected by natural disasters due to drought, water shortage and intrusion (Ninh Thuan Hydro-met centre, 2019b). Recently, the water level in rivers, streams, ponds and lakes in the province is increasingly exhausted, causing great losses to farmers' agriculture production and daily life (Dang Thanh Binh et al., 2020).

Drought in the Central Highlands of Viet Nam has resulted in water shortage for irrigation and domestic use of the communities. Its effects are more apparent in sloping and remote areas of the region. Rice and coffee are the most sensitive crops to drought. As with the effects of other climate stresses, ethnic minorities and smallholders are the most vulnerable to the effects of drought on food security and income. If they lose their crops and/or animals to climate-related events, they are left with nothing to eat or little to no income to purchase food for their family. This is exacerbated in isolated areas where alternative economic activities are not easily available (CGIAR, 2016).

The report from CGIAR (2016) analyzed the 2015-16 drought crisis in the Central Highlands and found that the level of drought impacts experienced was strongly related to local (i.e. households, farm and village) conditions, such as the local climate, availability of surface and groundwater, land use systems, capital capacity and social specificities. Effects of the drought were more evident in sloping lands and remote areas than in low-land and peri-urban areas. In terms of the magnitude of drought effect, the province of Gia Lai appeared to have been most affected by severe drought. The local people perceived that the severe drought experienced in the region is a consequence of the significant change in land use with the expansion of coffee, rubber and pepper plantations in the region in the recent decades. This led to large-scale deforestation in the provinces of the Central Highlands to open up more land for cultivation (CGIAR, 2016).
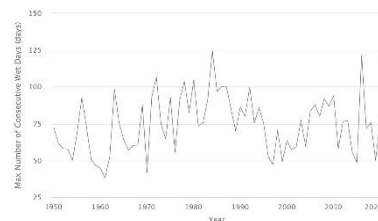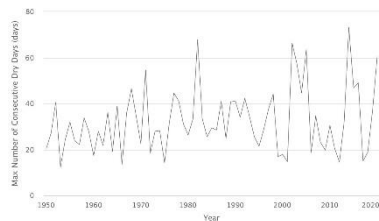
Figure 8. Annual Trends in the number of Dry and Wet Events (ERA5 data) for the RECAF project provinces.
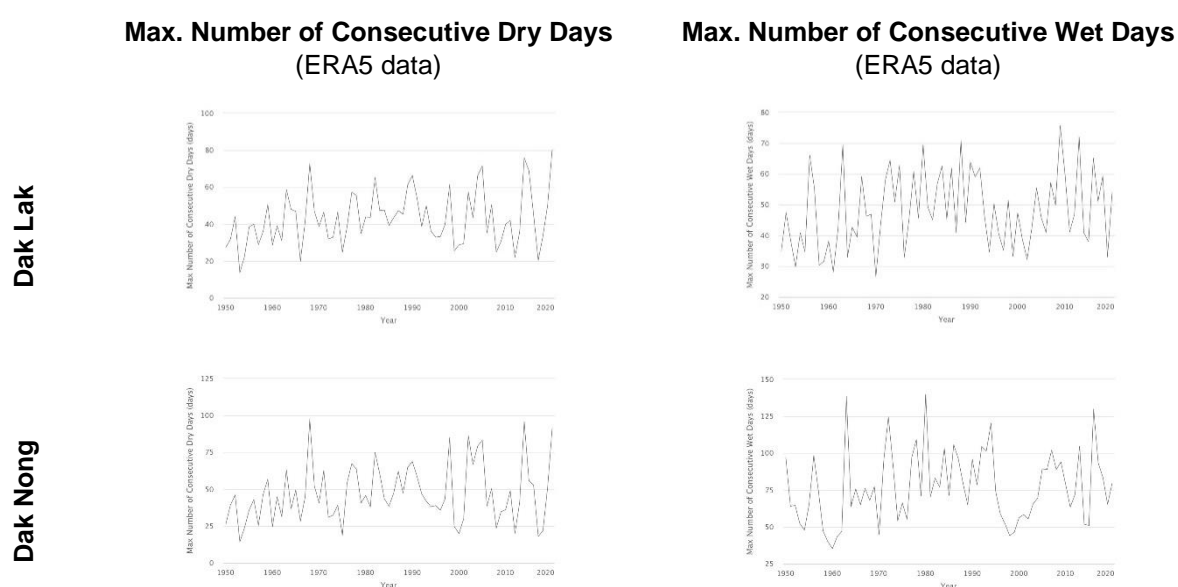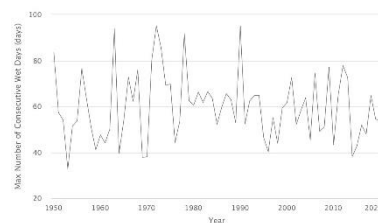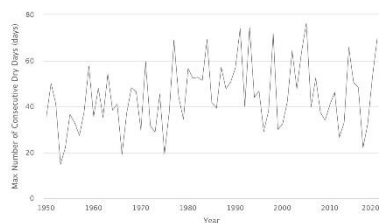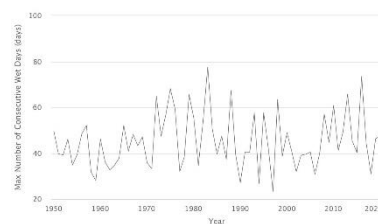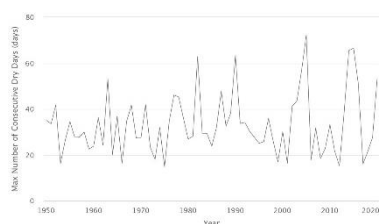
3. 2 Future Climate

RCP 2.6 and 8.5, the extremes of low and high emissions pathways, are the primary focus. RCP2.6 would require rapid and systemic global action, achieving emissions reduction throughout the 21st century sufficient to reach net zero global emissions by around 2080. RCP8.5 assumes annual global emissions will continue to increase throughout the 21st century. Studies published since the last iteration of the IPCC's report (AR5), such as Gasser et al. (2018), have presented evidence which suggests a greater probability that earth will experience medium and high-end warming scenarios than previously estimated. Climate change projections associated with the highest emissions pathway (RCP8.5) are presented here to facilitate decision making which is robust to these risks.

3.2.1 Future trends on Temperatures

Projected temperature increases in Viet Nam are similar to the global average, ranging between 1.0°C and 3.4°C by 2080–2099 when compared with the 1986–2005 baseline (which was already 0.5°C above the 1951-1980 level). The range in possible temperature rises highlights the significant differences between 21st century emissions pathways. Table 8 and Figure 9 summarize the expected temperature changes in each of the RECAF project provinces, with a clear increasing trend in mean temperature, maximum temperature, dry days and extreme hot days.

Rises in annual maximum and minimum temperatures are expected to be stronger than the rise in average temperature, likely amplifying the impacts on human health, livelihoods, and ecosystems. Viet Nam regularly experiences high maximum temperatures, with an average monthly maximum of around 28°C and an average May maximum of 31°C. Temperature rises in Viet Nam are expected to lead to what might be considered chronic heat stress in some areas, even under lower emissions pathways.

*Table 8. Projected Temperature Changes based on the reference period 1995-2014 and **SSP5-8.5** model.*

	Projected Mean-Temperature Change (Annual)		Projected Max-Temperature Change (Annual)	Projected Days with Heat Index > 35°C Change (Annual)	Projected Max Number of Consecutive Dry Days Change (Annual)
	2020-2039	**2080-2099**	**2020-2039**	**2020-2039**	**2020-2039**
Gia Lai	+0.72 °C	+3.62 °C	+0.74 °C	+7.6 days	+0.29 days
Dak Lak	+0.70 °C	+3.57 °C	+0.71 °C	+7.07 days	+6.42 days
Dak Nong	+0.71 °C	+3.54 °C	+0.70 °C	+31.2 days	+9.83 days
Lam Dong	+0.68 °C	+3.24 °C	+0.63 °C	+30.81 days	+5.11 days
Ninh Thuan	+0.65 °C	+3.18 °C	+0.61 °C	+19.56 days	+3.81 days

Figure 9. Projected Temperature Changes for each of the RECAF project provinces. Source: World Bank Climate Change Knowledge Portal (CMIP6 data)

Projected Monthly Mean Temperature Change for 2020-2039. (Reference Period 1995-2014), **SSP5-8.5**, Multi-Model Ensemble

Projected Mean Temperature. (Reference Period 1995-2014), **SSP1-2.6** and **SSP5-8.5**, Multi-Model Ensemble
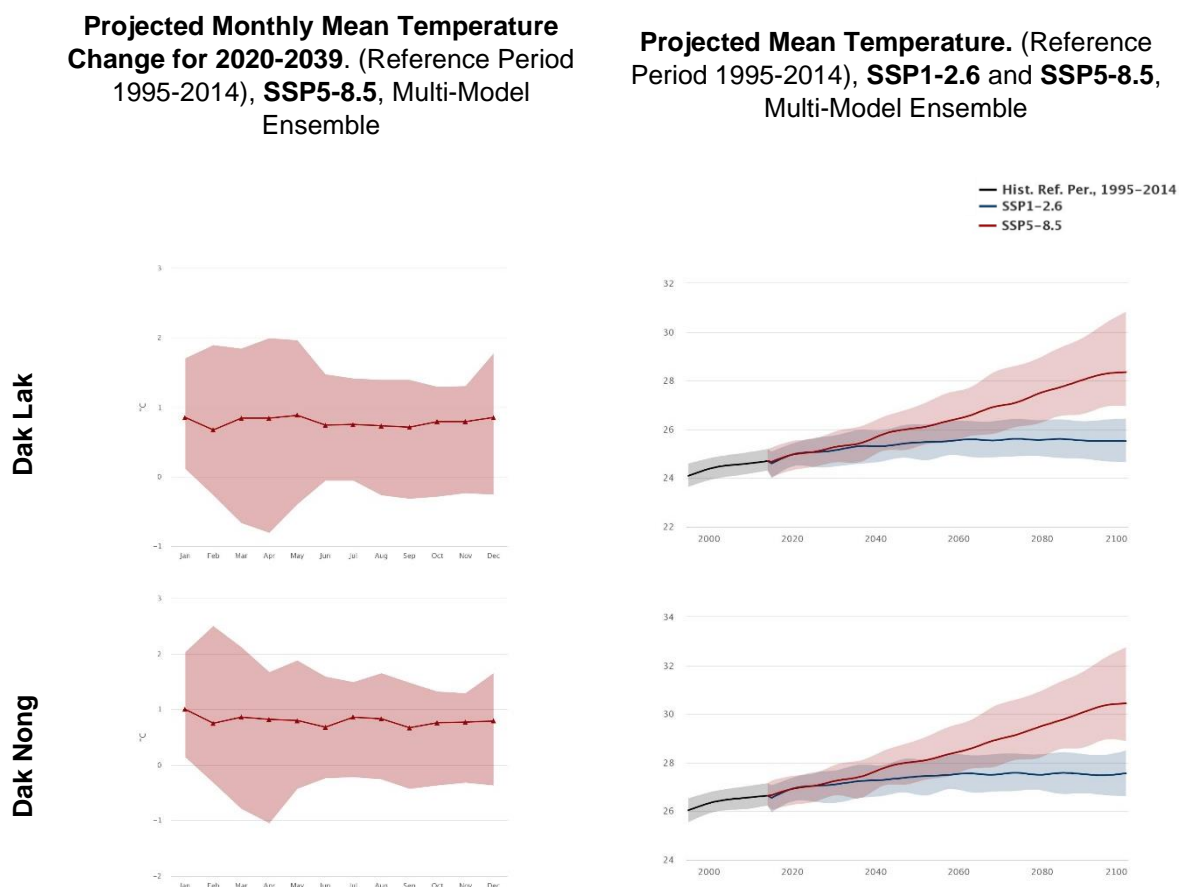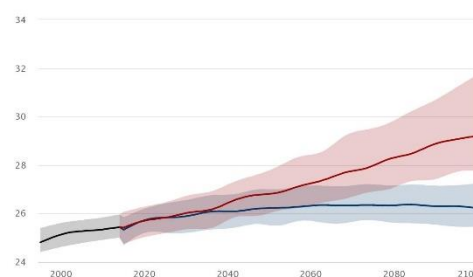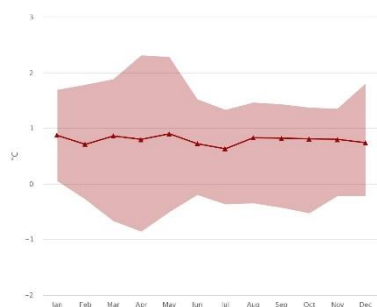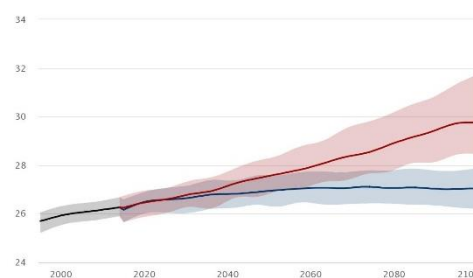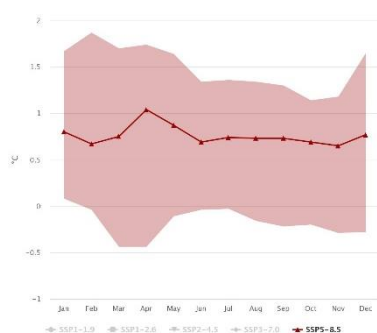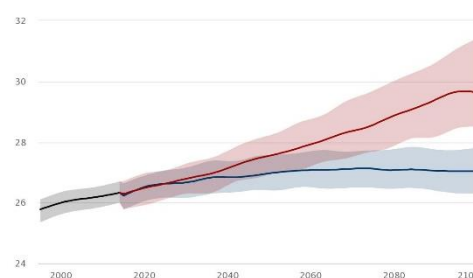
3.2.2 Future trends on Precipitation

There is considerable uncertainty around future precipitation trends and the intensity of extreme events, in particular due to the current generation of climate models' poor performance simulating the El Niño Southern Oscillation (ENSO). There is currently no scientific consensus yet on how global warming is affecting El Niño, except that ENSO will continue to occur at the same time as global surface temperatures are increasing.[8]

Table 9 and Table 10 summarize the expected rainfall changes in the RECAF project area, showing conflicting trends in annual precipitation depending on the specific province and a common trend with slight increases in the intensity of extreme rainfall events.

Table 9. Projected Precipitation Anomalies based on the reference period 1995-2014 and **SSP5-8.5** *model.*

	Projected Precipitation Change (Annual) for 2020-2039	**Projected Average largest 1-Day Precipitation Change (Annual) for 2020-2039**	**Projected Average largest 5-day cumulative rainfall Change (Annual) for 2020-2039**
Gia Lai	-107.0 mm	+3.44 mm	-18.63 mm

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[8] El Niño and Global Warming - what is the connection? (February 2016), http://blogs.ei.columbia.edu/2016/02/02/el-nino-and-global-warming-whats-the-connection/

Dak Lak	-104.8 mm	+8.54 mm	+22.99 mm
Dak Nong	-46.8 mm	+3.53 mm	+8.42 mm
Lam Dong	+2.3 mm	+8.18 mm	+6.27 mm
Ninh Thuan	+25.7 mm	+10.09 mm	+4.09 mm

*Table 10. Projected Precipitation Anomalies (%) for different seasons (3-monthly time slices) based on the reference period 1995-2014 and **SSP5-8.5** model.*

Projected Precipitation Percent Change for 2020-2039

	Total Annual	**Dec-Jan-Feb**	**Mar-Apr-May**	**Jun-Jul-Aug**	**Sep-Oct-Nov**
Gia Lai	2.45 %	2.23 %	0.45 %	0.27 %	4.12 %
Dak Lak	2.29 %	0.61 %	-1.01 %	0.98 %	3.96 %
Dak Nong	2.66 %	-0.02 %	-2.28 %	1.10 %	6.22 %
Lam Dong	1.82 %	1.11 %	-5.00 %	1.44 %	3.67 %
Ninh Thuan	2.27 %	3.59 %	-3.33 %	0.74 %	3.28 %

3.2.3 Future trends on Droughts

At present Viet Nam faces an annual median probability of severe meteorological drought of around 4%, as defined by a standardized precipitation evaporation index (SPEI) of less than –2. Recent analysis provides a global overview of changes in drought conditions under different warming scenarios. Projections for Southeast Asia suggest that the return periods of droughts will reduce. This trend is less significant under lower levels of global warming, but once warming reaches 2°C–3°C events that presently occur only once in every hundred years may return at frequencies greater than once in every fifty years in Southeast Asia.

Broadly in line with this estimate, the multi-model ensemble projects an increase in the annual probability of drought in Viet Nam of around 10% under all emissions pathways (Figure 10), and this increase remains relatively constant over the period from 2020–2100. Analysis suggests these changes apply across all of Viet Nam's regions, with droughts projected to take place more often and for longer periods. However, there is some variation between climate models and downscaling approaches and caution should be applied to the application of these projections (WB & ADB, 2021).

Figure 10. Annual probability of Viet Nam experiencing a year with severe drought conditions in the period 2080-2099. Source: WB & ADB, 2021
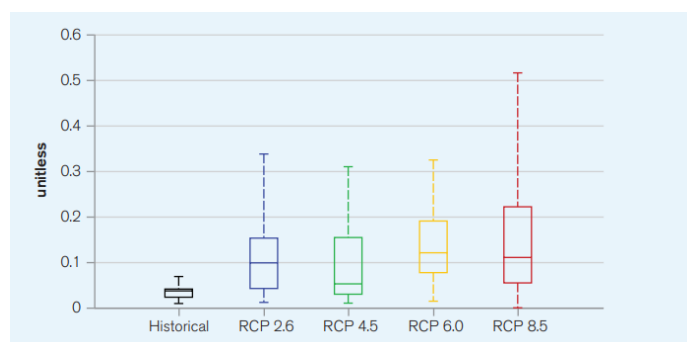
By contrast, (CSIRO, 2014) project a decrease in the number of drought events by the end of the century for the majority of northern Viet Nam, parts of central Viet Nam and southern Viet Nam. Only the mountain regions of North Central Viet Nam and the coastal regions in South Central Viet Nam show a considerable increase in the number of drought events (2 to 7 events) for the 2080-2100 projections. See Figure 11 for more details.

*Figure 11. Projected changes in the number of extreme agricultural droughts for **2045-2065** (a) and severe agricultural droughts for **2080-2100** (b), both in events per period, and their average duration in months for **2045-2065** (c) and for **2080-2100** (d) based on the 3-month SPI values calculated using CCAM ensemble simulations at 10 km resolution for RCP 8.5. Source: CSIRO, 2014*
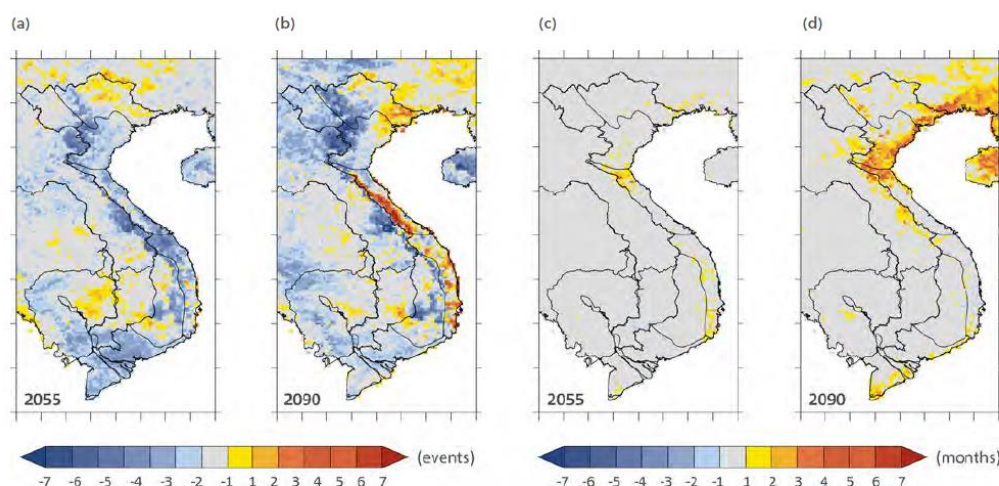
The Fifth Assessment Report of the Intergovernmental Panel on Climate Change states that El Niño–Southern Oscillation-related precipitation variability on a regional scale is likely to intensify with increased moisture availability (van Oldenborgh et al. 2013). More recent research published in Nature (Cai et al. 2015) suggests that the frequency of El Niño conditions may increase twofold by the end of the century. The assessment of Coupled Model Intercomparison Project 5 (CMIP5) models shows that dry periods may occur more frequently even when there is an increase in annual average rainfall (ADB, 2020).

Since the publication of the IPCC AR6 reports, further downscaled assessments have been published, which provide more insights on drought, precipitation and rainfall projections. In the modelling, extreme temperature is projected to change more rapidly over Vietnam's northern catchments, compared to central and southern catchments.[9] The Central Coast and Central Highlands emerge as two regions with the most pronounced predicted increase in rainfall towards the end of the century.[10] Flood risk in the Srepok River, Central Highlands drainage may not be statistically significant, but increased rainfall is affirmed by research findings.[11] The World Bank (2022)[12] estimates that climate change impacts will deprive Vietnam of a large share of its agricultural productivity gains by 2030 and 2050. Thus, climate adaptation and economic security for small-scale farmers in the Central Highlands focuses on building resilience and diversity in these agricultural production systems. As explored elsewhere in Annex 2, the mono-cropping of coffee and related reliance on agricultural inputs has resulted in stressed soils, but has also developed in a manner that

[9] Quan Tran-Anh, Thanh Ngo-Duc, 2024. Probabilistic projections of temperature and rainfall for climate risk assessment in Vietnam. Journal of Water and Climate Change; 15 (5): 2015–2032. doi: https://doi.org/10.2166/wcc.2024.461

[10] Quan Anh Tran, Ngoc Hong Thi Nguyen, Hai Thi Do, Huong Thu Thi Tran, 2024. Future climate projections for Vietnam: temperature and precipitation changes under SSP2-4.5 and SSP5-8.5 scenarios. Journal of Mining and Earth Sciences 65(2):66-75. DOI:10.46326/JMES.2024.65(2).08

[11] Do, Hong Xuan, Tu Hoang Le, Manh-Hung Le, Dat Le Tan Nguyen, and Nhu Cuong Do. 2024. Future Changes in Hydro-Climatic Extremes across Vietnam: Evidence from a Semi-Distributed Hydrological Model Forced by Downscaled CMIP6 Climate Data. Water 16, no. 5: 674. https://doi.org/10.3390/w16050674.

[12] World Bank Group, 2022. Country Climate and Development Report.

has built farmer reliance on sun-grown varieties and single-crop systems with little intercropping. Agroforestry and intercropping is found to provide an economical and feasible way to improve soil structure and nutrients, retain water in soils, diversify the number of crops farmers can rely on, and the timing of harvest of crops for more regular income (see research by IPSARD, WASI, CIAT). Although research indicates coffee is sensitive to climate change and will shift in the Central Highlands (see coffee sector section), agroforestry provides a means to buffer these changes, diversify the crops produced and the related income generated, and shift production in areas that will no longer be suitable.

3.2.4 Future trends on Other Climate-related Natural Hazards

Viet Nam faces high disaster risk levels, ranked 91 out of 191 countries by the 2019 INFORM Risk Index, driven particularly by its exposure to hazards. Viet Nam has extremely high exposure to flooding, including riverine, flash and coastal flooding. Viet Nam also has high exposure to tropical cyclones and their associated hazards. Drought exposure is slightly lower (ranked 82nd) but is still significant as highlighted by the severe drought of 2015–2017. Viet Nam's overall ranking on the INFORM Risk Index is somewhat mitigated by its better scores in terms of vulnerability and coping capacity. Table 12 provides an overview of the social and economic losses associated with natural disasters in Viet Nam from 1900 to 2018.

The most typical pattern of hazards in Viet Nam is the following: droughts and forest fires during January-April; tropical, hail and wind storms, coastal, riverine and flash floods, heavy rainfall and landslides in June-December; and extreme temperatures (cold and heat waves) throughout the year.

Table 11. Selected indicators from the INFORM 2019 Index for Risk Management for Viet Nam. For the sub-categories of risk, higher scores represent greater risks. Conversely the most at-risk country is ranked 1st. Source: WB & ADB, 2021

Flood (0-10)	Tropical Cyclone (0-10)	Drought (0-10)	Vulnerability (0-10)	Lack of Coping Capacity (0-10)	Overall Inform Risk Level (0-10)	Rank (1-191)
10.0	7.9	3.5	2.4	4.2	3.8	91st

Table 12. Summary of natural hazards in Viet Nam from 1900 to 2020. Source: WB & ADB, 2021

Disaster Type	Disaster Subtype	Events Count	Total Deaths	Total Affected	Total damage ('000 US$)
Drought	Drought	6	0	7,860,000	7,399,120
Epidemic	Others	1	16	83	0
	Bacterial disease	1	598	10,848	0
	Parasitic disease	1	200	0	0
	Viral disease	8	395	97,027	0
Flood	Others	16	1,012	2,011,287	160,055
	Coastal flood	6	804	4,353,316	749,000
	Flash flood	13	481	912,607	516,700
	Riverine flood	52	3,644	25,637,158	2,896,407
Landslide	Avalanche	1	200	38,000	0
	Landslide	4	109	40	0
	Mudslide	1	21	1,034	2,300
Storm	Others	10	323	219,280	145,035
	Convective storm	8	160	4,513	10,100
	Tropical cyclone	92	18,869	53,272,568	9,967,657

Figure 12. Key Natural Hazard Statistics for 1980-2020 in Viet Nam. Source: World Bank Climate Change Knowledge Platform
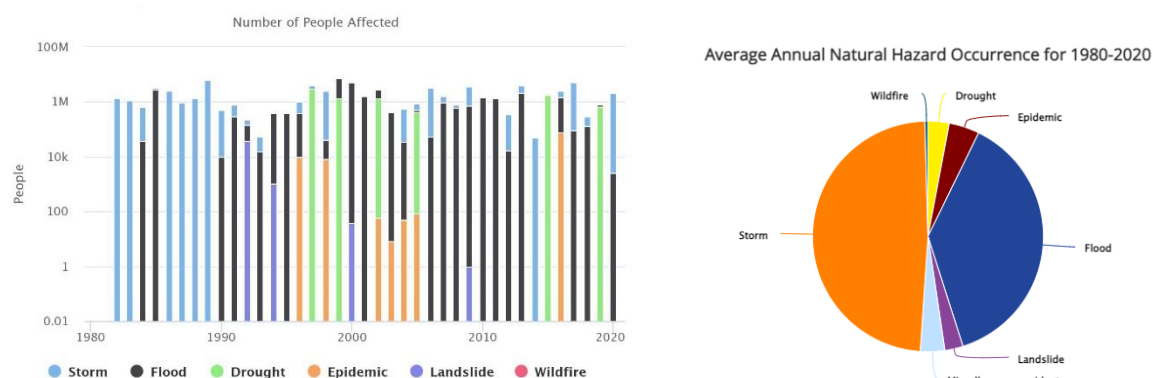
Future trends on Flash floods and Landslides. While floods represent the largest risk by economic impact in Viet Nam, their impacts are concentrated in the urban areas in the Red River and Mekong River deltas, and are not important in the RECAF project areas. However, the project area is vulnerable to flash floods and landslides caused by heavy rainfall. From 1980-2014 in Viet Nam, landslides mostly occurred in the north and Central Highland regions (See Figure 13).

Figure 13. Annual landslide frequency (left) and annual flood frequency (right) from 1980 to 2014 in the Greater Mekong region. Source: UNESCO & WREI, 2015
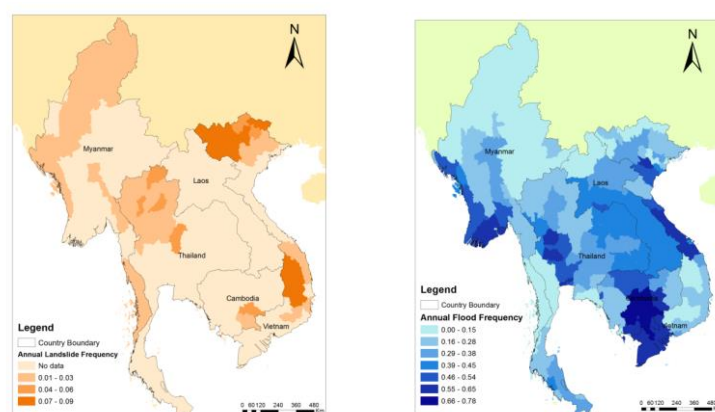
Future trends on Tropical Cyclones and Storm Surge. Viet Nam has very high exposure to tropical cyclones that strike the country an average of 6-8 times per year, with a particularly high rate of landfall along its northern coast (see Figure 14). Climate change is expected to interact with cyclone hazard in complex ways that are currently poorly understood. Known risks include the action of sea-level rise to enhance the damage caused by cyclone-induced storm surges, and the possibility of increased wind speed and precipitation intensity. Cyclone-induced storm surge is found to be a major contributor to the economic costs of climate change on a national level in the period beyond 2050 (WB & ADB, 2021).

Intense rainfall associated with typhoons frequently causes immense destruction in heavily populated coastal areas as well as in the Red River and Mekong deltas, the country's major rice-growing areas. These deltas are also vulnerable to flooding caused by heavy monsoon rainfall. Within the RECAF project area, only Ninh Thuan has a coastal zone with a small delta, though it has a small flood risk and relatively low population density.

Following the drought of 2015-2016, in 2017, Viet Nam was affected by a number of tropical storms, floods (riverine and flash), heavy rainfall, landslides, and a heatwave, resulting in more than 5 million people affected, 400 deaths and 650 people injured, 558,000 houses damaged, flooded or destroyed

and 350,000ha of crops affected. Typhoon Damrey in November 2017 caused the most damage, with 4.3 million people in 15 provinces in Central Viet Nam estimated to being affected, 123 people who lost their lives, and 305,254 houses damaged, flooded or destroyed (OCHA, 2017). The whole RECAF project area was greatly impacted by typhoon Damrey (although less than other nearby provinces), particularly the Dak Lak and Ninh Thuan provinces.

Figure 142. Annual tropical cyclone frequency from 1980 to 2014 in the Greater Mekong region. Source: UNESCO & WREI, 2015
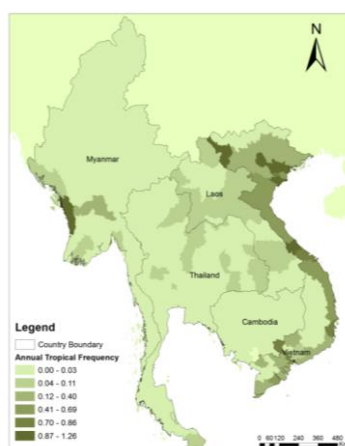
Modelling of climate change impacts on cyclone intensity and frequency conducted across the globe points to a general trend of reduced cyclone frequency and increased intensity and frequency of the most extreme events. Studies suggest there has been a general trend involving an eastward shift of cyclone activity in the Western North Pacific. Studies indicate this shift may be enhanced by climate change under higher emissions pathways. Existing data suggests this has already begun reducing the frequency of tropical cyclone landfall over Viet Nam and Southeast Asia. Studies (albeit with similar limitations) have also suggested a small potential shift of cyclone activity away from summer months and towards the winter (WB & ADB, 2021). Based on the PRECIS model, the projected number of tropical depressions and typhoons in the East Sea will decrease at the beginning of the typhoon seasons (June - August). Thus, the tropical depressions and typhoons will likely occur at the end of the typhoon season which is a period of typhoon activity occurring mainly in the South. The model also shows that the number of weak and moderate typhoon will likely decrease, while the number of strong typhoons will likely increase (MONROE, 2016).

Future trends on Sea level rise. Sea-level rise is already happening in coastal Viet Nam (see Figure 15) and current projections estimate a global mean se-level rise in the range of 0.44-0.74 m in 2100 compared to 1986-2005 (see Figure 16). Viet Nam's low-lying coastal and river delta regions have very high vulnerability to rising sea-levels. Depending on the emissions pathway 6–12 million people will potentially be affected by coastal flooding by 2070–2100 without effective adaptation action. The Red and Mekong deltas are the most vulnerable areas, with 50 cm of sea-level rise potentially inundating 6.9% and 4.5% respectively. It is estimated that a one-meter sea level rise could lead to USD 2 billion in road damages and that millions of people's livelihoods, especially in the Mekong Delta. Within the RECAF project area, Ninh Thuan is the only province with a coastal zone. Yet the impact is very small as visualized in Figure 17); a 50-cm sea-level rise would inundate 0.20% of the total province area. Ninh Hai district is the district having the highest risk of inundation (MONRE, 2016).

In coastal regions, saltwater intrusion in soil and groundwater poses another challenge. Increased salinity is partly caused by climate-induced sea level rise and is becoming a serious threat to agricultural production in the delta areas.

Figure 15. Historical Sea Level for coastal Viet Nam (1993-2015). Observed anomalies relative to the mean of 1993-2012. Source: World Bank Climate Change Knowledge Platform
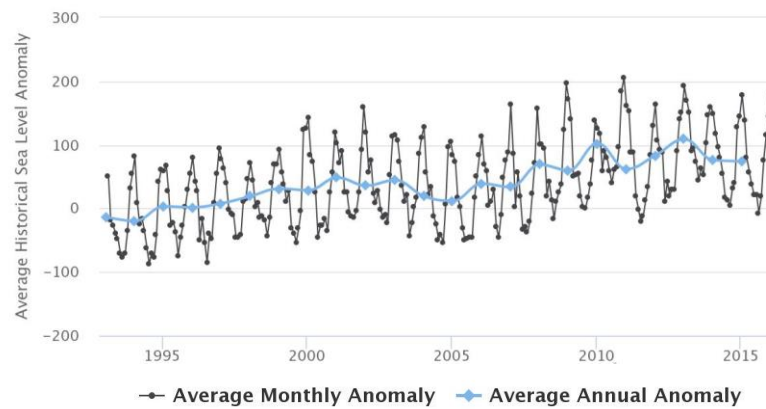
Figure 16. Projected Sea Level Rise of coastal Viet Nam (2040-2059) under RCP 2.6 and RCP 8.5 scenarios
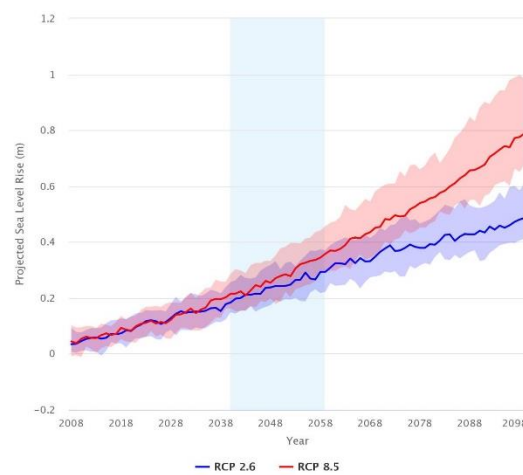
Figure 17. Sea level rise at 5-meter (left) [Source: UNESCO & WREI, 2015] and inundation risk map (in red color) with sea-level rise of 100 cm in Ninh Thuan province (right) [Source: MONROE, 2016]
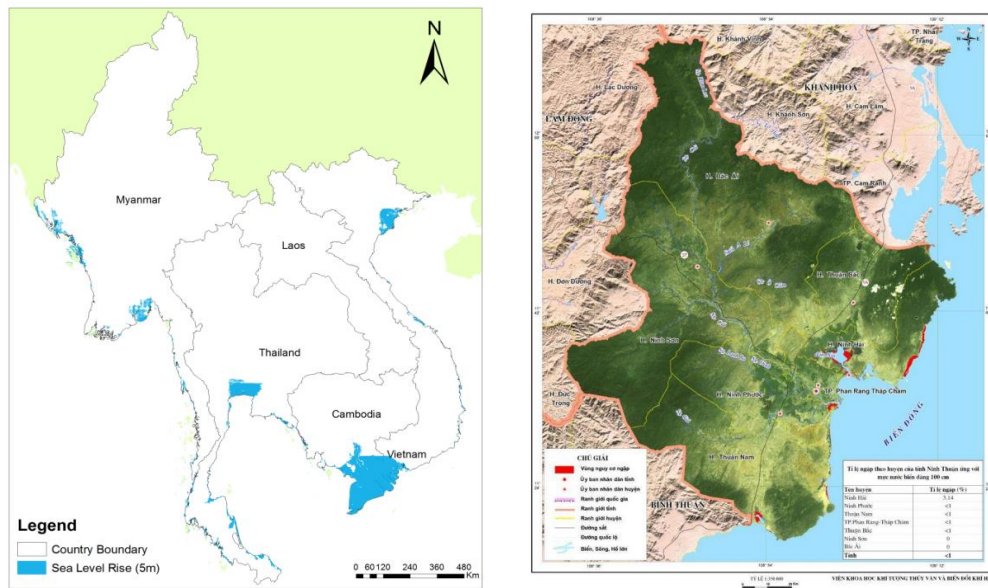
3.2.5 Conclusions on climate change projections

- Projected temperature increases range between 1.0°C and 3.4°C by 2080-2099 when compared with the 1986-2005 baseline. The range in possible temperature rises highlights the significant differences between the different emissions pathways.

- The projections for the project area show a clear increasing trend in mean temperature, maximum temperature, dry days and extreme hot days. Rise in annual maximum and minimum temperatures are expected to be stronger than the rise in average temperatures, likely amplifying the impacts on human health, livelihood and ecosystems.

- Projections on annual average rainfall do not show a clear pattern for the project area, but models do seem to indicate a slight increase in the intensity of extreme rainfall events. There is a considerable uncertainty on future potential changes of ENSO.

- Droughts are expected to take place more often and for longer periods. Some models project an increase of 10% in the annual probability of drought over the next decades. Increasing inter-annual rainfall variability (rather than any decline in long-term rainfall) and increasing demand for water are the two main drivers behind the increasing incidence of drought. Within the RECAF project boundaries, Ninh Thuan is a drought hotspot; the Central Highlands also suffer its effects, particularly on sloping and remote areas. Ethnic minorities and smallholders are the most vulnerable to the effects of drought on food security and income

- Viet Nam has extremely high exposure to flooding, tropical cyclones and storm surges, though these hazards are mostly concentrated in the urban areas in the Red River and Mekong River deltas. The RECAF project area is mainly vulnerable to flash floods and landslides caused by heavy rainfall.

3.3 Projected climate change impacts on agriculture.

3.3.1 Context

Viet Nam is considered to be among the most vulnerable countries to climate change globally (German Watch, 2017). Its agriculture sectors (i.e. crops, livestock, fisheries, and aquaculture) are particularly susceptible to the impacts of climate change. This poses significant risks to the country as the sectors employ approximately 35 percent of Viet Nam's labour force, contribute 15 percent of its

gross domestic product (GDP) (in 2019) and support the livelihoods of 65 percent of the Vietnamese population living in rural areas (GSO, 2019).

Viet Nam is one of the world's leading producers and exporters of many agricultural products, such as coffee, peanuts, and rice and agriculture employed over 18.8 million people in 2019 while contributing up to 14.85% to Viet Nam's GDP in 2020. FAOSTAT (2020) reports the top 5 crops produced by area harvested in Viet Nam in the year 2020 were paddy rice (7.2 million ha), maize (939,563 ha), fresh vegetables (853,824 ha), rubber (728,764 ha) and coffee (637,563 ha).

The Dak Lak, Dak Nong and Lam Dong provinces are Viet Nam's leading coffee producers. Apart from coffee, the Central Highlands region also grows other perennial crops, including tea (23,000 ha), rubber (257,000 ha), black pepper (33,490 ha), cashew (33,000 ha), cacao (3,750 ha) and fruit trees (30,720 ha), for domestic and export markets. The main annual crops in the Central Highlands are rice, maize, sweet potato, vegetables, cassava, sugarcane, groundnut and soybean. About one-third of the areas cultivated with annual crops (316,000 ha) are in Dak Lak province. In 2013, 232,000 ha of land area were planted with rice over two cropping seasons: winter-spring and summer. Most of the rice and other annual crop products are for domestic use.

Losses of agricultural productivity are projected for key food and cash crops, multiple drivers have been proposed, including saline intrusion and shifts in the viable geographical range of plant species. As temperatures rise the increase in heat stress on the Vietnamese population will lead to negative health outcomes, particularly for poorer communities and outdoor laborers. Viet Nam faces potentially significant social and economic impacts across multiple regions and sectors. Without effective adaptation and disaster risk reduction efforts multidimensional poverty and inequality are likely to increase.

In addition, due to the location of the roughly 300 000 km of road infrastructure in mountainous landscapes and along the coastline, the transport sector in Viet Nam is particularly vulnerable to climate change-induced erosion, floods, and land-slides, impacting essential networks for agriculture sector value chains.

Climate change will influence food production via direct and indirect effects on crop growth processes. Direct effects include alterations to carbon dioxide availability, precipitation and temperatures. Indirect effects include through impacts on water resource availability and seasonality, soil organic matter transformation, soil erosion, changes in pest and disease profiles, the arrival of invasive species, and decline in arable areas due to the submergence of coastal lands and desertification (WB & ADB, 2021). Table 13 summarizes the main impacts of climate change on agriculture.

A further, and perhaps lesser appreciated influence of climate change on agricultural production is through its impact on the health and productivity of the labor force. Research focused on laborers in Da Nang has shown the high likelihood that by 2050 temperatures will regularly exceed thermal comfort levels set by the Vietnamese Ministry of Health, an issue which will likely impact several million laborers in agriculture and other industries around Viet Nam. In combination, it is highly likely that the above processes will have a considerable impact on national food consumption patterns both through direct impacts on internal agricultural operations, and through impacts on the global supply chain.

Table 13. Possible Impacts of Climate Change on Agriculture. Source: WB, 2010

Climate change	Possible impacts
Increasing temperature	Decreased crop yields due to heat stress and increased rate of evapotranspiration
	Increased livestock deaths due to heat stress
	Increased outbreak of insect pests and diseases
Changes in rainfall	Increased frequency of drought and floods causing damages to crops
	Changes in crop growing season
	Increased soil erosion resulting from more intense rainfall and floods
Sea level rise	Loss of arable lands
	Salinization of irrigation water

In the work synthesized in (USAID & UNDP, 2016), household surveys were conducted to evaluate the farmers' perception of climate change. A large proportion of the households perceived long-term shifts in climate conditions. Approximately 90 per cent were aware that there was a long-term shift in temperature and precipitation. Almost two thirds of households (63%) observed a change in drought frequency. Many farmers (88 per cent of those surveyed) indicated a change in the incidence of crop pests and diseases. Few farmers noticed changes in the frequency of flooding. Among the farmers who reported a change in flood frequency, 70 per cent said it decreased. As for temperature changes, 98 per cent reported that temperature had increased. Regarding precipitation, most (85 per cent) reported an increase (USAID & UNDP, 2016).

3.3.2 Impacts of climate change on crop yields and suitability (GAEZ).

The Global Agro-Ecological Zoning (GAEZ) version 4 was used for the evaluation of the expected climate change impacts on crop production. GAEZ provides a standardized framework for the characterization of climate, soil and terrain conditions relevant to agricultural production.

GAEZ systematically computes spatial and temporal data on maximum attainable crop yields, determines best performing crop types and crop calendars, and estimates sustainable agricultural production potentials at different specified levels of inputs and management conditions. The GAEZ computations include historical reference periods and a selection of future climate simulations using recent IPCC AR5 Earth System Model (ESM) outputs for four Representative Concentration Pathways (RCPs). The methodological approach is described in the GAEZ v4 Model documentation (FAO and IIASA, 2021).

Agro-climatic Potential Yield provides crop-wise information about potential biomass and yield and related crop cycle attributes, calculated using an eco-physiological crop growth model and spatially detailed climate characteristics (radiation, temperature and precipitation) during different crop development stages.

The **Crop Suitability Index** integrates an extensive set of edaphic and climatic factors into its biophysical suitability analysis to produce a suitability index by production system and crop. It depicts the spatial variation of the potential upper limit that is agronomically possible for the production of individual crop types under given agroclimatic, soil and terrain conditions for a specific level of agricultural inputs and management conditions.

Global AEZ results should be used with caution when working at small areas. Global data sets used as inputs to AEZ are known to be of uneven quality and reliability around the world. Hence, the results obtained from Global AEZ should be treated in a conservative manner at appropriate aggregation levels, which are commensurate with the resolution of basic data and the scale of the study.

3.3.3 Vulnerability assessments:

According to the IPCC's Fourth Assessment Report (AR4), vulnerability is 'the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes' (IPCC, 2007). The degree of vulnerability is derived from a given system's exposure and sensitivity to changes in climate and climate variability, the potential impact that relates to that change, and the adaptive capacity of the system to cope with this impact. Figure 18 shows a diagram summarizing the assessment of the vulnerability to climate change. Changes in crop suitability and crop yields are usually common indicators of Climate Change Impact, while the adaptive capacity may be estimated from poverty levels, infrastructure, healthcare and education indicators.

Figure 18. Vulnerability Assessment approach from IPCC's report (2007)
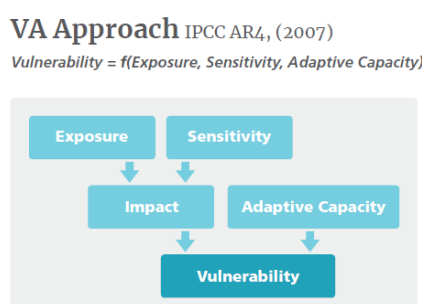
Examples of vulnerability assessments for the Vietnamese agriculture sector:

UNDP Vulnerability Assessment: UNDP & FAO, 2021

In order to understand climate-induced risks, FAO and UNDP led the programme '*Integrating Agriculture in National Adaptation Plans*' (NAP–Ag) (2016-2018) to provide comprehensive climate change vulnerability and risk assessments (VRAs) at national level for the crop, livestock, aquaculture, and water resources sectors. The results have been summarized in (UNDP & FAO, 2021).

The **Vulnerability Index** (VI) used in NAP-Ag is based on a total of 50 indicators that were selected; out of which 8 are climate change exposure indicators, 25 climate change sensitivity indicators, and 18 climate change adaptive capacity indicators. Table 14 shows some examples of indicators for each category. The data for each indicator was collected, either through field research or desk-based activities (standardization of geographical information, downscaling of statistical data sets, developing density maps per district), in order to have sufficient district-level information for all 63 provinces in Viet Nam.

Table 14. Selected indicators for computing the Vulnerability Index for crops at the district level. Source: UNDP & FAO, 2021

	Indicators	**Time span**
Exposure Indicators	Temperature (max)	
	Temperature (min)	
	Drought index	2001-2014
	Annual rainfall (mm)	
	Storm index	
Sensitivity indicators	Loss in rice areas due to climate disaster (ha)	2010-2015

	Proportion of ethnic minorities	
	Ratio of multi-dimensional poverty	
	Cultivated rice area	
Adaptive Capacity	Gross value of crops output per hectare	2010-2016
	Rice yield	

CGIAR Vulnerability of the agricultural sector to climate change: (Le Ngoc Lan et al, 2016) & (Parker et al, 2019)

CGIAR conducted a study on the '*Pragmatic economic valuation of adaptation risk and responses across scales in Viet Nam*'. Figure 19 summarizes the indicators and workflow used to estimate the vulnerability in that work and published in (Le Ngoc Lan et al, 2016) and (Parker et al, 2019). The authors use Ecocrop and Maxent ecological models under a high emission climate scenario to assess the sensitivity of the main food security and cash crops to climate change. The work maps the hotspots of climate change vulnerability and identifies the underlying driving indicators. For example, in Viet Nam they found the Mekong delta to be one of the vulnerable regions due to a decline in the climatic suitability of rice and maize, combined with high exposure to flooding, sea level rise and drought. However, the region is marked by a relatively high adaptive capacity due to developed infrastructure and comparatively high levels of education.

Figure 193. Indicators used to estimate vulnerability. Source: Le Ngoc Lan et al, 2016
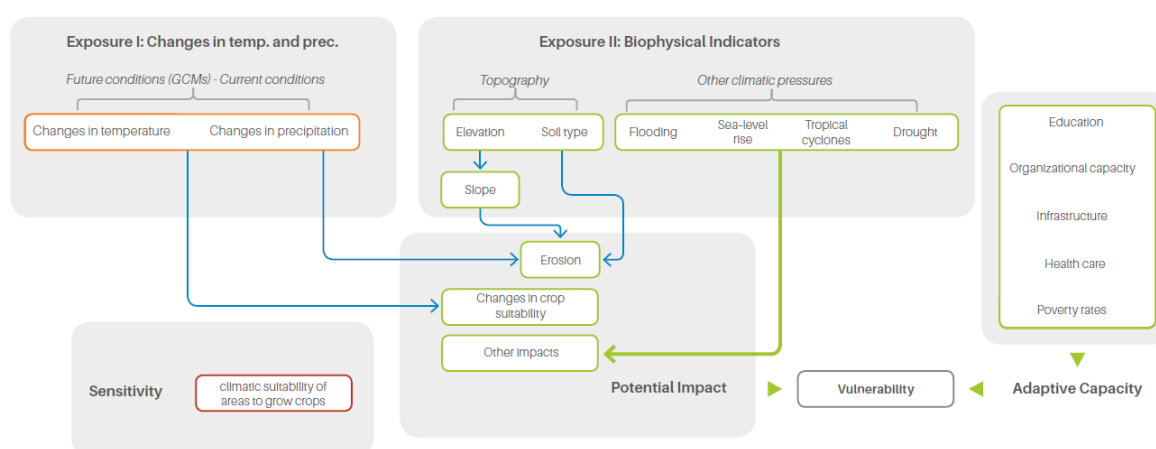
While the UNDP study focuses on current vulnerability (estimated from historical data), the CGIAR work also takes into account the estimated changes in crop suitability from projected precipitation and temperature. It should be noted that the UNDP report does not list all 50 indicators used, so it is difficult to understand exactly how the vulnerability index was calculated.

Both studies provide district-level estimates of vulnerability. The UNDP study encompasses a wide range of crops (rice, maize, sugarcane, cassava, coffee, fruits), as well as the livestock (buffalo, cattle, dairy, pig, poultry) and aquaculture sectors. On the other hand, the CGIAR work is confined to four major crops: rice, coffee, cassava and maize. In both cases, the maps on crop-specific vulnerability index should be regarded with caution since there are districts in which that specific crop may not actually be produced.

Last, the adaptive capacity in CGIAR is broader as it includes aspects such as education, accessibility, poverty levels and health indicators. Instead, the UNDP study is very much restricted to agriculture indicators (e.g. gross value of crops output, yields) and seems less accurate.

3.3.4 Impact of climate change on selected Crops

Paddy rice

Rice is the most important crop in Viet Nam. Viet Nam is among the leading rice producing and exporting countries worldwide. The production volume of rice paddy in Viet Nam was estimated to 43.9 million tons (Statista, 2021), slightly increasing from 42.8 million tons in 2020 (FAOSTAT, 2020). GAEZ data shows contradicting trends for the projected suitability of rice production in the different project provinces and an overall slight decrease in potential yield under the RCP8.5 scenario for most provinces (See Table 15).

*Table 15. Change in the suitability index and potential yield for **paddy rice** by region. Results are for baseline climate (1981-2010, source CRUTS32) and a climate scenario GFDL-ESM2M for RCP 2.6 and RCP 8.5 for the period 2040-2070 (2050s) without CO_2 fertilization and high input level under rainfed condition. Source: GAEZ*

Region	Change in suitability index		Change in potential yield	
	RCP 2.6 (%)	RCP 8.5 (%)	RCP 2.6 (%)	RCP 8.5 (%)
Dak Lak	+0.5	-1.3	+2.3	-1.5
Dak Nong	-5.7	-1.1	+1.1	-2.2
Gia Lai	+7.8	+0.7	+3.1	0.0
Lam Dong	-4.6	-1.4	+2.0	+0.7
Ninh Thuan	-2.8	-10.6	+4.1	-5.3

According to (Le Ngoc Lan et al, 2016), suitability for growing rice will decrease in the Mekong River Delta and increase in the Red River and in Northeast regions (See Figure 20). These changes in suitability are directly related to increases in the mean temperature of the warmest quarter and the maximum temperature of the warmest month.

*Figure 20. Current suitability (left) and changes by 2050's conditions (right) for **Rice**, considering the impact of temperature and precipitation only. Source: (Le Ngoc Lan et al, 2016)*
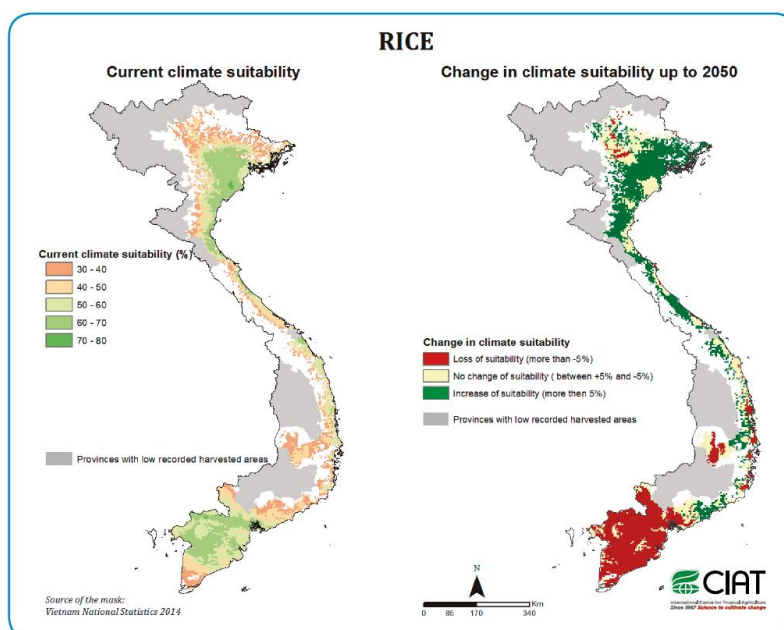
The (UNDP & FAO, 2021) report shows that within the RECAF project boundaries, Ninh Thuan has the highest VI values. This is related to the relative importance of rice in the cropping mix in Ninh Thuan (48% of total cropped acreage, against e.g. 18% in Dak Lak), but also climate change specific factors contribute to this vulnerability. For example, climate change-induced rainfall variability leads to extreme floods during the rainy season and drought periods in the dry season. In addition, some areas are affected by incrementally increasing salinization of soils and groundwater levels.

*Figure 214. Vulnerability Index (VI) for **Rice** in the five provinces included in the project. The Vulnerability Index (VI) is based on a total of 50 indicators that were selected; out of which 8 are exposure indicators, 25 sensitivity indicators, and 18 adaptive capacity indicators. Source: UNDP & FAO, 2021*
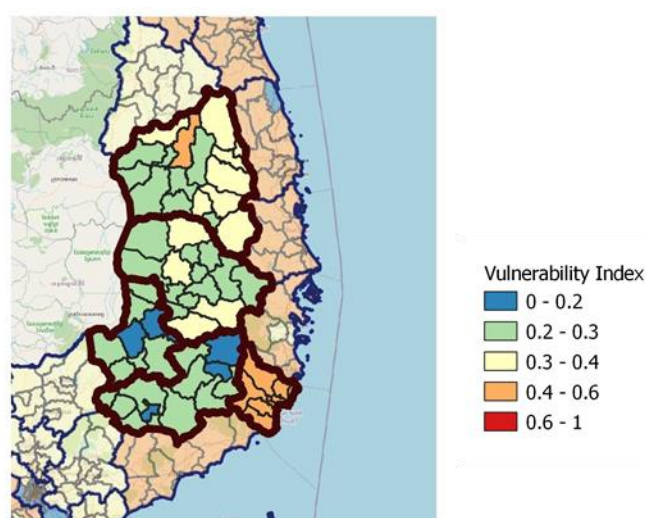
By contrast, Parker et al. (2019) find moderate vulnerability for Ninh Thuan but high vulnerability of rice in Dak Lak, as they weigh risk factors differently and do not consider the high area under a specific crop as a risk factor in itself.

*Figure 22. Vulnerability of **Rice** to climate change (2050) under a high emission scenario (RCP 8.5). Source: Parker et al, 2019*

Vulnerability: Rice
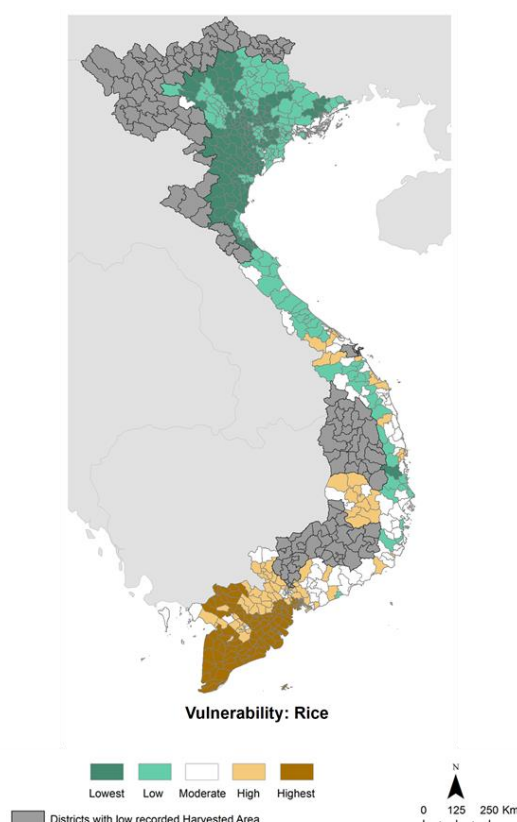
Maize

Maize is important in Viet Nam both as a cash crop, as it is used as a feed for the poultry and livestock industry, and for food security, especially in mountainous areas where it has in the past replaced rice in times of shortages. Maize contributes in Viet Nam to 90% of livestock and poultry feed. In 2021, approximately 4.43 million metric tons of maize were produced (Statista, 2022), slightly decreasing from 4.56 million tons produced in 2020 (FAOSTAT, 2020). GAEZ data shows contradicting results for the projected suitability of maize production in the different project provinces and an overall slight increasing trend in the potential yield under the RCP8.5 scenario for most provinces (See Table 16).

*Table 16. Change in the suitability index and potential yield for **maize** by region. Results are for baseline climate (1981-2010, source CRUTS32) and a climate scenario GFDL-ESM2M for RCP 2.6 and RCP 8.5 for the period 2040-2070 (2050s) without CO_2 fertilization and high input level under rainfed condition. Source: GAEZ*

Region	Change in suitability index		Change in potential yield	
	RCP 2.6 (%)	RCP 8.5 (%)	RCP 2.6 (%)	RCP 8.5 (%)
Dak Lak	+4.8	+2.9	+3.5	+2.4
Dak Nong	-3.8	-4.0	+0.6	-2.3
Gia Lai	+7.9	+11.5	+5.5	+5.9
Lam Dong	+0.2	-0.3	-2.7	+0.9

Ninh Thuan	+6.6	+3.5	+17.7	+14.6

For maize, the results from Le Ngoc Lan et al. (2016) indicate that there will be no large changes in suitability as a consequence of temperature and precipitation increases. An exception to this is maize in the Mekong River Delta and the Northeast region, where this crop might lose more than 5% of suitability.

*Figure 23. Current suitability (left) and changes by 2050's conditions (right) for **Maize**, considering the impact of temperature and precipitation only. Source: (Le Ngoc Lan et al, 2016)*
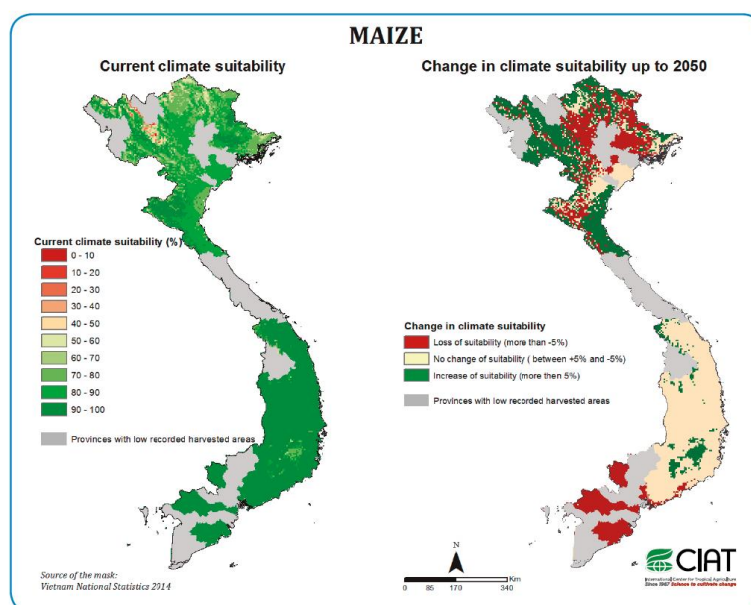

According to (UNDP & FAO, 2021), Dak Lak, Dak Nong and Ninh Thuan appear to be the highest climate-vulnerable provinces for maize. Maize received an overall higher VI rating than rice because of the ecological features (like sloping land) of the area used for cultivation.

*Figure 24. Vulnerability Index (VI) for **Maize** in the five provinces included in the project. The Vulnerability Index (VI) is based on a total of 50 indicators that were selected; out of which 8 are exposure indicators, 25 sensitivity indicators, and 18 adaptive capacity indicators. Source: UNDP & FAO, 2021*
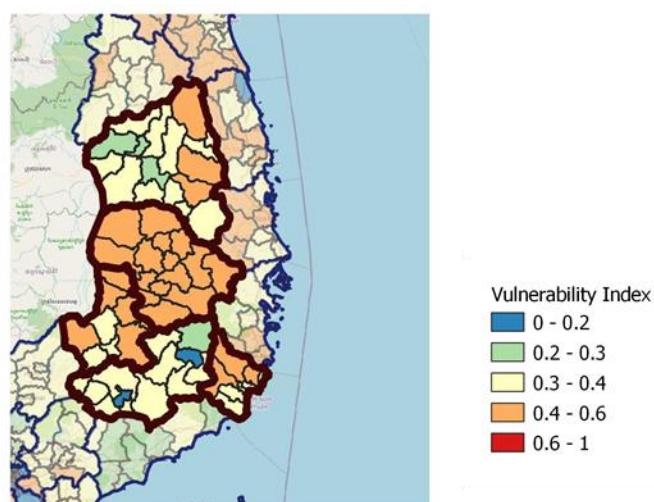
According to the analysis by Parker et al. (2019), despite little change in climate suitability for maize, the overall vulnerability values for maize are high for many of the districts in the Central Highlands because of very low adaptive capacity and moderate to high exposure to natural hazards.

*Figure 25. Vulnerability of **maize** to climate change (2050) under a high emission scenario (RCP 8.5). Source: Parker et al, 2019*
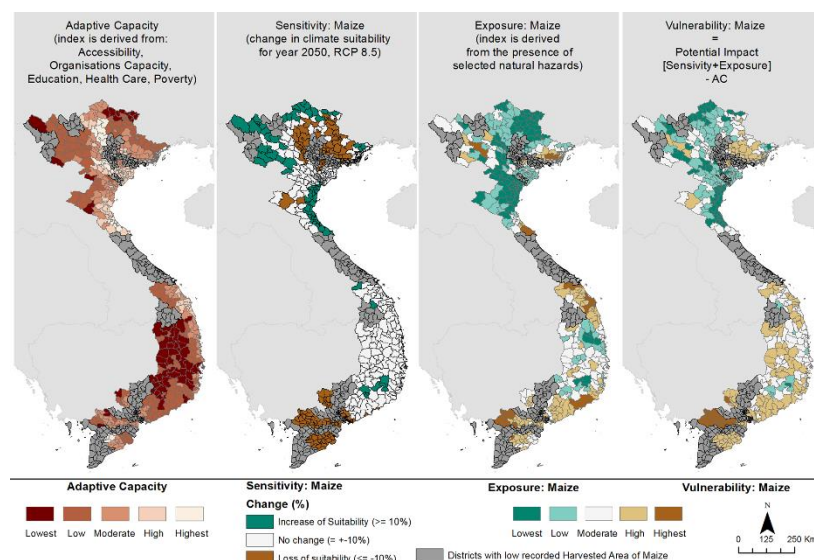
Rubber

Viet Nam ranks fifth in the world for land for rubber cultivation (Turton, 2021). Viet Nam produced up to 1.22 million tons in 2020 increasing from 1.18 million tons produce in 2019 (FAOSTAT, 2020). GAEZ projections suggest that both suitability and potential yield of rubber will go down in all provinces of the project under the RCP8.5 scenario (See Table 17).

*Table 17. Change in the suitability index and potential yield for **rubber** by region. Results are for baseline climate (1981-2010, source CRUTS32) and a climate scenario GFDL-ESM2M for RCP 2.6 and RCP 8.5 for the period 2040-2070 (2050s) without CO_2 fertilization and high input level under rainfed condition. Source: GAEZ*

	Change in suitability index		Change in potential yield	
Region	**RCP 2.6 (%)**	**RCP 8.5 (%)**	**RCP 2.6 (%)**	**RCP 8.5 (%)**
Dak Lak	-8.5	-13.7	-14.2	-21.6
Dak Nong	-3.4	-21.2	-0.4	-14.5
Gia Lai	-16.9	-20.4	-14.2	-16.0
Lam Dong	8.1	-5.9	+5.1	-6.2
Ninh Thuan	+1.9	-4.0	-19.6	-35.3

Coffee

Viet Nam is the second top producer of coffee following Brazil. Robusta coffee production accounts for more than 90% of Viet Nam's total output (Statista, 2021). Coffee production of Viet Nam increased from 6,500 tons in 1971 to 1.76 million tons in 2020 growing at an average annual rate of

16%. GAEZ projections suggest that both suitability and potential yield of coffee will go down in all provinces of the project under the RCP2.6 and RCP8.5 scenarios (See Table 18).

*Table 18. Change in the suitability index and potential yield for **coffee** by region. Results are for baseline climate (1981-2010, source CRUTS32) and a climate scenario GFDL-ESM2M for RCP 2.6 and RCP 8.5 for the period 2040-2070 (2050s) without CO_2 fertilization and high input level under rainfed condition. Source: GAEZ*

Region	Change in suitability index		Change in potential yield	
	RCP 2.6 (%)	RCP 8.5 (%)	RCP 2.6 (%)	RCP 8.5 (%)
Dak Lak	-3.1	-9.2	-2.9	-7.0
Dak Nong	-2.1	-11.2	-2.6	-6.0
Gia Lai	-3.9	-9.7	-3.1	-7.1
Lam Dong	-1.9	-6.2	-1.0	-2.6
Ninh Thuan	-11.9	-15.2	-7.2	-12.4

Figure 26. Suitability of Coffee in the periods 1981-2010 (left) and 2050s (right). Source: GAEZ
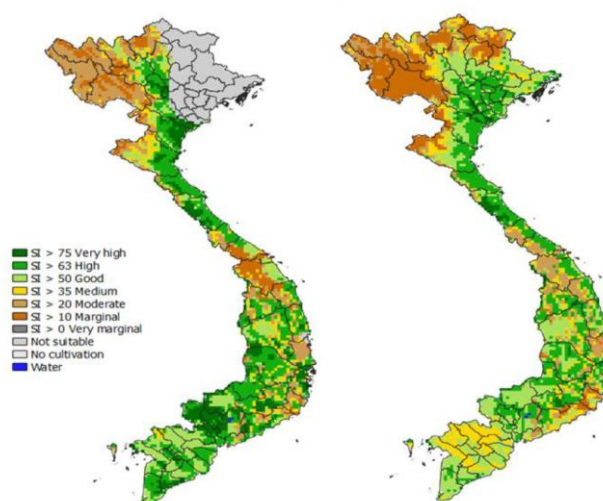
For Robusta coffee, the results from (Le Ngoc Lan et al, 2016) suggest that there might be a decrease in suitability in all regions that grow this crop, except in the northeast part of Lam Dong province. Increases in temperature seasonality and in the mean temperature in the wettest quarter account for about 75% of the change in suitability.

*Figure 27. Current suitability (left) and changes by 2050's conditions (right) for **Robusta Coffee**, considering the impact of temperature and precipitation only. Source: (Le Ngoc Lan et al, 2016)*
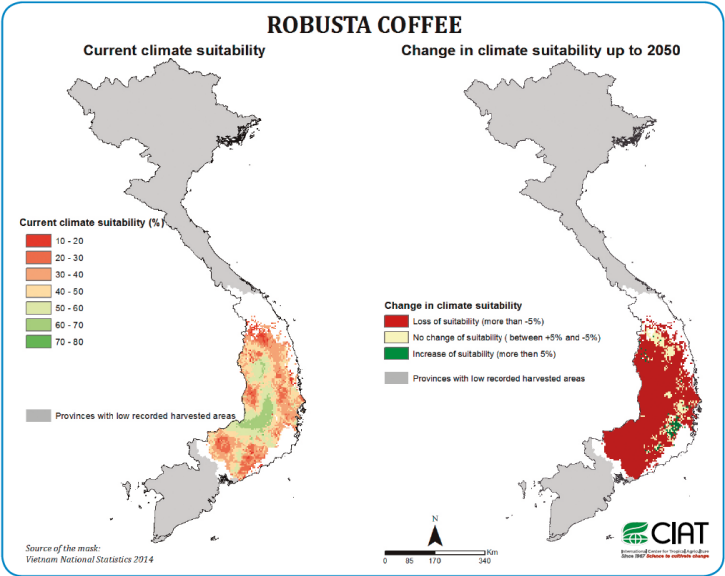

The two abovementioned studies coincide with (Bunn et al., 2014) that show how the dominant production regions in Viet Nam are expected to experience substantial reductions in area available for coffee under the RCP6.0 emissions pathway.

For coffee production, the (UNDP & FAO, 2021) vulnerability assessment shows that the districts in Dak Lak and Lam Dong provinces have the highest VI (See Figure 28). This rating reflects observed impacts on agricultural productivity by natural hazards in Dak Lak. The results from (Le Ngoc Lan et al, 2016) and (Parker et al, 2019) indicate that Dak Lak and Gia Lai have very high vulnerability due to probable loss in climatic suitability to grow Robusta coffee by 2050 (See Figure). This zone is also prone to drought and the population has very low adaptive capacity.

*Figure 28. Vulnerability Index (VI) for **Coffee** in the five provinces included in the project. The Vulnerability Index (VI) is based on a total of 50 indicators that were selected; out of which 8 are exposure indicators, 25 sensitivity indicators, and 18 adaptive capacity indicators. Source: UNDP & FAO, 2021*
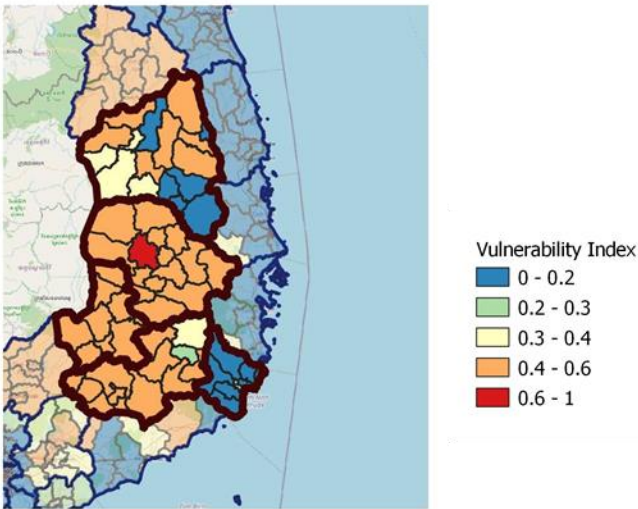
*Figure 29. Vulnerability of **Coffee (Robusta)** to climate change (2050) under a high emission scenario (RCP 8.5). Source: Parker et al, 2019*
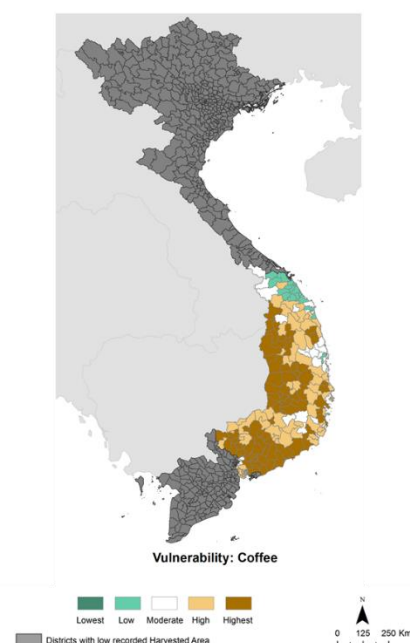
Other Crops

Figure 30. Vulnerability Index (VI) for the five provinces included in the project and three crops: cassava, fruits and sugarcane. The Vulnerability Index (VI) is based on a total of 50 indicators that were selected; out of which 8 are exposure indicators, 25 sensitivity indicators, and 18 adaptive capacity indicators. Source: UNDP & FAO, 2021
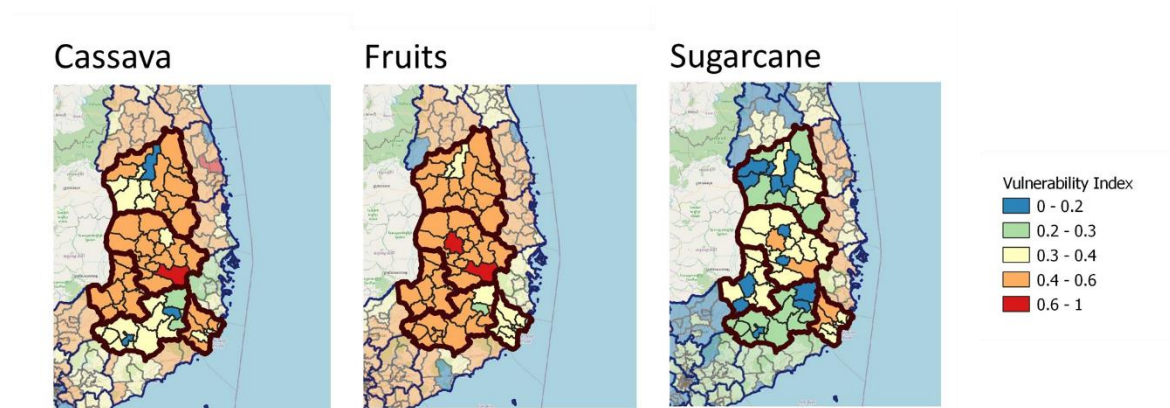
For the cassava production, Dak Lak and Dak Nong have the highest climate vulnerable ratings within the project area. The vast majority of cassava production is rainfed. This makes the crop particularly vulnerable to climate change-induced water shortages due to changing precipitation patterns.

Fruit production was found to be vulnerable in Dak Lak and Ninh Thuan provinces with VI ratings greater than 0.46. These regions are heavily affected by natural disasters such as floods and storms. Moreover, fruit trees take a long time from planting to first harvest and entail a higher initial investment, which makes them more vulnerable to damage from natural disasters and have a longer time to recover.

For the sugarcane production, the highest VI rankings correspond to the Ninh Thuan province. The assessment shows that current productivity hotspots are most vulnerable to climate change-induced hazards.

For cassava and cashew, the results from (Le Ngoc Lan et al, 2016) show that there are no large changes in suitability as a consequence of temperature and precipitation increases (See Figure 31 and Figure 32).

*Figure 31. Current suitability (left) and changes by 2050's conditions (right) for **Cassava**, considering the impact of temperature and precipitation only. Source: (Le Ngoc Lan et al, 2016)*
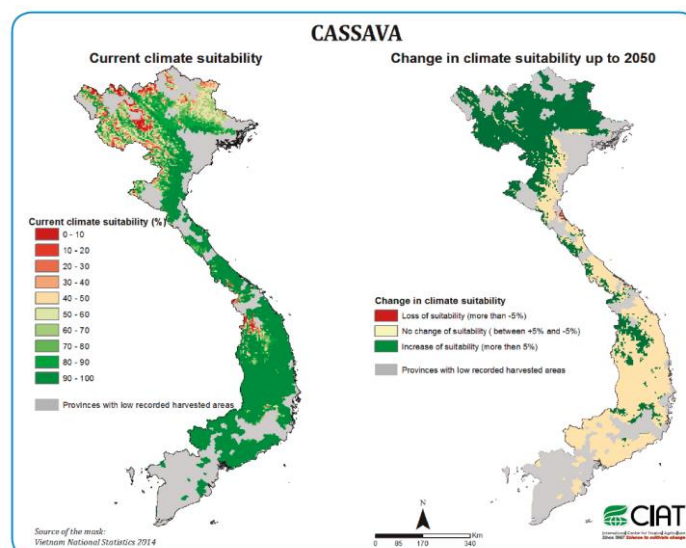
*Figure 32. Current suitability (left) and changes by 2050's conditions (right) for **Cashew**, considering the impact of temperature and precipitation only. Source: (Le Ngoc Lan et al, 2016)*
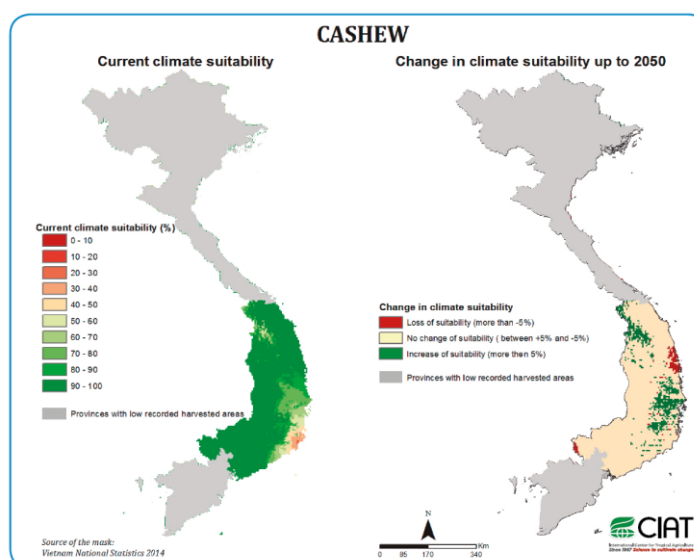
3.3.5 Overall Vulnerability to climate change for Crop Production.

The authors in (Le Ngoc Lan et al, 2016) and (Parker et al, 2019) calculate an overall vulnerability index based on the aggregate of the respective analyzed cropping systems in each country. It highlights the relative and district specific vulnerability of the agriculture sector to climate change. Three regions show high vulnerability, notably: the North West, the Central Highlands and finally the Mekong Delta (See Figure 33).

Figure 33. Vulnerability to climate change (2050) under a high emission scenario (RCP 8.5), calculated as a function of exposure to natural hazards, sensitivity of selected crops to climate change and adaptive capacity of the population. Source: Parker et al, 2019
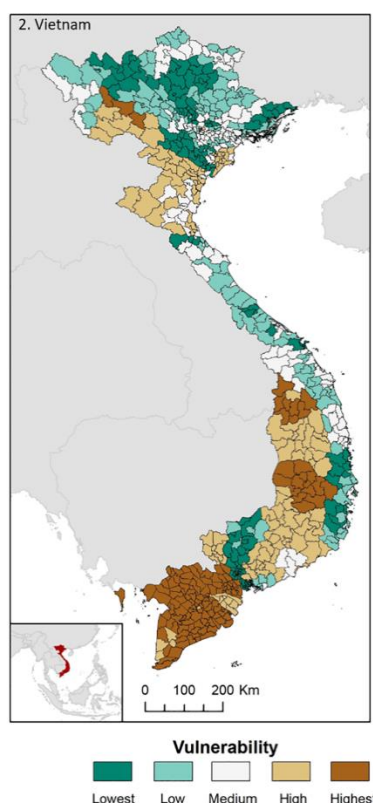
The Central Highlands and South Central Coast regions – where the RECAF project is located – show very high vulnerability scores for most of their districts. The Central Highlands have very high vulnerability due to probable loss in climatic suitability to grow rice and Robusta coffee by 2050. This zone is also prone to drought and the population from this zone is in the range of very low adaptive capacity.

The two most important crops in this zone are robusta coffee and cashew, both of which are considered as high-value commodities for export. According to the results, cashew will remain in the same climatic suitability into the 2050s but the areas for Robusta coffee and rice may decrease. Robusta coffee could be affected by higher climate variability. Drought incidence is a main risk for this zone. Key investments should focus on agroclimatic information services and water management.

According to socioeconomic indicators used in Parker et al (2019), most of the Viet Nam's districts demonstrate low adaptive capacity. Districts with very low adaptive capacity are located in the Central Highlands, Northwest and Northeast regions. More analyses, as well as more investments are needed in the key sectors of public health, accessibility and infrastructure and organizational capacity in order to increase adaptive capacity.

The UNDP-FAO report provides an aggregated crops vulnerability index value for each district. Yet it is not explained how the aggregated index is calculated from the crop-specific indices.

Table 19 displays the vulnerability classes for all districts included in the RECAF project from both the UNDP-FAO and CGIAR studies. The CGIAR vulnerability values for coffee are high or very high for almost all districts, while mostly moderate according to the UNDP-FAO work. The high or very high overall vulnerability indices in CGIAR are influenced by the high sensitivity of coffee to climate change and the low adaptive capacity of the local population. The latter is particularly driven by high poverty levels and poor health and education indicators.

Table 19. Vulnerability classes for the districts selected in the RECAF project, from both the UNDP-FAO and CGIAR studies.

District	Province	UNDP-FAO vulnerability							CGIAR vulnerability				
		Rice	Maize	Sugarcane	Cassava	Coffee	Fruit	Aggregated production	Rice	Coffee	Cassava	Maize	Overall
Bác Ái	Ninh Thuận	Moderate	Moderate	Moderate	Moderate	Very Low	Low	Moderate	Low	High	Moderate	Low	Lowest
Bảo Lâm	Lâm Đồng	Low	Low	Low	Low	Moderate	Moderate	Low	Moderate	High	Moderate	Lowest	High
Chư Prông	Gia Lai	Low	Low	Low	Low	Low	Moderate	Low	Moderate	Highest	Moderate	Low	High
Đăk Đoa	Gia Lai	Moderate	Low	Low	Very Low	Very Low	Low	Low	Moderate	High	Moderate	Low	High
Đăk Glong	Đăk Nông	Low	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	High	Moderate	Low	High
Đăk Song	Đăk Nông	Very Low	Low	Very Low	Moderate	Moderate	Moderate	Low	Moderate	High	Moderate	Low	High
Đam Rông	Lâm Đồng	Low	Low	Low	Low	Moderate	Moderate	Low	Low	Moderate	Low	Low	High
Di Linh	Lâm Đồng	Low	Low	Low	Low	Moderate	Moderate	Low	Low	High	Moderate	Low	High
Ea Kar	Đăk Lăk	Low	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	Low	Highest
Kông Chro	Gia Lai	Low	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Low	Low	High
Krông Bông	Đăk Lăk	Low	Moderate	Moderate	High	Moderate	High	Moderate	Moderate	High	Moderate	Low	Highest
Krông Nô	Đăk Nông	Very Low	Moderate	Low	Moderate	Moderate	Moderate	Low	High	Highest	High	Low	High
Krông Pa	Gia Lai	Low	Low	Low	Moderate	Very Low	Moderate	Moderate	Low	High	High	Low	High
Lăk	Đăk Lăk	Low	Moderate	Low	Moderate	Moderate	Moderate	Moderate	High	High	Moderate	Low	Highest
Lâm Hà	Lâm Đồng	Low	Low	Low	Low	Moderate	Moderate	Low	Low	Moderate	Moderate	Lowest	High
Măng Yang	Gia Lai	Low	Low	Very Low	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Low	Low	High
M'Đrắk	Đăk Lăk	Low	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	Low	Highest
Ninh Hải	Ninh Thuận	Moderate	Low	Low	Low	Very Low	Low	Low	Moderate	Moderate	High	Low	Low
Ninh Sơn	Ninh Thuận	Moderate	Moderate	Moderate	Moderate	Very Low	Low	Moderate	Moderate	High	High	Low	Low
Thuận Bắc	Ninh Thuận	Moderate	Moderate	Low	Moderate	Very Low	Low	Moderate	Moderate	High	High	Low	Low
Tuy Đức	Đăk Nông	Low	Moderate	Low	Moderate	Moderate	Moderate	Low	Moderate	High	Moderate	Low	High

3.3.6 Impacts of Climate Change on Forestry.

The impact of climate change on forests is likely to be complex and long term. For natural forests, the analysis suggests that there will be a substantial reduction in the area of land that is suitable for humid semi-deciduous forest, which would be replaced by other forest types. Mangrove forests will be affected by sea level rise unless they are able to migrate inland (WB, 2010).

The impacts of climate change on forestry include increasing the risk of forest fires, changing the distribution of natural forest ecosystems, impacts on planted forests and mangroves (NC3, 2019). Thus far, fire has not been as high of a risk due to climate change. Recent research[13] that reviewed the correlation between fire and deforestation in Da Lat, Central Highlands between 2001-2020 found that only a small fraction were related to forest loss, and were indicative of land management practices using fire for small clearings. Indications are that fire occurrence is mostly human induced, and not strongly correlated with climate change (rainfall patterns and temperature. Fire ignitions and burned area did not increase at the same rate as regional temperature, which affirms that for now, climate change is not increasing fires. However, that may change as the Central Highlands forests are comprised of species susceptible to fire (pine, cajuput, bamboo, eucalyptus, dipterocarps) and climate models predict changes in the dry season patterns.

The risk of forest fires increases in all ecological regions, however, more strongly in the North West, North Central Coast and Central Highlands areas. It is estimated that there are about 6 million hectares of easily-burnt forest. Forests with high risk of fire include pine, cajuput, bamboo, eucalyptus, dipterocarp forest (NC3, 2019).

Some natural ecosystems (dipterocarp, mangrove, semi-deciduous, evergreen broadleaf forests) are at risk of changing (narrowing and/or widening) their distribution due to climatic conditions. Changes in the distribution of dipterocarp, mangrove and semi-deciduous forest are relatively high. Under the impact of climate change, it is even possible that there may no longer be any dipterocarp forest left in the Central Highlands by 2100 (NC3, 2019).

Semi-deciduous forest ecosystem is strongly affected by climate change. By 2020, the distribution of this forest type is likely to decline drastically in the North Central Coast. By 2050, this forest ecosystem may no longer exist in the North Central and only appear in the South Central and Central Highlands regions. Climate change will not produce major changes in the distribution of the evergreen broad-leaved forest ecosystem. By 2020, the Central Highlands and the South Viet Nam can have a favorable climate for the distribution of this type of forest ecosystem and continue to increase in the Central Highlands and Southern Viet Nam in 2050 and 2100.

The area of land under plantation forests with short rotations has increased rapidly over the past 30 years. In the period of 2010-2050, changes in climatic conditions could have a positive impact on the expansion of climatic zones suitable for plantation. The impact of climate change on the productivity of short-rotation plantation forests in Viet Nam was assessed by (CSIRO, 2010) for the management of *Acacia mangium*. Their forestry growth model suggests that climate change will increase the variability of plantation yields across the country without having a major impact on the average yield. The results indicate that climate change could significantly reduce the growth of acacia plantation in the South (reduced by 10-27%), especially in the South East and Mekong Delta. However, the growth of *Acacia mangium* forest is likely to widen in the North, with an increase of 10-30%. Thus, an important adaptation need will be to ensure the best match between soil, climate, and management practices to obtain the highest yields from plantations.

Vu Tan Phuong et al. (2008) assessed the impacts of climate change on the suitability areas at national level for two plantation tree species: *Chukrasia talbularis* and *Pinus merkusii*. They concluded that: (i) The area suitable for *Chukrasia talbularis* will fall from about 1 million ha in 2000 to 0.2 million

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[13] Ebright, Samuel J., Amanda B. Stan, Hoàng Văn Sâm, and Peter Z. Fulé. 2023. "Protected Areas Conserved Forests from Fire and Deforestation in Vietnam's Central Highlands from 2001 to 2020" *Fire* 6, no. 4: 164. https://doi.org/10.3390/fire6040164

ha in 2100, (ii) The area suitable for *Pinus merkusii* will fall from about 5.4 million ha to 2.3 million ha, primarily in the north.

Rising temperatures will increase the risk of larval infestation in pine forests and for other pests in planted forests. The risk of tea tussock moth will grow by about 10% by 2020, about 13% by 2050 and especially by 2100, the risk of tea tussock moth living in pine trees will jump to 31% compared to 2000 (NC3, 2019).

Other risks of climate change directly relate to the consequences of deforestation and forest degradation.

In the context of increasingly severe climate change impacts, some forest ecosystem services will become even more valuable to local people and communities. For example, forests regulate local air temperature fluctuations and reduce the impact of heat waves. Forests help retain water, stabilise local water supplies and increase rainfall through evaporation (Lawrence and Vandecar, 2015).

3.4 Conclusions of climate change analysis

Conclusions of climate change projections

Projected temperature increases are similar to the global average, ranging between 1.0°C and 3.4°C by 2080-2099 when compared with the 1986-2005 baseline. The range in possible temperature rises highlights the significant differences between the different emissions pathways.

The projections for the project area show a clear increasing trend in mean temperature, maximum temperature, dry days and extreme hot days. Rise in annual maximum and minimum temperatures are expected to be stronger than the rise in average temperatures, likely amplifying the impacts on human health, livelihood and ecosystems.

Projections on annual average rainfall do not show a clear pattern for the project area, but models do seem to indicate a slight increase in the intensity of extreme rainfall events. El Niño Southern Oscilation (ENSO) will continue to occur at the same time as global surface temperatures increase and its frequency may increase twofold by the end of the century. However there is a considerable uncertainty due to the poor performance of simulating ENSO by climate models.

Droughts are an important climate hazard in the project area, as was recently experience in the severe drought of 2015-17. Droughts are expected to take place more often and for longer periods. Some models project an increase of 10% in the annual probability of drought over the next decades. Increasing inter-annual rainfall variability (rather than any decline in long-term rainfall) and increasing demand for water are the two main drivers behind the increasing incidence of drought. Within the RECAF project boundaries, Ninh Thuan is a drought hotspot; the Central Highlands also suffer its effects, particularly on sloping and remote areas. Ethnic minorities and smallholders are the most vulnerable to the effects of drought on food security and income

Viet Nam faces high disaster risk levels, driven particularly by its exposure to hazards, mainly riverine, flash and coastal floodings, but also tropical cyclones and landslides. The RECAF project area is highly vulnerable to flash floods and landslides caused by heavy rainfall.

Viet Nam's low-lying coastal and river delta regions have very high vulnerability to rising sea levels. This is particularly relevant due to the high concentration of population and economic activity - particularly agriculture- in coastal areas. Yet, within the project area, only Ninh Thuan has a coastal zone.

Different studies coincide on projecting substantial reductions in the suitable areas and yields of robusta coffee productions by 2050 within the RECAF project area.

The Central Highlands, which include several of the provinces of the RECAF project, appear as one of the regions with high overall vulnerability as a result of the potential climate change impacts (particularly, the probable loss in crop suitability and proneness to droughts) and low adaptive

capacity from the local population. The latter is a result of the high poverty levels, lack of infrastructure and poor healthcare and education indicators.

The RECAF project area faces potentially significant social and economic impacts across multiple sectors. Without effective adaptation and disaster risk reduction efforts, multidimensional poverty and inequality are likely to increase.

Conclusions of impacts of climate change

- The agriculture sector in Viet Nam is particularly susceptible to the impacts of climate change. It could be highly impacted by the projected losses of agricultural productivity for key food and cash crops, as well as potential damages to the transportation network and impacts on the health and productivity of the labor force.
- Under the RCP 8.5 scenario, different models coincide in projecting widespread reductions in the potential yield and suitability index for rubber and coffee by 2050 all across the RECAF project area.
- Most of the districts in the RECAF project area show high or very high values of the overall vulnerability index. This is primarily driven by the high sensitivity of coffee to climate change and the low adaptive capacity of the local population. The latter is a direct consequence of the high poverty levels and poor health and education indicators in the project area.
- All the above mentioned issues seem to indicate that without effective adaptation and disaster risk reduction efforts multidimensional poverty and inequality are likely to increase.

The impact of climate change on forests is likely to be complex and long term. For natural forests, a substantial reduction is expected in the area of land that is suitable for humid semi-deciduous forest.

Chapter 4 - SOCIO-ECONOMIC POLICY ENVIRONMENT

4.1 Policies and programs on poverty reduction.

4.1.1. Introduction

Viet Nam has made tremendous progress in poverty reduction. The proportion of the population living below the national poverty line (using the General Statistics Office of Viet Nam and World Bank poverty line) reached 9.8 percent in 2016—down by over 70 percent from 1993. More than 40 million people escaped poverty over the period. A similarly strong trend is observed for people living on less than $1.90/day (in 2011 purchasing power parity terms), where the rate fell from above 50 percent in 1993 to 2.0 percent in 2016. Poverty reduction has been coupled with significant improvements in shared prosperity, with the average consumption level of Vietnamese in the bottom 40 percent growing by 6.0 percent annually from 2010 to 2016 (World Bank, 2018).

The success in reducing poverty has come largely from rapid economic growth that has created more and better jobs. Government investments have significantly improved service delivery, education, and public infrastructure, which facilitated growth and enabled broad participation in the economy. The transformation from an agrarian economy to labor-intensive manufacturing and services industries has been key, where these sectors created 15 million jobs over the past 20 years (World Bank, 2018). Improved education has been an important pathway to obtaining better jobs. Migration to cities presented rural households with nonfarm opportunities. These factors have contributed to households diversifying their income sources from agriculture. Those earning a higher share of income from non-agriculture enterprises and non-agriculture wages are more likely to be non-poor.

Despite remarkable progress, the task of poverty reduction in Vietnam is not complete. Poverty gains are fragile, with remaining poverty concentrated in rural areas and among ethnic minorities. Although tens of millions of Vietnamese households have risen out of poverty, many have incomes very close to the poverty line and remain vulnerable to falling back into poverty as a result of idiosyncratic shocks and related economy-wide shocks, such as the effects of climate change on rainfall and temperatures, human and animal influenza pandemics, and impacts of the 2008–09 global financial crisis (WB, 2017). Economic growth has faltered in recent years as a result of continuing macro instability and sharp bouts of inflation.

The task of poverty reduction has become more difficult. Vietnam's success has created new challenges. The remaining poor are harder to reach; they face difficult challenges of isolation, limited assets, low levels of education, poor health status, gender discrimination, limited policy for youth employment. Poverty reduction has become less responsive to economic growth. Ethnic minority poverty is a growing and persistent challenge. Although Vietnam's 53 ethnic minority groups make up less than 15 percent of the population, they accounted for 47 percent of the poor in 2010, compared to only 29 percent in 1998 (WB, 2017). Using a new poverty line that better reflects living conditions of the poor, 66.3 percent of minorities are poor in 2010 compared to only 12.9 percent of the Kinh majority population (OECD, 2017). Women are a crucial part of the agricultural labour force in Viet Nam and make an essential contribution to poverty reduction and national economic development. However, they are still less privileged than men. The primary reason lies in the unequal access to and control over key resources in agriculture, as well as the lack of gender sensitivity in agricultural services (UNDP, 2016b). Rural youth accounts from 67% of total youth population (OECD, 2017). Most of this force took informal jobs with low wage and bear a lot of social and heal risks. Amongst the reasons, limited access to education including vocational training (VET) was considered the key reason.

Rural and mountainous areas remain the poorest, with poverty increasingly concentrated among ethnic minorities communities. Poor minorities are heavily concentrated in the East and West Northern Mountains, upland areas in the North Central Coast, and the Central Highlands. Map 1 in paragraph 1.2 above shows the distribution of poverty in 2014.

This chapter takes stock of what has been done in Vietnam and in project proposed provinces including Dak Lak, Lam Dong, Dak Nong, and Ninh Thuan over few decades regarding poverty reduction. The chapter focusses on what has been learned from policies and programs and is largely based on secondary data, including the substantial amount of published information on poverty and statistics mainly from the Viet Nam Household Living Standards Surveys, and the General Statistics Office of Viet Nam. The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the information presented herein. Specific information regarding poverty and gender and poverty among ethnic minorities can be found in the Gender Action Plan and the Indigenous People Plan, respectively, both of which also contain empirical evidence from the surveys undertaken during project design in 2021-2022.

4.1.2 National Policies and programs on poverty reduction

Throughout the Doi Moi process, government policies have had a tremendous influence on the poverty reduction hence rural development (Tuan, 2011; World Bank, 2014). In this period, land use and decollectivisation policies were confirmed to have the overriding importance affecting the agricultural growth (Tuan, 2011; Rudengren et al. 2012). The land use reform started by Resolution 10 in 1988 in which large parts of agricultural land were revoked from ineffective state cooperatives and enterprises and allocated to households for long term cultivation. At later stages, more comprehensive land policies including Law on Forest Protection and Development in 1991 (revised in 2004), and Land Law in 1993 (revised in 2003 and 2013) have extended the initial successes of Resolution 10 to wider scopes (forests and forestlands) and stakeholders (private enterprises, Vietnamese living oversea). Land policies ensured the essential rights to transfer, donate, lease, mortgage, and guarantee hence encouraged people to invest in their lands (Rudengren et al., 2012). In parallel with land use reform, the institutional reform with various decollectivisation policies laid the foundation for rapid rural development (Coxhead et al., 2010; World Bank, 2014). The decollectivisation policies reduced the overwhelming role of state and expanded the role of private sector in economic development (World Bank, 2014).

Apart from overarching policies which guide the economic development, special policies and programs were designed by the government to target the poverty reduction in Vietnam. According to Pinter and colleagues (2015), poverty-related documents issued by the state from 2005 to 2015 alone numbered around 70. They included more than 10 government decrees, 30 decisions of the Prime Minister and, most notably, two main government resolutions, including a Resolution dated 27 December 2008 on rapid and sustainable poverty reduction for 61 poor communes, and a Resolution dated 19 May 2011 on the direction of sustainable poverty reduction for the period of 2011–2020. There are typically two types of poverty-related policies: general policies for the poor and poor households across the country, and specific policies for the poor and poor households in the poor districts, coastal areas and exceptional, difficulty-stricken communes. The policies were concretized into various national target programs. In the context of this project, three key target programs are discussed including the National Target Program on Poverty Reduction - NTPPT (2006-2010, then changed to the National Target Program on Sustainable Poverty Reduction 2011-2015, 2016-2020, and 2012-2025), the National Target Program on New Rural Development - NTP NRD, and the National Target Program on Ethnic Minority (2021-2030).

To oversee and facilitate management and coordination for implementing these NTPs, the Government has formulated the Central Steering Committee of NTPs for period 2021-2025 as presented at Decision 1945/QD-TTg dated November 18th 2021 by Prime Minister. Apart of this, MPI acts as the standing institution for the Committee, responsible for overall administration of NTPs. Under this umbrella, three NTP Task Forces (or Working Groups) are also assigned to be established as follows:
- The MOLISA minister to establish and lead a Task Force for the NTP on Sustainable Reduction of Poverty 2021-2025, which to be assisted by this NTP Coordinating Office;

- The MARD minister to establish and lead a Task Force for the NTP on New Rural Development 2021-2025, which to be assisted by this NTP Coordinating Office;
- The CEMA minister to establish and lead a Task Force for the NTP on SED in Ethnic Minority and Mountainous Areas 2021-2030, which to be assisted by this NTP Coordinating Office;

At provincial level, in accordance to the Resolutions 24/2021/QH15 and 25/2021/QH15 passed by the National Congress in July 2021, all participating provinces are also requested to establish one integrated steering committee in order to manage and coordinate development, planning, allocation of resources, and implementation of these NTPs in their locations, ensuring avoided overlaps between them.

National Target Program on Sustainable Poverty Reduction (2006-2010, 2011-2015, 2016-2020, 2021-2025)

In 2007, the government approved the aforementioned NTPPR 2006–2010. This programme was considered as a successful example of poverty reduction activities in Viet Nam, with clear objectives, beneficiaries and sound governance mechanism (Pinter et al., 2015, Tinh, 2016). The general objectives of the programme for this period were to: "speed up poverty alleviation and limit relapse into poverty; consolidate the results of poverty alleviation efforts and create opportunities for households which have escaped from poverty to become well-off; improve living and production conditions in poor and exceptional difficulty-stricken communes; raise the quality of life of poor households and limit the widening of the gap in terms of income and living standards between urban and rural areas, delta and mountainous areas, and rich and poor households" .

The implementation of NTPPR 2006–2010 resulted in many positive outcomes. Compared to the programme's initial specified objectives, two out of three objectives exceeded expectation. The poverty rate in Viet Nam was reduced from 18.1% in 2006 to 9.45% in 2010, and 57.51% of exceptional, difficulty-stricken coastal and island communes escaped exceptional difficulties. Furthermore, policies on preferential credit loans have provided 6.2 million poor individuals with preferential credit loans. The initial target was only 6.0 million individuals. Vocational training for the poor provided a four-year exemption of vocational training fees for 150,000 people, of which 60% ultimately gained employment. The programme also granted 150,000 health care cards for the poor. Moreover, 180,000 cadres were engaged under the programme for capacity-building training on poverty reduction. The initial target was 170,000 cadres. (Pinter et al., 2015, p24-25)

Following the successes of NTPPR 2006-2010, the NTP-SPR 2011-2015 puts the emphasis on sustainable poverty reduction. In specific, it aimed at improving and incrementally raising the living conditions for the poor, especially those who live in mountain areas; making strong and comprehensive improvements in poor areas; and narrowing down the gap between urban and rural areas, among regions, ethnic minorities and population groups. In this period, the average income per capita of poor households was expected to increase 3.5 times; the rate of poor households would drop by 2% a year (Pinter et al., 2015).

After five years of implementation, the following results were achieved: (i) a total budget of VND 33.842 billion were mobilised reaching 115% compared to plan; (ii) poverty rate reduced from 14.2% in 2010 to 4.25% in 2015 with annual reduction rate of 2%; and (iii) poverty rate in poor districts declined from 58.83% in 2010 to 28% in 201514. To this extent, the programme was considered successfully achieving the objectives.

In 2015, the Government conducted a thorough review of sixteen (16) National Targeted Programs (NTPs) that were implemented over the period 2011-2015. These 16 NTPs were focused on specific sectors and were implemented through different ministries such as health, education, water, transport, agriculture and rural development. It was found that coordination and efficiency has been a challenge as the sixteen NTPs could finance overlapping activities and were implemented in the same

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[14] https://baomoi.com/ket-qua-thuc-hien-chuong-trinh-muc-tieu-quoc-gia-giam-ngheo-the-nao/c/20576527.epi

communes. Hence at the commune, district and provincial level, there were multiple and competing requirements and processes that led to inefficiencies in resource use and implementation, and poor monitoring. To address these issues, the government consolidated the 16 NTPs into two NTPs for the next implementation period to run from 2016-2020. This was achieved through a National Assembly Resolution No. 100 issued on November 12, 2015 created two overarching programs, the NTP for New Rural Development (NTP-NRD) implemented under the Ministry of Agriculture and Rural Development (MARD, more below) and the Sustainable Poverty Reduction Program (NTPSPR) implemented under the Ministry of Labour, Invalids and Social Affairs (MOLISA), with the Committee for Ethnic Minority Affairs (CEMA) managing the SPR-P135, as a project under the NTP-SPR.

The main objective of the NTP-SPR, for 2016-2020 is to achieve sustainable poverty reduction and to restrain the resurgence of poverty, in contribution to the achievement of economic growth, social security, improved living conditions and income generation for people, especially in poor areas; to facilitate the poor and poor households to access basic social services (health, education, housing, clean and hygienic water, and information), in contribution to the achievement of household poverty reduction targets in period 2016 - 2020 as set out in the National Assembly Resolution15.

NTP-SPR (2016-2020) also has four specific objectives for its area of operation. These are: (a) lowering the poverty rate by an average of 1.5 percent per year; (b) improving the livelihoods and quality of life for the poor by increasing per capita income of poor households by 1.5 times from 2015 to 2020; (c) implementing poverty reduction mechanisms and policies in a consistent and effective manner to improve the living conditions and enhance access to basic social services for the poor; and (d) investing in the infrastructure of poor districts, communes and villages with special difficulties following NTP- NRD criteria. The NTP-SPR falls under the overall purview of MOLISA, with CEMA playing a strong role as it has relatively independent management of Program 135 (SPR-P135) which has the highest budget of the five sub-programs referred to as projects4. Like the NRD, while the Central level has a function in program design and M&E, all investment decisions and expenditure allocations are made directly at the provincial level, with some devolution to the districts and communes.

The NTP-SPR consists of 5 sub-programs including : (a) Project 1, called Program 30a, focused on 64 poor and 23 near-poor districts and coastal areas with specific sub-components in district infrastructure, coastal infrastructure, production development and labor export; (b) Project 2, called P135, led by CEMA focused on 2,240 poorest EM communes and 33,273 villages; (c) Project 3, led by MARD on Production Development focused on Model Replication; (d) Project 4, called Information and Communication for Sustainable Poverty Reduction, led by Ministry of Information and Communication; and (e) Project 5 on Capacity Building and M&E, led by MOLISA. The P135 subprogram of the NTP-SPR. Program-135 (SPR-P135), is one of its five sub-programs, referred to as projects, which supports 2240 poorest communes and 33,7233 poorest villages in ethnic minority and mountainous areas.

Although, the results of the NTP-SPR 2016-2020 was evaluated as satisfactory, some concerns about program implementation pointed out including: (i) current approach is still top-down and lacked participation from the community; (ii) the program is still applying one norm to support all types of poor households — regardless to regional and ethnic differences; and (iii) some forms of traditional subsidy (giving cash, giving materials) are still dominant which could hamper creativity and autonomy of localities in dealing with poverty. Also, the majority of poverty policies integrated vocational training parts, and one citizen could benefit from many policies. That led to difficulty in control and monitoring.

The NTP-SPR 2021-2025 approved by the National Assembly just recently (28/7/2021) with the main objectives to continue reducing the multi dimensional poverty rate with concrete targets:

- Reduction of multidimensional poverty rate by 1-1.5%/year
- Reduction of poverty rate among the Ems by >3%/year

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[15] http://news.chinhphu.vn/Home/National-Target-Program-on-Poverty-Reduction-for-20112020/20125/14516.vgp

- 30% of poor, especially difficult, and coastal districts and communes escaped from poverty.

Budget for implementation of the NTP-SPR will be VND 75,000 billion (~USD 3.27 billion).

of which VND48,000 billion comes from central budget and VND12,690 billion from local budget as co-financing, and another VND14,310 billion to be mobilized from other sources. Each province has to develop its 5-year implementation plan (2021-2025) and collaborate with MOLISA and other ministries to annually carry out local projects in consistence to the NTP, avoiding overlapped investment for similar purposes associated with other programs.

To determine locations of this NTP implementation, the Government has officially announced a list of poor districts and communes of extreme hardship. An extraction of such districts and communes for Dak Lak, Dak Nong, Lam Dong and Ninh Thuan provinces that is presented in following table:

Province	Poor districts	Communes of extreme hardship
Gia Lai		
Dak Lak	Ea Sup, M'Drak	-
Dak Nong	Tuy Duc, Dak Glong	-
Lam Dong	-	-
Ninh Thuan	Bac Ai	Phuoc Dinh of Thuan Nam district

National Target Program on New Rural Development (2010-2020, 2021-2025)

Apart from the thematic policies such as land and forest land allocation, the main and comprehensive policy document for rural development was issued in August 2008, when the Communist Party of Vietnam (CPV) adopted Resolution 26 on "Agriculture, Farmer and Rural Area" – Tam Nong. The document states that the development of agriculture and rural areas as well as improving living conditions of farmers is based on the market economy with socialist orientation. The resolution lays out both general and specific objectives to be attained by 2020. Based on these objectives, tasks and solutions are specified, which involves all actors related to the three targets and also includes sensitive matters like land administration and state-owned enterprises. Based on the Tam Nong resolution/policy a national target programme was developed – the New Rural Development (NDP) – which encompasses many ministries and agencies and where the Ministry of Agricultural and Rural Development (MARD) is the leading institution.

The National Target Programme-New Rural Development (NTP-NRD) is nationwide and runs for the period 2010-2020. The programme is built on the following principles:

- Development based on new rural criteria with nineteen criteria;
- Promote community ownership;
- State plays the instructive and supportive role;
- Inherit from and integrated with other NTP programs and projects.

Evaluation of the NTP-NRD in the period from 2010-2015 has reflected that the original scope, budget targets, and overall goals of this strategy were overly ambitious (Tinh, 2016, WB, 2017b). There was still missing link between the program and private sector, which is key player in all processes of agricultural value chain. In a period of persistent government budget deficits and declining donor commitments, it is important to scrutinize the strategy carefully to ensure that scarce resources are used in the most efficient manner possible (FAO, 2015). The strategy must be seen as one component of an integrated and coordinated development strategy for the country (ibid). The tasks of job creation, poverty reduction, and income generation in rural areas should not be left to agricultural

development only (ibid). Thus, much effort is needed to ensure the effectiveness and efficiency in implementation of this strategy.

During the first phase of the NTP program (2011- 2015), funding and implementation by many communes was directed primarily to achieve infrastructure targets set for communes, districts, and provinces covering roads, schools, health centers, and water supplies. Investments to raise incomes, productivity and value addition received less attention. Achievement of these predetermined 19 NTP economic and social criteria qualifies communes, districts and provinces for recognition as having attained "National Rural Development (NRD) status", a largely symbolic recognition, but highly desirable as a political target for Provincial leaders and also to potentially attract additional funding from other government sources. There have been some gains during the first phase of the NTP-NRD particularly in terms of infrastructure and enhanced local level planning, especially where donor-supported projects were implemented. However, there has been little institutionalization of improved processes and approaches, and limited sustainability after completion of such projects (WB, 2017b). This has been compounded by inadequate budget provision for operation and maintenance (O&M), especially at the commune level.

Taking lessons learnt from the first phase of NTP-NRD (2011-2015), the next phase of the NTP-NRD (2016-2020), was designed more properly but still has four ambitious objectives. These are: (a) 50 percent of communes to meet NRD standards (achieve 15 of the 19 pre-set criteria), and each province, and each city under Central Authority should have at least one district meeting NRD standards (i.e., meeting all 19 criteria); (b) Communes, on average, to meet 15 out of 19 NRD criteria, and no commune to achieve less than 5 criteria; (c) Basic production and quality of life requirements to be achieved for rural citizens in areas such as transportation, power supply and domestic water, schools, and health stations; and (d) income levels to increase by at least 1.8 times compared with 2015. The NRD is implemented through MARD with the budget being assigned directly to the provinces. Hence, investment choices and expenditure allocation decisions are made by the relevant departments at the provincial, district and commune level, with minimal input from the central office. The design of the program requires a significant share of contribution (about two-thirds of the program cost) by the provinces with a third being met by central funds. This has strained provincial budgets, which in the past has resulted in funds being diverted from other programs, and in some poorer provinces, in escalated debt levels with local contractors pre-financing infrastructure deliverables (WB, 2017b).

The New Rural Development Program (NTP-NRD) is designed to upgrade services and infrastructure for rural communities and implemented in 8,921 communes spanning across all 63 provinces of Vietnam. It encompasses eleven (11) activity groups linked with nineteen (19) economic and social criteria relating to poverty, education, health, transport, water supply, irrigation, livelihoods, agricultural production, markets, culture, energy, environmental issues, communication and security. Focus areas are as follows: (a) new rural development master planning; (b) social-economic infrastructure development; (c) production development and rural economic structural transformation; (d) social security; (e) development of education in rural areas; (f) development of grassroots health facilities; (g) improving cultural life; (h) improving rural hygiene and environment; (i) improving quality and roles of political organizations; (j) robust national defense and security, social order and safety in rural areas; and (k) enhancing capacity for NRD implementation and M&E. Each of these umbrella activities has several sub-activities.

Similarly to the NTP-SPR, there has not been concrete assessment of the NTP-NRD (2016-2020) performance to date. However, in the recent country program review organized by IFAD in January, 2018 where NTP-NRD central office was invited, the following constraints were drawn by the office:

- There are significant differences in NRD implementation among provinces. Some provinces have already met the entire criterion such as Ho Chi Minh City, Dong Nai, and Nam Dinh provinces. These are rich provinces with majority are Kinh. While most of remaining provinces have only achieved 2-4 criterion. These are poor provinces with significant numbers of ethnic minorities. Thus a single set of 19 criteria should not be applied to all regions within Vietnam. Sub-criteria should be developed based on cultural-socioeconomic characteristics of each region;

- Due to over-commitment and/or rush investment, some provinces fell into heavy debt to enterprises and individuals who advanced their own budget to NRD construction works;
- Vocational training for rural labor is not yet effective and attractive due to low quality curriculum;
- There are limited (if not to say none) preferential policies that can attract enterprises investing in rural area and agriculture.

The NTP-NRD 2021-2025 was approved by the National Assembly on 28/7/2021 (same date as the NTP-SPR). The main objective remains the same as the NTP-NRD 2016-2020 that is to continue focus on restructuring the agriculture emphasizing the effectiveness and sustainability. Upgrading the NRD to a new model including upgraded NRD, and standard NRD. Concrete targets include:

- 80% communes within the country reach the standards of NRD.
- 50% districts within the country reach the standards of NRD.
- 60% of villages in difficult areas reach the standards of NRD.

Budget for the NTP-NRD in this period is VND 196,332 billion (~ USD 8.54 billion). of which 20% to be funded by central budget, and 80% from local budgets These standards, as guided by Prime Minister's Decision 1980/QD-TTg dated October 17th 2016, are represented by Overseen and coordinated by MARD, an implementation plan for this NTP in the period 2021-2025 to be issued by the Government and reflected new views on "ecological agriculture, modern rurals, and smart farmers" from 06 focal programs: (i) science and technology serving new rural development; (ii) OCOP; (iii) rural tourism linking with conservation and development of traditional culture in new rural development; (iv) environment, hygiene, food safety and rural clean water supply; (v) digital transition in new rural development toward smart new rurals; and (vi) enhancement of quality, effectiveness in security maintenance in new rural development.

To oversee and facilitate management and coordination for implementing these NTPs, the Government has formulated the Central Steering Committee of NTPs for period 2021-2025 as presented at Decision 1945/QD-TTg dated November 18th 2021 by Prime Minister. Apart of this, MPI acts as the standing institution for the Committee, responsible for overall administration of NTPs. Under this umbrella, three NTP Task Forces (or Working Groups) are also assigned to be established as follows:
- The CEMA minister to establish and lead a Task Force for the NTP on SED in Ethnic Minority and Mountainous Areas 2021-2030, which to be assisted by this NTP Coordinating Office;
- The MOLISA minister to establish and lead a Task Force for the NTP on Sustainable Reduction of Poverty 2021-2025, which to be assisted by this NTP Coordinating Office;
- The MARD minister to establish and lead a Task Force for the NTP on New Rural Development 2021-2025, which to be assisted by this NTP Coordinating Office;

At provincial level, in accordance to the Resolutions 24/2021/QH15 and 25/2021/QH15 passed by the National Congress in July 2021, all participating provinces are also requested to establish one integrated steering committee in order to manage and coordinate development, planning, allocation of resources, and implementation of these NTPs in their locations, ensuring avoided overlaps between them.

National target program on socio-economic development in ethnic minority and mountainous areas in the 2021-2030

On 19/06/2020, Vietnam's National Assembly has approved an aid package worth VND137.6 trillion ($5.97 billion) to run the first phase of the national target program on socio-economic development in ethnic minority and mountainous areas in the 2021-2030 period. Under the enacted Resolution 120/2020/QH14, the program will be carried out in two phases, with the first being from 2021 to 2025 and the second between 2025 and 2030. Of the figure, more than VND137.6 trillion will be spent on

the first period, including over VND104.95 trillion from state budget, VND10.01 trillion from the local budget, and about VND19.73 trillion in policy credit. Based on the results of the first phase, the NA will decide on the funding for the second one. The program sets to narrow the income gap between ethnic minorities and the national average, doubling average income of ethnic minority people by 2025 (compared to that in 2020) and every year reducing 3% of poverty rate among ethnic minority households and halve the number of extremely poor ethnic villages and hamlets by 2025 while bringing the number to zero by 2030. Its investment will help to address urgent needs of ethnic minority people related to housing, cultivating land, livelihood support, clean water supply, resettlement (for migrants), improving infrastructures, education, health care, vocational training and job creation, etc. This investment targets to support households and individuals as well as enterprises, cooperatives and other business entities operating in communes and villages of extreme difficulties.

The National Committee of Ethnic Minority Affairs (CEMA) is assigned to act as the national coordinating office for this program management and implementation. According to Prime Minister's Decision 861/QD-TTg dated June 4th 2021, 51 provinces with 3434 communes are identified to benefit from this program, of which 1553 communes being of extreme hardship (Zone III), 210 communes being of hardship (Zone II) and 1673 communes being of early development. This Decision provides a detailed list of communes by zones I, II, III and by district for each province, for instance Dak Lak 130 communes (I: 69; II: 7; III: 54), Dak Nong 46 communes (I: 29; II: 5; III: 12), Lam Dong 77 communes (I: 72; II: 01; III: 04) and Ninh Thuan 28 communes (I: 12; II: 01; III: 15). In support to identify these locations, CEMA has provided an online profile with database about ethnic minority of every village, commune and district in each province with quantitative indications of households and poverty rates (see link http://cema.gov.vn/thong-bao/ho-so-xac-dinh-cac-dan-toc-con-gap-nhieu-kho-khan-co-kho-khan-dac-thu-giai-doan-2021-2025.htm)

Each benefiting province makes an investment proposal to implement the NTP from 2021-2025, in which allocation of central budget and co-financing from local budget is determined based on criteria and norms set by Government (as Decision 39/2021/QD-TTg dated December 31st 2021 by Prime Minister). The following table summarizes key projects to be invested under the NTP implementation from national settings, of which those projects #1 "Resolving shortage in land for residing, housing, cultivating and clean water supply" and #3 "Developing sustainable agricultural and forestry production, enabling local potentials and advantages for value chain commodity production" that might have significant implications to forest communities in RECAF provinces.

Main Projects	Responsible Actors
1 Resolving shortage in land for residing, housing, cultivating and clean water supply	CEMA PPCs
2 Planning, arranging, locating and stabilizing settlement of EM and the poor from shifting cultivation, free migration, exposing risks to natural disasters, etc	CEMA, MARD PPCs
3 Developing sustainable agricultural and forestry production	MARD
#3.1 Developing sustainable agricultural and forestry economics linking with forest protection and income improvement for local people;	PPCs
#3.2 Supporting development of value-chain production, medicine plantation, facilitation of entrepreneurship, start-up and extraction of investment in EM and mountainous areas	
4 Investing in basic infrastructures to support production, living and public services in EM and mountainous areas	CEMA, MOIT, MOH
5 Developing education and training to enhance human resources in EM and mountainous areas	CEMA PPCs
6 Conserving and developing values of traditional cultures of ethnic minority linking with tourism development	MOCST PPCs
7 Providing health care with physical enhancement for ethnic minority's peoples; preventing child malnutrition	MOH PPCs

8 Implementing gender equity and addressing urgent demands for women and children	Women Union, CEMA, MOLISA, PPCs

4.1.3. Provincial policies

There was not any specific policy promulgated in four project provinces targeting poverty reduction. Rather, poverty reduction became one of the objectives in the provincial strategy or masterplan that also integrated and concretized the national policies and the NTPs on poverty reduction.

In each province, the 2016-2020 master plan on Socio Economic Development Plan (SEDP) was endorsed by the Provincial People's Committee (PPC) in which poverty reduction was among the key objectives. In Ninh Thuan, apart from the allocated budget for poverty reduction from the central budget through the NTPs, PPC decided to deduct 10% of annual provincial budget equivalent to VND 30-50 billion (USD 1-3 million). Through the NTPs, annually Ninh Thuan was allocated around VND 200-300 billion (USD 10-14 million) (Ninh Thuan DOLISA, 2022). In Lam Dong province, around VND 350 billion (USD 15 million), of which 15% from provincial budget, was annually allocated for poverty reduction (Lam Dong DOLISA, 2022). In Dac Nong province, the annual allocation was around VND 300 billion (USD 14 million). In Dak Lak province, the allocation was approximately VND 350 billion (USD 15 million).

Under the SEDP and through the NTPs, there are various poverty reduction measures implemented in four provinces including:

- ❖ Preferential credit programe: the programme was implemented through the Government's bank namely the Vietnam Social Policy Bank. The bank provides low interest rate loan to the near poor and the poor. According to the Decision 1990/QD - TTg dated 26/11/2021, interest rate of the loan to the poor was 6.6% and 7.92% for the poor and near poor respectively. The loan amount per household was maximum VND 100 million (USD 4,800). The loan requires no clateral but the gurantee by a local mass-organisation including Women's Union, Farmer's Union,... (see more discussion in the Credit working paper). By November, 2021, the outstanding loan in Ninh Thuan was VND 935.2 billion (USD 45 million) reaching more than 27,500 poor and near poor households (DOLISA, 2022); Lam Dong was VND 1,421 billion (USD 65 million) reaching about 36,000 poor and near poor households; Dac Nong was VND 1200 billion (USD 48 million) reaching 42,000 poor and near poor households; and Dak Lak was VND 1350 billion (USD 65) million) reaching about 47,000 poor and near poor households. In the final assements of the 5 year SEDP in four provinces, the preferential credit programme was evaluated as one of successful programmes that contributed remarkly to poverty reduction in four provinces. 65% if the loan amount was used to invest in agricultural development. 50% of the investments was in cattle. In Ninh Thuan, the portion of using loan for cattle was even 80% .
- ❖ Agricultural production support programmes: Under the NTP-SPR and NTP-NRD, there are sub-programmes/projects on agricultural production supports including agricultural demonstrations development, crops varieties and seedlings provision, livestock breeding, and value chain linkage. While the NTP-SPR specifically targets the poor and near poor, the NTP-NRD targets all farmers. DARD is the lead agency in implementation of the programmes. As reported by four provinces, the actual budget allocated for implementing the programmes was limited with an annual amount of VND 10-15 billion (USD 500-700,000). According to DARDs of four provinces through the interviews, this was not enough for scale up and scale-out the successful practices and models.
- ❖ Relating to the value chain linkage, the GoV issued a specific Decree namely the Decree 98/ND-CP in 2018 promoting the market linkage for value chains. According to the Decree,

each value chain development plan can receive maximum VND 10 billion support by the Government. However, according to the provinces, although various value chain action plans developed (e.g. grape for Ninh Thuan, Coffee for Lam Dong, Dak Nong, Dak Lak), there was no budget allocated.

❖ Infrastructure investments: About 70% of the NTP-SPR and NTP-NRD budget allocated to four provinces (~ VND 200 billion – USD 8 million annually in each province) were invested in public infrastructure ranging from community house, road, sluice gate, irrigation, power grid to physical market. According to the agencies and people met during the RECAF design in four provinces, the infrastructure investments significantly improved the livelihoods of local people. Thanks to the infrastructure investments, especially the economic ones, the economic growth was remarkably achieved, the inequality between the rich and poor was reduced.

❖ Vocational training programmes: the vocational training programmes are part of the NTP-SPR and NTP-NRD. About 5% of annual allocated budget for these two NTPs was used for vocational training in four provinces (data provided by DOLISA in four provinces). Vocational training centers of Farmer's Unions in four provinces are the main locations for delivery of trainings. The vocational training prorammes in the project provinces have not received positive feedbacks from beneficiaries which mainly are young people. According to them (through various interview by the mission in four provinces), the trainings were not practical and there was not linkage with enterprises. As results, most of trainees could not find job after training.

❖ Other social programmes: there are medical, educational programmes targeting the poor in four provinces. These are part of the NTP-SPR. The budget allocated for these programmes was about 2.5% in four provinces (data provided by DOLISA in four provinces).

4.2 Results in poverty reduction in four project provinces

4.2.1 Summary of data per province

With a natural area of 1,303,050 ha, Dak Lak province is in the heart of the Central Highlands region. Dak Lak population consists of 49 ethnic groups including Kinh people which accounts for nearly 69% and other ethnic minority groups such as Ede, M'nong, Thai, Tay, Nung, etc. accounting for over 31%. Dak Lak currently has 15 district-level administrative units including 13 districts, 01 town and 01 city with 184 communes, wards and townships, of which 07 communes are located in hardship areas, and 54 communes and 84 villages in extreme hardship areas. Dak Lak has a population of more than 1,870 thousand people, of which urban population accounts for 22.5% and rural population accounts for 77.5%. Besides, there is always a constant pressure of migration, mostly unplanned and spontaneous, which affects the socio-economic development process of the province.

Over the past years, implementing guiding documents of the Party and Government, the leadership, management and implementation of poverty reduction were strengthened. In addition, the synergies and supports from individuals, enterprises and mutual efforts of Dak Lak people, the poverty reduction in the province had some results as follows. By the end of 2020, the provincial poverty rate decreased to 7.91%, (reduction of 2.29% per annum, failing to meet the target set by the Prime Minister (2.67% per annum) and Provincial People's Council (2.87% per annum). The poverty rate among ethnic minority households decreased to 17.40%, (reduction of 3.95% per annum, failing to meet the set target by Provincial People's Council (4-4.5% per annum); the poverty rate in extreme hardship communes decreased to 27.67%, average by 5.59% per annum, exceeding the set target by Provincial People's Council (4-4.5% per annum). the provincial poverty rate was still higher than that of the whole country (2.75%) and ranked second highest after Kon Tum province (10.29%) in the Central Highlands. The percentage of poor ethnic minority households accounted for a larger part (68.33%) of the total number of poor households in the province. Amongst other, the root causes of poverty in Dak Lak include lack of arable land; limited access to financial services; lack of means of production; large number of dependants; and inadequate marketing/business skills (see Annex 1 - poverty situation of Dak Lakprovince).

Dak Nong Province has seven districts and one town; 71 communes, wards and townships, of which 44 communes are in disadvantaged (poor) areas and 12 communes are classified as being in extremely difficult socio-economic regions. Unregulated in-migration is considered to be an

exacerbating factor that complicates poverty reduction efforts. The overall provincial poverty rate is 19.2%, with the rate amongst ethnic minorities being 40.4%. Ethnic minorities account for 53.8% of the extreme poor. The percentage of poor households in majority ethnic minority areas is disproportionately high as compared to the poverty rate amongst ethnic minorities' and poor households in general. The gap between the better off Kinh majority households and poor ethnic minority households is high. Poor ethnic minority households are characterized by low levels of educational attainment; sub-standard housing; and in the more remote areas, with limited access to basic social services. The main causes of poverty at the household level are lack of capital (62%); lack of arable land (28%); lack of means of production (21%); large number of dependants (10%); and inadequate marketing/business skills (7%). (see Annex 1 - poverty situation of Dak Nong province).

Lam Dong Province consists of two towns and ten districts with 142 wards and communes. There are eight communes classified as extremely difficult socio-economic communes. In 2019, poverty rate of the province was 2.85% equivalent to 9000 poor households. Out of which, 6000 poor households are ethnic minorities. Among the four provinces, Lam Dong is a relatively better off province in view of its economic development supported by its tourism sector. It is also the largest area promoting organic and/or certified agricultural production (e.g. vegetable, mulberry, coffee) in the country16 (see Annex 1 - poverty situation of Dak Lakprovince).

Ninh Thuan Province comprises one town, six districts with 65 communes and wards. One district receives support from the program created by Resolution No. 30a on Speedy and Sustainable Poverty Reduction Programme for the Sixty-One Poorest Districts in Viet Nam. Twenty-nine communes are classified as being in mountainous areas and 14 communes are supported under Program 135 for Communes Facing Extreme Hardship in Ethnic Minority and Mountainous Areas. Poor households represented 52.1% of households and near poor households 10.3% in 2019. The highest percentage of poor households is found in proposed program district of Bac Ai (66.7%), the lowest is in Phan Rang - Thap Cham city (7.4%). The principal correlates associated with poverty are identified as (i) lack of education (28%); (ii) health issues (52%); (iii) sub-standard housing (73%); (iv) lack of clean water and sanitation (66%), which is especially grave in Bac Ai (95%), Ninh Son (88%) and Thuan Bac (84%) districts; and (v) limited access to information (27%), i.e., no telephone, internet or TV, radio, etc[17] (see Annex 1 - poverty situation of Dak Lak province)

Over the last five years, all four provinces have been successful in reducing poverty. Between 2016 and 2020, poverty rates were reduced by 64%, 61%, 65%, and 57% in Dak Lak, Dak Nong, Lam Dong, and Ninh Thuan provinces respectively. The impressive poverty reduction outcomes were due to: (i) support from government programs (P134, P135 and P30a) under the National Target Program for Sustainable Poverty Reduction (NTP-SPR), NTPNRD; (ii) support from various international programs, including the IFAD-financed TNSP (Ninh Thuan, Gia Lai) and 3EM (Dak Nong); and (iii) the efforts of the poor themselves (DOLISA Dak Lak, Dak Nong, Lam Dong, Ninh Thuan, 2021).

4.2.2 Factors in remaining poverty

It is important to note that, while the reported rates of poverty reduction in the provinces are quite significant, the figures do not tell the entire story. Poverty reduction rates reflect the overall situation at provincial level. In general, however, two groups tend to enjoy a disproportionate share of the reduction benefit. Those are Kinh peoples (the ethnic majority) and urban residents. Among many of the rural ethnic minorities – including M'Nong, Ma, Ede, Tay, Dao, Nung, Raglei, H'Mong – poverty rates remain high. Indeed, living in a rural area, being non-Kinh and being dependent on agricultural employment are three strong correlates of poverty and extreme poverty.

In addition, poverty reduction achievements in the target provinces are not stable. Apart from significantly higher rates amongst ethnic minority peoples, the risks of falling back into poverty are high. Secondary documents of provinces maintain that the rates of escaping poverty are not sustainable. Poor households become registered as "non-poor" due to one time or sporadic income from sales of livestock (especially, cattle) or due to the coincidence in timing between the poverty

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[16] https://lamdong.gov.vn/SitePages/Home.aspx
[17] http://www.ninhthuan.gov.vn/Pages/default.aspx

survey and a single, particularly good harvest season. Thus at any one time a significant number of "non-poor" households are on a path to "fall back" into poverty due the non-durable, short-term nature of the source for their improved economic status. In addition, the gap between the rich and the poor has increased in recent years.

Poverty still predominates in rural areas and increasingly concentrated in remote uplands.

Poverty remains a rural phenomenon in four provinces. Database and information provided by DOLISA of four provinces reflected that more than 80 percent of the poor near poor live in rural areas. This spatial distribution of poverty has not changed since rural areas in four provinces had been dominated by poverty for a long time. However, the poverty reduction gap between urban and rural seems increasing significantly over the past ten years. Uneven progress of poverty reduction has resulted in substantial changes in the spatial distribution of poverty, with the remaining poor becoming more concentrated in the upland areas.

Low education attainment is still a factor influencing poverty

According to the documents provided by four provinces, one of the root causes to poverty was low education. However, there were not any further figures or justification reflecting this fact. This document therefore used the national figures and other sources to discuss this issue.

According to the Vietnam Human Development report in 2016 (UNDP, 2016a), Vietnam has successfully achieved many global indicators regarding education. Primary completion rates were high already by the end of the 1990s. There is a rapid increase in enrolments at lower and upper secondary levels, leading to an increase in the number of students who attend colleges and universities. However, lack of education continues to be an important determinate of poverty (WB, 2013, UNDP, 2016b). The recent survey by World Bank (2013) showed that individuals living in households whose head did not complete primary school have the highest poverty rate (nearly 40 percent or twice the national average) as well as the highest extreme poverty rate (nearly 19 percent or two-and-a-half times the national average). The inverse relationship between education and poverty has become stronger over time: in 1998, households whose heads had completed primary or less schooling accounted for 55 percent of the total poor. By 2010, they accounted for 75 percent of the poor (WB, 2013, p.74). Rising levels of education coupled with rapid income diversification has been a powerful force for poverty reduction in Vietnam since the late 1990s (ibid).

It is worrying to see that there is also a big gap in education between ethnic minorities and Kinh majorities. Even among the poor, minorities are substantially less educated than their Kinh economic peers: for example, 39 percent of poor minorities had not completed primary school compared to only 16 percent of poor Kinh majorities (WB 2009, 2013). Although the rate of enrolment of children in primary school in Vietnam is equally high between the majorities and the minorities, the drop-off rate (often at last grade of primary school) among the minorities is much higher than the majorities (WB, 2013). Thus, another challenge with poor ethnic minorities needs to be tackled.

Gender gaps in minority school enrolments have received much attention in Vietnam. These gaps have closed at the primary level but persist at the secondary level and above (WB, 2013). However, reverse gender gaps—substantially higher enrolments for girls compared to boys at the secondary level— have started to emerge at the secondary level, particularly among children from poor (majority) households and in the Central Highlands (ibid). Concerns have been raised that boys from poor households are leaving school earlier than girls to take up jobs in the service sector and manufacturing, "pushed" by poverty and economic imperatives and "pulled" by expanding employment opportunities in nearby cities and towns (WB, 2013, p76). While leaving school after six or eight years of education may make sense given short-run incentives, education choices made today will follow children for the rest of their lives. These young workers may not have the education and skills to get good jobs in the future as Vietnam's economy continues to grow and modernize, and Vietnam's economic development will be constrained by the lack of an educated and skilled labor force (ibid).

Many of the poor are farmers with livelihoods linked to agriculture

The poor in four provinces are predominately farmers. Although it is required further clarification during the upcoming design, statistics provided by four provinces reflected that approximately 35 percent of agricultural households live below the poverty line, which is nearly three times higher than the national poverty rate.

Farmers in four provinces (and/or in proposed project areas) are distinctive from the classified farmers in lower delta in which their livelihoods are mainly from crops and livestock production. Farmers in the proposed project areas had a complicated pattern of farming mixing between forest resources use, terraced rice, and industrial crop production. Livestock production of poor farmers in four provinces is not as popular as their peer in low land areas. Land use changes with more restrictions on forest resources use, quick commercialization of industrial crops/trees (coffee, pepper), and limited capacity building have dragged the poor, especially the ethnic poor. Because of producing unprofitable farming, many farmers have sold their lands and became hired workers classifying them as a new category of poverty - the landless groups.

It is interesting to find through database provided by four provinces that poor households derive roughly half their income from agricultural activities, including agricultural wages. However, what differentiates the incomes of the poor from wealthier households is not the level of income from agricultural activities. What differentiates the incomes of the poor from wealthier households is, instead, the extent to which households have successfully diversified into off-farm activities. This finding would mean a lot for the design of the new projects that target the poor. Design of previous projects was driven by on-farm diversification, for instance into cash crops, livestock, and fish and shrimp farming. The new designs should be additionally driven by diversification into business and trading and, even more importantly, by salaried employment in industry and manufacturing and jobs in the service sector. This indicates that on-farm and off-farm diversification is an important approach to poverty reduction.

Poor households are still vulnerable to weather shocks

Located in one of the earth's five typhoon centers, Vietnam is prone to natural disasters, including frequent tropical storms and flooding (World Bank, 2013, FAO, 2015). Households in rural areas are much more likely to experience weather shocks than their urban counterparts, and the poor are more exposed to shocks than the non poor (World Bank, 2013). Households in the Central Highlands are more likely than those in any other region to experience droughts, while those in the Central Coastal (e.g. Ninh Thuan) regions are most likely to experience storms or flooding (ibid).

The nexus between climate risk and poverty is of growing concern. Groups that are the most socially vulnerable (women, ethnic minorities, and the disabled) are likely to be disproportionally less able to adapt to climate changes. They are exposed to greater risk given their reliance of agriculture and natural resources for their livelihoods as well as their greater exposure to natural disasters and lack of assets and capital to recover or to shift to alternative livelihoods (UNDP, 2016b). It is important to understand the different vulnerabilities and capacities of all groups, especially the poor to best target adaptation initiatives in response to the immediate and long term challenges posed by weather shocks.

Poverty is still persistent among ethnic minority groups (See more discussions in Indiginous Peoples Plan)

Dak Nong Province is home to around 40 ethnic groups, which account for 33% of the total population. Lam Dong Province has 43 ethnic groups accounting for 23% of total population. Dak Lak Province has 44 ethnic groups that accounts for 30% of total population. The ethnic groups in three provinces of the Central Highlands share the same characteristics in view of originality. There are indigenous groups (e.g. Ede, Bana, Jarai) residing in the region for centuries; and there are migrants from the Northern provinces in the 1980s-1990s (Tay, Nung, H'mong). These two groups practiced different culture and traditions that strongly influenced their livelihoods[18]. Poverty remains persistence among the indigenous groups (Dak Nong DOLISA, 2021).

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[18] To be expanded during project design.

In Ninh Thuan Province there are three principal ethnic groups – the Kinh, comprising 78% of the population, the Cham 12%, and the Raglei 9.7%. There are other ethnic minority groups comprising the other 0.3% of the population. Raglei people were considered by the Government of Viet Nam as one of the most vulnerable groups in the country. All communes where the Raglei reside are in the list of the most difficult communes according to the 30a Programme[19]. Raglei people heavily depend on forests for their livelihoods. Deforestation and forest degradation threaten the source of living of the Raglei. Thus, promoting forest conservation, payment for forest ecosystem services, and zero-deforestation value chains would provide alternative options to significantly help improve their livelihoods (Ninh Thuan DOLISA, 2021).

Statistics reflected that although the living conditions of ethnic minorities groups in four provinces have improved significantly thanks to various poverty reductions efforts, the concentration of minorities among the poor has nonetheless still persisted. Among the ethnic minorities, about 30% still lived below the poverty line and ~10 percent lived below the extreme poverty line in four provinces (Ninh Thuan DOLISA, 2021).

In view of livelihood strategies and employment patterns, there are also significant differences between poor majority and minority households. Poor minorities earn three-quarters of their total income from agriculture and allied activities, including wage employment in agriculture. In contrast, poor majority households earn about 40 percent from agriculture and allied activities and a much higher share from off-farm activities, both salaried non-farm employment and family enterprises. Forestry is important for minorities, but much less so for poor majorities, in large part reflecting differences in residential patterns (World Bank, 2013).

Ethnic minorities are neither a homogeneous group. Their poverty situation is also different from group to group. The World Bank (2013) disaggregated changes in living standards among four broad categories of ethnic groups that share certain cultural, geographic, and social similarities. Among these four categories, the Khmer and Cham have seen the largest increases in incomes and have the lowest overall poverty rates. From 1998 to 2008, poverty fell steadily for all groups except Central Highland minorities; however, there are some indications that progress is slowing. In 1998, minorities in the Central Highlands had the highest poverty and lowest expenditures, but by 2010, this distinction had passed to groups in the other Northern Uplands category, including the Hmong and Dao and many smaller ethnicities.

Thus, ethnic minority poverty presents a particular and persistent challenge for Vietnam and in four provinces. The causes of persistent ethnic minority poverty have been researched in depth by various institutions including ADB (2003), DFID and UNDP (2003), World Bank (2009, 2013), IFAD (2019). In the context of four provinces, the causes and reasons can be summarized as follows:

❖ Ethnic minorities may have fewer physical assets – land, capital, credit – than Kinh. For example, while overall land holdings of minorities tend to be higher than Kinh, they tend to have less annual cropland and less wet rice or highly productive lands. They also tend to have larger households that are more likely to have young children (43 percent of ethnic minority households had a child below 6 years old, compared to 27 percent of Kinh) (WB, 2013).

❖ Ethnic minorities may have fewer social assets – education, health, access to social services – than Kinh. A study based on VHLSS data (2006) notes that living in a household with an illiterate head almost doubles an individual's chances of living in chronic food poverty. Data from the VHLSS show that minorities have worse health and report more illness than Kinh, and have significantly lower levels of education (23 percent of the household heads of ethnic minority households had no education compared to 6 percent of the Kinh heads of households) (WB, 2009).

❖ Ethnic minorities often are found in geographically remote areas, limiting their mobility and access to services and markets. Lack of physical mobility, caused by lack of access to roads and transportation, has been identified as a key factor in poverty. The expansion of road

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[19] https://thuvienphapluat.vn/van-ban/van-hoa-xa-hoi/Nghi-quyet-30a-2008-NQ-CP-chuong-trinh-ho-tro-giam-ngheo-nhanh-va-ben-vung-doi-voi-61-huyen-ngheo-83914.aspx

systems, electricity and schooling as a result of HEPR, P135, NTP SPR investment in recent years has dramatically increased the number of ethnic households with access to these services, yet areas remain where roads, electricity, and schooling do not yet reach all villages and communes (WB, 2013).

❖ Ethnic minorities may not be benefiting from government poverty reduction programs as successfully as Kinh. This could be due to cultural factors such as lack of knowledge of the policies by minorities, their inability to read or hear about materials related to poverty programs due to language barriers, and a lack of poverty reduction cadres fluent in minority languages. There may also be cases of discrimination and power relations where minorities feel unable to access programs that are in place (ADB, 2003, IFAD, 2019).

❖ Ethnic minorities may possess other socio-cultural factors that are keeping them out of mainstream economic development. These may include such factors as language barriers; community levelling mechanisms that create social pressure against excess economic accumulation and cultural perceptions of social obligations and "shared poverty;" religious obligations that require economic expenditures; gender expectations grounded in different cultural models; and community ownership of land and assets (IFAD, 2019).

It is noted that there is no single factor that explains the difference in outcomes among ethnic minorities and Kinh, even among those who live in the same areas. Instead, differences in the above areas combine in a "vicious cycle" to influence ethnic minority livelihood outcomes and lead both directly and indirectly to persistent poverty (WB, 2013). The World Bank (2009) concluded that poverty reduction depends on comprehensive approaches to remove each of these pillars of disadvantage that minorities face.

If we summarize all of previous discussions on poverty of ethnic minorities, we see that these relate to the issues of assets, capacity, and voice. People may be poor if they lack endowments and assets, such as land, physical capital, and human capital (especially education). Similarly, people may also be poor because they have lower returns on the assets they do have. When minorities are not able to make their physical assets of land, labor and capital work for them, and when they suffer from lower levels of social capital, such as education and health, poverty is likely to result. World Bank (2009, 2013) grouped these issues into six specific sectoral "pillars" of disadvantage including lower levels of education; less mobility; less access to financial services; less productive lands; lower market access; and stereotyping and other cultural barriers.

Thus, there are substantial disadvantages for poor ethnic minorities compared to the majority. These require more efforts by the upcoming project to address these gaps.

Poverty is gender related (See more discussions in Gender Action Plan)

It was reflected in the documents provided by provinces that certain types of female-headed households are more vulnerable to poverty (divorced, separated or widowed women, particularly in rural areas) and this should be reflected in poverty reduction strategies.

Since poverty is measured in terms of households rather than individuals, it is difficult to disaggregate gender differences in poverty. Ethnic minority women often suffer more from the effects of poverty than do men, due to lack of decision-making power, lower education levels and fewer opportunities, making them the poorest of the poor. Due also to gendered social customs of many ethnic minority groups, in most groups men customarily control all assets including livestock and land-use certificates. Interestingly, however, there is a considerable difference in the incidence of poverty between male- and female-headed ethnic minority households: nearly 44 per cent of male-headed households were poor, while the poverty rate of the female-headed was only 33 per cent (UNDP, 2016b).

4.3 Lessons and recommendations

4.3.1 Summary of main lessons from policies and programs

Taking stock of what have been done by the poverty reduction policies and programs nationally and provincially, the following issues/lessons learnt regarding poverty reduction are drawn:

❖ Most policies and programs, such as programs for rural infrastructure and poverty funding, goes to poor communes and households in remote areas; while this will capture some minorities, it does not capture all. These blanket geographical policies do not distinguish between ethnic groups that are more vulnerable and those that are doing relatively well (WB, 2009, 2013, 2017). A discussion about the specific targeting needs of minorities is long overdue (WB, 2013). Potentially more vulnerable populations should be identified; minorities that are small in overall population size or small relative to neighbouring groups might need special assistance, as might groups that are the least assimilated to Kinh majority culture (such as the Raglei in Ninh Thuan). However, currently there are almost no ethnic-specific policies. In the RECAF design, perhaps, a discussion should be opened that asks: is a strategy covering all minorities in targeted provinces always warranted? Which programs/instruments (e.g. rural finance) might be made ethnically specific? It is also worth discussing in terms of development assistance whether or not certain groups have made sufficient progress that they no longer need special targeting or privileges, particularly for quota programs in capacity building and the civil service (WB, 2009, 2013).

❖ Lessons learnt from recent government programs such 134, 135, and even IFAD projects (3PAD, DBRP, TNSP, 3EM) showed that policies and programs that targeted individual households were often as less useful as those that supported groups and/or communities. Groups or communities in which there is little social differentiation and close social ties indicated they prefer poverty targeting to the whole group/community if possible, as individual household targeting is often seen to increase inequality, not level it (WB, 2009, 2013). Moreover, as seen in IFAD projects, working in group/community promoted collective actions, mutual supports, as well as improving economy of scale.

❖ As the poor and ethnic minority mainly relied on agriculture for livelihood, diversifying employment opportunities for these groups is essential. While it may not be easy to map out good strategies to change the occupation for these groups, it is important that the government as well as IFAD include some preferential programs/instruments that generate employment opportunities for these groups. For example, tax incentives or preferential loans/grants can be given to enterprises (PPP) employing more poor and ethnic minority people. Or special vocational training programs can be developed targeting also poor and ethnic minority people. (WB, 2011).

❖ Last but not least, the capacity building element the poverty reduction policies have shown that educational achievements take an important part in reducing poverty, increasing cognitive skills and earnings. Furthermore, education also has strong intergenerational impacts on increasing educational accomplishments for future generations. There seems to be no overemphasizing the role of education in improving welfare and reducing the disparities between ethnic groups. Therefore, it is important to emphasize the importance of improving educational outcomes for the poor and ethnic minority groups in all development plans and activities.

4.3.2 Conclusions and implications for the RECAF

Four project provinces record on economic growth and poverty reduction over the last decade has been remarkable. However, the task of poverty reduction has become more difficult. The remaining poor are harder to reach; they face difficult challenges— of isolation, limited assets, low levels of education, poor health status—and poverty reduction has become less responsive to economic growth. The rural and mountainous areas remain the poorest. Poverty is increasingly concentrated among ethnic minority groups with the smaller ethnic minority groups and those living in the northern and central mountains particularly affected .

Poverty reduction gains are fragile, with a significant portion of the population vulnerable to falling back into poverty. Sources of vulnerability include crop failure, induced by weather or climate shocks, insects or other pests; human disasters, including severe illness, death; and material crisis. In addition, many poor and near-poor households rely on informal sources of income, i.e. family farming, small household enterprises, and causal employment in the wage sector. Earnings in these sectors are typically variable and tend to be lower than in the formal sector. Small shocks can therefore relatively easily send households back into poverty (WB, 2017 b).

Significant economic and social gender gaps exist between women and men, and between ethnic minority women and Kinh women. Gender discrimination and stereotype are still popular, and prevent women from limited accessing to many economic and social services.

Ethnic minority women have lower literacy rates and working knowledge of the Vietnamese language, higher maternal mortality ratios, and lower access to social and basic services, and are poorer than women from ethnic majority groups. Their opportunities for economic empowerment are also more limited: they often do not control productive assets and suffer from weak market skills and capacities for secure livelihoods. Many women from minority groups also do not benefit from or take advantage of existing legal protection.

As discussed earlier, the targeting approach of current poverty reduction policies and programmes, including IFAD projects, requires improvement. Currently, most policies and programs, such as programs for rural infrastructure and poverty funding, goes to poor communes and households in remote areas; while this will capture some minorities, it does not capture all, and these blanket geographical policies do not distinguish between ethnic groups that are more vulnerable and those that are doing relatively well. A discussion about the specific targeting needs of minorities is long overdue (WB, 2013). Potentially more vulnerable populations should be identified; minorities that are small in overall population size or small relative to neighbouring groups might need special assistance, as might groups that are the least assimilated to Kinh majority culture (such as the Ede, Mnong, Giarai, Raglei). However, currently there are almost no ethnic-specific policies.

As the poor and ethnic minority mainly relied on agriculture for livelihood, diversifying employment opportunities for these groups is essential. While it may not be easy to map out good strategies to change the occupation for these groups, it is important that the government as well as the new project include some preferential programs/instruments that generate employment opportunities for these groups. For example, tax incentives or preferential loans/grants can be given to enterprises (PPP) employing more poor and ethnic minority people. Or special vocational training programs can be developed targeting also poor and ethnic minority people.

Provided documents have shown that educational achievements take an important part in reducing poverty, increasing cognitive skills and earnings. Furthermore, education also has strong intergenerational impacts on increasing educational accomplishments for future generations. There seems to be no overemphasizing the role of education in improving welfare and reducing the disparities between ethnic groups. Therefore, it is important to emphasize the importance of improving educational outcomes for the poor and ethnic minority groups in all development plans and activities.

Below are some suggestions areas for the upcoming project (RECAF) to consider in addressing the poverty:

- Minorities need special policies, such as affirmative action programs, to make up for past and current deficiencies that have left them on an uneven playing field. Affirmative action and preferential policies can and should be expanded into new areas and made more effective for specific minority groups that are underrepresented and underserved. For example, there are currently no specific credit policies for ethnic minorities, only policies for poor people generally. Specific variable rates could be developed exclusively for ethnic minorities to try to reduce the disparities in loan availability and loan sizes that they experience. Finally, minorities need better legal recourse (including on legal education) for increased awareness of and as a means to better protect their rights. This could be addressed through the grievance redress system of the upcoming project by legal anti-discrimination statutes enshrined in a Law on Minorities with sanctions for those who discriminate, and the formation of government offices, ombudsmen or grievance boards focused on civil rights. (WB, 2009)
- Support to agricultural transformation. Throughout the discussions, agriculture including crops, livestock, and forestry is a key sector for the provinces continued work to reduce poverty and ensure shared prosperity. Special attention should be paid to the agriculture and food sector, including support to the provision of public goods and improvements in the regulatory environment. Based on the successes of the value chain instruments in the past years, IFAD should engage with the public and private sectors—farmers and

agribusinesses—to support agricultural transformation, focusing on sustainable and climate smart agricultural production; diversification and value addition; inclusive and competitive food value chains; food safety; and job creation within the food system. This should include:

- Remunerative climate smart value chain action planning.
- Establishment of public private partnership (PPP) platform that promote value chain linkage.
- Facilitation of access to value chain financing including PPP fund, CIG fund, micro credit (e.g. WDF), and loans from other financial institutions.
- Capacity building and technical assistance with a focus on climate smart agriculture (CSA), verification and traceability that meet the international markets.
- Policy advocacy and development for scaling up and institutionalisation of good practices.

- *Agricultural extension services.* The current extension and support system for agriculture is based on top-down, lowland models of mono-crops of fruit or rice, with less attention given to the particular socio-economic factors, including if the crop can be sold or if it is suitable for local social or labour conditions. Overemphasis on mono-crops, high inputs of fertilizer and pesticides, and hybrid seeds are not a sustainable model for production in cash-poor areas too remote from markets or in communities with little ability to negotiate for higher prices or in order to process goods to add value. Besides more bottom-up extension services, assistance in agriculture could also be targeted to help minorities reduce their dependence on outside traders. Such assistance should prioritize setting up community credit funds and capacity building in financial management to set up local organizations such as community marketing cooperatives. The extension service needs to focus on more culturally inclusive policies for minorities. Currently, the extension service is largely modelled on narrow and top-down assumptions about what ethnic minorities plan and what they need. A more market-oriented approach—in which the farmer gets to choose the seeds he/she wants, the training he/she wants, who provides the training, etc.—would induce competition and increase options for farmers. (WB, 2009, IFAD, 2015)

- Access to financial services. As mentioned earlier, *specific credit programs/policies are needed to target minorities as a special group.* Currently very few credit policies specifically target ethnic minorities. Specific interest rates could be developed exclusively for ethnic minorities to try to reduce the disparities in loan availability and loan sizes. Average loan sizes could also be raised for ethnic minorities, particularly in areas with more commercial crops liked Dac Nong, Dak Lak, Lam Dong, which has high investment costs in cash-crop agriculture (e.g. coffee, pepper). Besides, apart from the WDF, RECAF project should also help *facilitate ethnic minorities to access to more diverse options of credit.* Only better-off ethnic households can usually obtain loans from the Bank for Agriculture and Rural Development and other commercial banks. For poor ethnic people in study areas, small loans from the Bank for Social Policy are the main source of credit. While this scheme is important, the limited loan sizes and small number of loans available per village mean many minorities are underserved in access to credit (WB, 2009, IFAD, 2012, 2015). Furthermore, regulations on private money lending and mortgaging should be developed to protect vulnerable communities. Landlessness and indebtedness are increasing trends among the ethnic minorities, especially in Central highlands, as moneylenders have increasingly taken over mortgages and others have become trapped in cycles of indebtedness from high interest rates. While it is difficult to regulate private trading in remote areas, the practice of charging nearly 100 percent interest when buying on credit, as was seen in some villages, needs to be addressed by local authorities.

- Markets, Trading.   The poor and the ethnic minorities suffer more from changing prices by season (due to a lack of information, limited capacity to negotiate price,…), and face difficulties in post-harvest preservation for crops such as coffee, pepper, maize. Without adequate preservation measures, many households are forced to sell products in the harvest seasons when prices are lowest, and to sell raw, unprocessed goods rather than value-added ones. This is a greater challenge than an issue arising from an absence of marketplaces (WB, 2013, IFAD, 2015). Over the past years, IFAD has done well at this aspect through implementation of CIF, CIG, and PPP tools. However, the outreach is still limited. More

attention is suggested to agricultural and processing co-ops in minority villages to take advantage of community sentiment and commitment to build in stronger bargaining power in the market for minority producers. Besides, information access should be strengthened in minority areas. Full and regular provision of information about market price should be made through different channels: agricultural promotion staff, the mass media, service centers, etc, and be in languages minorities can understand. Additionally, market information should be timed to provide farmers with information about key planting decisions early in the agricultural cycle in order to maximize crop yields. Finally, capacity and investment support for minority trading is needed since non-minorities currently dominate petty trading in minority areas. Minorities need assistance in developing trading and business relationships that take into account cultural factors, such as minorities' unwillingness to demand repayments or to deny requests for loans. Community-oriented shops—where trading is done for the benefit of the community rather than individuals— could present an important pilot to try in minority areas. Such shops could be set up with the assistance of mass organizations including the Farmers' Union, and could focus on providing needed inputs for production and buying outputs at reasonable prices, to enable minorities to break out of the cycle of buying on credit and paying in kind after harvest that now dominates in some minority areas.

- <u>Strengthen private sector and agri-business development</u>. A stronger private sector is needed to effectively play its role in the economy as a provider of quality jobs, a contributor to economic growth and revenue, and an investor in infrastructure development, and to enhance provincial competitiveness. RECAF might consider to play a more active role in providing technical assistance to provinces to (i) strengthen the competitiveness of the private sector; (ii) enhance the integration of this sector into global/sustainable value chains; and (iii) improve the investment climate.

References

ADB (Asian Development Bank). 2005. Vietnam Gender Situation Analysis. ADB, Mandaluyong City, The Philippines.

ADB(Asian Development Bank). 2014. Technical and Vocational Education and Training in the Socialist Republic of Viet Nam: An Assessment, Asian Development Bank, Mandaluyong City, The Philippines.

CEMA (Committee for Ethnic Minority) and UN Women Viet Nam. 2015. Briefing Note on the Situation of Ethnic Minority Women and Girls in Viet Nam.

CEMA (Committee for Ethnic Minority). 2017. Current situation of 53 ethnic minority groups. CEMA, Hanoi, Vietnam.

Coxhead, I. Kim N,B, N. Thao, V,T. and Hoa, N,T,P .2010. A Robust Harvest: Strategic Choices for Agricultural and Rural Development in Vietnam. The Asia Foundation, Hanoi, Vietnam.

DOLISA Dak Lak. 2021. Poverty reduction in the period 2016-2020 report. Department of Labour Invalid and Social Affair.

DOLISA Dak Nong. 2021. Poverty reduction in the period 2016-2020 report. Department of Labour Invalid and Social Affair.

DOLISA Lam Dong. 2021. Poverty reduction in the period 2016-2020 report. Department of Labour Invalid and Social Affair.

DOLISA Ninh Thuan. 2021. Poverty reduction in the period 2016-2020 report. Department of Labour Invalid and Social Affair.

FAO (Food and Agriculture Organisation).2015. Financial Inovations and Inclusive Investment for Agricultural Development - Vietnam Case Studies for the Global CABFIN research Progamme, FAO, Rome.

Hoàng Cầm, Lê Thanh Sang, Nguyễn Thị Phương Châm, Ngô Thị Phương Lan. Nhung Tuyet Tran, Vũ Thành Long. 2013. The Women's Access to Land in Contemporary Viet Nam.

IEMA (Institute of Ethnic Minority Affairs), and P. McElwee. 2005. Research on Policies for Fixed Cultivation and Sedentarization in Vietnam within the framework of Programme 135 Investment. IEMA, Hanoi.

IFAD (International Fund for Agricultural Development). 2012a. Technical note on Indigenous People's issues. IFAD, Rome.

IFAD (International Fund for Agricultural Development). 2012b. Country Strategic Opportunities Programme 2012-2017. IFAD, Rome.

IFAD (International Fund for Agricultural Development). 2015. COSOP Mid-term review 2015 – Vietnam Programme. IFAD, Rome

IFAD (International Fund for Agricultural Development). 2017. COSOP results review 2017- Vietnam Progamme. IFAD, Rome.

ILO (International Labour Organisation). 2013. Youth Employment Policy Brief: Vietnam. ILO, Vietnam

ILO (International Labour Organisation). 2016.Women, Gender, and Work. Volume 2. ILO, Geneva.

JICA (Japan International Cooperation Agency). 2011. Country Gender Profile: Vietnam. JICA, Japan.

OECD (Organisation for Economic Co-operation and Development). 2017. Youth Well-being policy review of Vietnam. OECD, Paris.

Phuong Nguyen Thi Thu and Bob Baulch. 2007. A Review of Ethnic Minority Policies and Progammes. Centre for Analysis and Forecasting, Vietnam Academy of Social Sciences, Hanoi and Institute of Development Studies University of Sussex, Brighton, UK.

Pinter Lazlo, Vu Dang Duong, Nguyen Anh Phong, Nguyen Minh Khoa. 2015. Securing means of Implementation in Vietnam. Asia-Europe Foundation, Singapore.

Quan Ha Viet. 2010. Programme 135 - Sharing lessons on poverty reduction and development schemes for ethnic minorities in Vietnam. Programme 135 Coordination Office – Committee for Ethnic Minority Affairs of Vietnam.

Rudengren, J. Huong, N,T, L. Wachenfelt, A, V. 2012. Policies in Vietnam Transitioning from Central Planning to a Market Economy, Stockholm Paper, Institute for Security and Development Policy. Stockholm, Sweden.

Tuan, N,D,A .2011. Vietnam's Agrarian Reform, Rural Livelihood and Policy Issues. In www.rimisp.org/wp-content/.../05/Paper_Nguyen_Do_Anh_Tuan.pdf, Accessed in 3rd Jan, 2015.

UNDP (United National Development Progamme). 2012. Reviewing and Analyzing Ethnic Minority Policies and Giving Recommendations on Policy-framework Building to the Committee for Ethnic Minority Affairs. UNDP, Vietnam.

UNDP (United National Development Progamme). 2016a. Human Development Report 2016 for Vietnam, UNDP, Vietnam.

UNDP (United National Development Progamme). 2016b. Vietnam Gender Briefing Kit 2016. UNDP, Vietnam.

UNFPA (United Nations Population Programme). 2011. Young People in Vietnam – Selected indicators. UNFPA. Vietnam.

UN-WIDER (United Nations - The World Institute for Development Economics Research). 2015. Children and the youth in rural Viet Nam. UN-WIDE, Helsinki, Finland.

USAID (United State Agency for International Development). 2015. Right and Gender tool kit for Vietnam. USAID, Washington DC.

Vuong Xuan Tinh. 2016. Overview of Ethnic Minority Policies in Vietnam from 1980 to Date. Linguistics – literature - Culture Journal. Hanoi. Vietnam.

WB (World Bank). 2009. Country Social Analysis – Ethnic Development in Vietnam. World Bank.

Washington, DC.

WB (World Bank).2011. A Widening Poverty Gap for Ethnic Minorities in Vietnam. Worldbank, Washington DC.

WB (World Bank). 2013. Well Begun, Not Yet Done: Vietnam's Remarkable Progress on Poverty Reduction and the Emerging Challenges - 2012 Vietnam Poverty Assessment. World Bank, Washington, DC.

WB (World Bank). 2014. Financial Sector Assessment Vietnam. World Bank, Washington DC.

WB (World Bank). 2017a. Country Partnership Framework with Vietnam for the period 2017-2022. World Bank, Washington DC.

WB (World Bank). 2017b. Programme Appraisal Document on a Proposed IDA credit for the National Target Programmes for New Rural Development (NTP NRD) and Sustainable Poverty Reduction Support Programme (NTP SPR). World Bank, Washington DC.

Chapter 5 - LAND TENURE AND FORESTLAND ALLOCATION

This chapter focuses on detailing current land tenure arrangements and forestland allocation (FLA) within the project areas, and identifies opportunities for RECAF project activities and implementation. This chapter is based on an extensive review of existing literature on the policies, legal framework, institutional arrangements related to land and forest tenure arrangements and FLA in Vietnam. The chapter is also informed by other reports developed for RECAF (poverty analysis, gender assessment, Indigenous Peoples Plan, deforestation and hotspot analysis, Lam Dong Province's proposal for RECAF, socio-economic data and forestry data).

5.1. Land tenure context in Vietnam

The historical context

The current land tenure scenario in Vietnam is a result of a series of reforms starting from 1954. From the mid-1950s to 1975, the Democratic Republic of Vietnam in the north, and the Republic of Vietnam in the south had different agrarian structures. While the north opted to implement communist reforms in the 1950s focused on agricultural collectivization. The south opted to carry out a land-to-the-tiller program beginning in the 1970s. The latter process provided ownership rights to former tenant farmers that led to approximately three-fourth of tenant households receiving rights to nearly 44% of the farm area in the south (USAID 2013). When the Communist government took power in 1975, it adopted initial efforts of collectivizing the south. However, the efforts failed and by the 1980s, the government decided to pursue decollectivization and the market-oriented Doi Moi reform process based on allocation of land-use rights to farmers (USAID 2013).

Land Laws of 1987 and 1993 paved the way for reallocating cooperative land to farmer households for their long-term use. The 1993 Land Law laid out the foundation for a formal land market by providing increased land-tenure security to farmers, allowing farmers to transfer such their use rights (exchange, bequeath, lease or mortgage), obtain land-use right certificates (LURCs), facilitating access to credit. The law increased tenure security by providing 20 year land use-right for annual cropland (increased to 30 years in a 1998 revision) and 50 years for perennial cropland. Revisions in 1998 added the rights to sublease LURCs and to use them as capital in joint venture arrangements.

The law addressed leasing of land to foreigners by imposing ceilings of 2 to 3 hectares on annual cropland and 10 hectares on perennial cropland (Marsh and MacAulay 2006).

The Land Law of 2003 further supported Vietnam's transition to a market-oriented economy (LGAF 2013). It decentralized many land administration responsibilities to local government structures and established policies and procedures to govern compulsory acquisition of land by the state. It required right holders to obtain LURCs in order to transfer their land rights (To et al., 2019). LURCs are also necessary for access to formal credit and legal protection of land-use rights (USAID 2013). The Law required the inclusion of both spouses names on LURCs if the lands are jointly held. The Law also for the first time authorized the state to issue use rights to customary groups (EASRD 2004).

The 2013 Land Law introduced a number of improvements such as by extending the duration of land use rights to 50 years for both annual and perennial crop, allowing larger land holdings, narrowing the scope of compulsory land acquisition by the Government for socio-economic development, and bringing greater transparency, people's participation and accountability in land management and administration, from land use planning and land valuation to compensation and support and grievance redress. (LGAF 2013). The law allowed households to use their land to enter into an economic relationships with companies or to establish plantations through joint ventures. To address fragmented land holdings, the government adopted a policy of land consolidation, encouraging farmers to exchange land parcels or buy land use rights from others, with a cap of 30 ha for annual crops and 300 ha for perennial crops (To et al. 2019).

Vietnam's land policy and legal framework have incorporated a number of equity objectives to ensure access to land by disadvantaged groups such as farmers, ethnic minorities and women. By 2010, the government had allocated almost all of its agricultural land to land users while 90%of farming households had received LURCs (USAID 2013). Farm land allocation among rural households has been allocated relatively equitably as compared with many other developing and transitional countries; farm sizes vary, but are typically around 0.2 hectares per capita (World Bank 2010; Marsh and MacAulay 2006). Particular attention was also given to ethnic minorities who comprise approx. 15% of the total population but 47% of the total poor and 70% of the total extreme poor in country (World Bank 2013).

The current situation

The government plans to revise the 2013 land law to address issues regarding expiring rights, enable large-scale land concentration among other objectives. Meanwhile, the government has established Land Registration Offices in all provinces and a third of districts to provide land-related public services (To et al. 2019).

Decentralization -- As noted earlier, management of public land in Vietnam has been decentralized to local authorities. The Ministry of Natural Resources and Environment (MONRE) is the primary central-level administrative responsible for defining the policy and legal framework governing land, water and mineral resources. At the province, district, commune, ward and township, People's Committees handle the allocation of land and issuance of LURCs, and facilitate transfer and exchange of land-use rights. In rural areas People's Committees at the commune level are responsible for these tasks. According to the World Bank (2013) Land Governance Assessment (LGAF) there are generally adequate budget, resources and institutional capacity at all levels for the implementation of the legal framework. However, several issues remain. In particular, responsibilities for management of public land are often placed at wrong level or involve considerable ambiguity. There is lack of clear separation between policy formulation roles on the one hand and implementation and arbitration of any disputes on the other. This has led to conflicts of interest or abuse of authority (for example, in the decision-making on land allocation and conversion). Also, the legal framework requires appropriate consultation with stakeholders, and particularly affected communities; in practice consultation are not often sought or not used in making land-related decisions (World Bank 2013).

Land information/administration – Land information systems exist, however, coverage of LURCs and maintenance is incomplete, while data are not spatially referenced (World Bank 2013). Land

Registration Offices lack consistent organizational, staffing and service standards as well as the capacity to meet increasing demands from land users (To et al. 2019). Land inventory and public land allocations are required to be made publicly accessible, however, this is only partially the case (World Bank 2013).

Land markets and valuation – Vietnam has active markets for the sale and rental of land-use rights, although the level of trade in land rights varies from province to province. A number of possible factors inhibit development of a vibrant market in land-use rights, including lack of transparency, limits on lease periods, the costs and delays associated with transfer procedures and the government's intervention in the allocation, transfer, use and valuation of land (USAID 2013).

Land acquisition including land use change -- Vietnam's policy on compulsory acquisition is laid out in the 2003 Law on Land. It allows the state to acquire land used by citizens for a wide range of purposes, including national defense and security, national interest, public interest and economic development. Although the law requires the state to pay compensation based on the market price of the land, the state lacks procedures for assessing market price and often fails to assess market value. The law also requires the state to provide notice to land users, provide for their resettlement and support and hear challenges to acquisition decisions. Overall, the land acquisition procedures are slow, unpredictable and lacking in transparency. The most common form of compulsory acquisition cases involve state acquisition of land from farming households to develop industrial zones and clusters. From 2001 to 2010, nearly one million hectares of agricultural land were converted to industrial or commercial use in both public and private economic development projects (USAID 2013). According to past studies, as many as 11% of Vietnamese have been displaced by land conversion (USAID 2013). Not surprisingly, conversion of land from agriculture to other uses has been a primary cause for most major land disputes in recent years (To et al. 2019).

Disputes/conflicts -- Approximately 70-80% of all complaints directed at the government each year are administrative complaints regarding land, and 70% of land complaints relate to compensation. Complaints relating to improper land acquisition and especially inadequate compensation have been particularly severe in the central highlands, where national army and police forces were deployed in 2001 and 2003 to quell protests by thousands of ethnic minority people (USAID 2013). The number of large-scale land disputes has increased since the beginning of 2012. These include numerous high-profile conflicts relating to compulsory acquisition and compensation below market prices. By law, district-level officials have the authority to forcibly evict land users who refuse to relocate; there have been a string of forced evictions in rural areas, in some cases involving military forces (USAID 2013).

Dispute/conflict resolution mechanisms -- Vietnamese political culture favors local resolution of disputes. The 2003 Law on Land states explicitly that the "State encourages parties to a land dispute to conciliate by themselves or to resolve the land dispute by conciliation at the grass-roots level" (USAID 2013). Mediation groups operating at the street and village level, and mediation committees operating at the commune and neighborhood level, play an important role in adjudicating property disputes between individuals. Both are comprised of influential community members. Committees typically include officials from the justice department, the police and the country's Fatherland Front, and representatives from groups such as the farmers' union, women's union, Veterans' Association and the Communist Youth Union (USAID 2013). Despite their informality, the state views them as important institutions for handling small disputes. The Law also provides that parties who fail to resolve their land disputes through conciliation are to refer their complaints to the People's Committee of the commune, ward or township where their land is situated. If still unresolved, the committee may refer disputing parties to – a people's court, a People's Committee at a province or the Minister of Natural Resources and Environment – depending on the nature of the case. Parties with complaints about administrative decisions made by People's Committees can bring their complaint before various levels of People's Committees and in some cases to People's Courts (USAID 2013). Grievance redress mechanisms are typically used in the case of involuntary resettlement and denied compensation for assets acquired, transitional living allowances, and livelihood restoration measures. Land conflicts are exacerbated by lack of independent conflict resolution mechanisms, and the lack of systematic monitoring or feedback to policy. The lengthy timeframes for resolving land disputes

further jeopardize effective land use (USAID 2013). A process exists to appeal rulings on land cases, but costs are high and the process takes a long time (World Bank 2021).

Gender -- Women's rights to acquire, use, inherit and transfer land are protected by law. In particular, the 2003 Law on Land requires that LURCs include the name of both husband and wife if the land is jointly held. Women's rights to land are protected in the case of separation, divorce or widowhood if the wife's name is on the certificate. Also, under the Marriage and Family Law, land acquired during a marriage is deemed a common asset, and it also requires that the names of both husband and wife be registered on LURCs. In practice, however, women's land rights remain insecure and are not fully realized. As compared to men, women are allocated smaller plots and less land overall; and women's names are often not included on LURCs (USAID 2013). For example, the World Bank (2013) land governance assessment notes that only 39% of registered land parcels were with the name of women, either individually or jointly, and largely in urban and peri-urban areas. Also, mediation committees often prevent women from realizing their land rights, as they tend to resolve disputes according to custom rather than law, particularly in areas where patrilineal groups dominate. While complainants may pursue their claims through the formal legal system but they face significant pressure from their community and the committees to end their grievance at the committee level (USAID 2013).

Upland areas and the recognition of customary rights of ethnic minorities – With only 15% of Vietnam's land being arable, upland areas populated by ethnic minority groups, have been used heavily for agriculture. In particular, upland areas have been used for large-scale cash crop production such as cashews, coffee, and rubber since before decollectivization. The government has also allocated upland areas to lowland migrants seeking land due to the growing population. The establishment of new economic zones in the central highlands has also attracted an influx of Kinh migrants from the lowlands in search of economic opportunities and fertile land (SPERI/CODE, 2011). Between 1976 and 2001, the population in the Central Highlands (Dak Lak, Gai Lai, Kon Tum and Dak Nong) grew from 1.2 million to over 4 million, reducing the ethnic minority groups from the majority to only 25% of the population (Salemink 2003). Commercial crops have taken over shifting cultivation lands, limiting poorer minority groups' access to land and turning them into plantation labourers (Ironside 2017). Further, the allocation of agricultural land to individual households instead of to communities, means that little community forest land remains. Upland areas have also been the location of hydropower development flooding fertile rice lands, as a result of which hundreds of thousands of people have had to relocate, sometimes multiple times, often to less productive areas. With decreasing land to compensate those who have been displaced, many people have been forced to clear forest areas to overcome land shortage (Ironside 2017). Vietnam's legal system has not recognized customary laws since 1975. The 2003 Law on Land provides for the recognition of communal tenure, but recognition has not occurred in practice (Andersen 2011). Meanwhile, land allocation has often been carried out in areas where there are no land conflicts. In remote upland areas, populated by ethnic minority groups and where up to 95% of the population may be poor, allocation of LURCs may be only two percent (Ironside 2017).

5.2 Forest tenure context in Vietnam

5.2.1 Forest policy and legal framework

The Land Law of 2003 classifies forestland as a sub-category of agricultural land. As with other land in Vietnam, all forests belong to the people and are managed by the state, although the 2017 Forest Law provides forest ownership by organizations, household, individuals, communities. As with the 2004 Law on Forests, the 2017 Forestry Law categorizes all forestland into three categories: i) special-use forests used for national parks and nature reserves (about 15% of total forest area); ii) protection forests intended to protect the environment, regulate climate and prevent erosion, desertification and natural disasters (38%); and iii) production forests used for producing and trading timber and non-timber forest products (46%). The 2017 Forestry Law provides for allowable exploitation of all three forest types (special use, protection, production) enabling forest owners to develop plans and benefit from forests accordingly and in line with the forest type and receive compensation as providers of forest ecosystem services. Forest carbon, reduction of GHG emissions and sustainable forest management are recognized as forest ecosystem services (World Bank 2021).

The 2017 Forestry Law includes the recognition of the rights of communities including ethnic minorities to access the forest and its resources, prioritize them in forest allocations (Art 14.8), and recognizes communities as forest owners (Art 2.9). Communities allocated forested sacred forest, protection and production forests are entitled to access State funds for protection and development of SUFs and protection forests, harvest forest products. Communities are entitled to own trees and other assets created by them on planted land. Communities may not re-allocate or transfer rights to others (Art 2.8). The law provides the same provisions for households and individuals but with transfer rights. The State may revoke rights for national defense or security, socio-economic development or in the national or public interest; in such cases forest owners are entitled to compensation (Art 22.2). Allocated rights and LURCs provide some tenure security to rightholders, however, revocation of user rights is fairly easy and frequent. Expropriations have been by far the major cause of households losing their land, accounting for 97% of cases, with the North and the Central Highlands being areas significantly impacted in the recent past (World Bank 2021).

As with land, the government manages all water, forest and mineral resources for the population as a whole. As with the 2004 Forest Protection and Development Law, the 2017 Forest Law provides that the Ministry of Public Security, the National Ministry of Defense and the MoNRE shall collaborate with Ministry of Agriculture and Rural Development (MARD) at the district and provincial levels to implement forest policy. While MoNRE is responsible for management of land and is tasked to issue LURCs, MARD is responsible for the management and allocation of forests. In practice, the number of agencies involved along with the highly decentralized nature of governing agencies has led to weak and ineffective enforcement of forestry laws as well as uneven enforcement across regions (USAID 2013).

Forest Law provides for the allocation or lease of forest land to private entities, including organizations, households and communities. Rights may be granted for a duration of 50 years (World Bank 2021). The state may extend the allocation or lease term if the user wishes to continue using the land, the user has been in compliance with the land laws, and the use conforms to current zoning laws. For large investment projects with slow capital recovery rates or other special circumstances, the maximum use rights period is 70 years. The Government of Viet Nam has aimed to allocate at least 75% of production forest and 30% of protection forest for households and local communities (USAID 2013). Rights to allocate forest lands are decentralized to the Province and district levels. The Provincial People's Committees (PPCs) may allocate forestlands to organizations and lease lands to foreign investors. District Peoples' Committees may assign production and protection forests to communities, individuals and households (Art. 23, 2017 Forestry Law).

5.2.2 Forest tenure arrangements, current status

Privately held land includes land held and managed by individuals, households, communities, private cooperatives or privately owned businesses or organizations. The private sector manages about 70% of production forests, 30% of protection forests and 15% of special-use forests. State operations manage the remaining forests (USAID 2013). Individuals and households hold over 3 million ha or 20.8% of the total forest area and communities over 1.2 million ha or 8.3% of the forest area (Giang and Thang 2020, see table below). Area managed by state agencies include: i) State Forest Enterprises (SFEs): 1.76 mha forest land, 12% of forest area (mainly production forest), ii) Forest Management Boards (FMBs): approx. 5.17 mha forest land, nearly 35.5% of forest area (mainly Special Use Forests [SUFs] and protection forests); and iii) Commune People's Committees (CPCs): nearly 3 mha forest land, 20.5% of forest area (Giang and Thang 2020).

Table 1: Forest tenure and ownership in Vietnam

Forest owners	Area (ha)	Percentage
Special Use Forest Management Boards (SUF MBs)	2,152,460	14.73%
Protection Forest Management Boards (PF MBs)	3,016,541	20.65%
Economic organizations	1,763,961	12,07%
Army forces	211,808	1.45%
Households and individuals	3,039,597	20.81%
Communities	1,216,982	8.33%

Foreign-invested enterprises	11,277	0.08%
Science and education organizations	202,903	1.39%
Commune People's Committees (CPC)	2,993,692	20.49%
Total	14,609,221	100%

Source: Giang and Thang 2020

Individuals – Households and individuals which have been allocated forests and forest land receive funds from the state for management and protection. They are allowed to harvest non-timber forest products, collect damaged trees, and exploit timber and bamboo (with restrictions) and revenues arising from them (85-90% of timber products), once taxes have been paid. They may also use protection forests for agriculture crops and aquaculture provided that these activities do not affect the protection function of these forests (Art. 57, Forestry law 2017).

Communities – According to the 2017 Forestry Law, communities are eligible to receive protection and production forests. However, the limited area allocated to communities are an indication that the government has not prioritized such allocations. Community allocations are challenged by a number of factors: i) forests allocated to communities are often of poor quality and located in remote locations, far from the community. This limits the opportunities for communities to generate income from forest management; ii) procedures for obtaining approval for timber harvest are complex, and government fails to support communities in navigating through these procedures; iii) communities lack access to financial capital; iv) communities are recognized forest owner in the Forestry Law, but it is not recognized as a legal entity in Civil Law. This makes it difficult for communities to join development programs and to collaborate with other legal entities such as private enterprises for economic development; v) in many cases local authorities hold negative perceptions of community forestry; vi) state authorities fail to enforce forest laws protecting community forests from encroachment; vii) lack of post-allocation support to communities for sustainable forest management and development of forest based enterprises despite the legal provisions for such support (Giang and Thang 2020).

Commune Peoples' Committees (CPCs) – Approximately 20.5% of forests are currently being managed by CPCs under temporary management, much of which has been returned to the state from State Agriculture and Forestry Corporations (SAFCs). In most cases the forest land recovered is poor in quality and consists of small dispersed plots. CPCs lack the interest, resources and capacity to manage these areas. These lands are therefore seen as open access and experience heavy encroachment. Furthermore, the PPCs make decisions about allocating CPC-managed land to companies. Districts are often not informed and many do not know what companies are operating in their district. Meanwhile, PPCs have difficulty overseeing them as the companies have paid fees and rental for the lands. The PPCs often delegate forest monitoring to state companies which are not able to perform this task and an open access scenario develops (Ironside 2017). Overall, management of CPC forests is poor and in many cases forest degradation and deforestation are rampant (FAO 2016). In the Central Highlands, some CPCs that had rented out forest lands to companies have planted crops such as cassava leading to a lot of forest clearing.

State forest enterprises and FMBs -- Most of the Vietnam's forests are still managed by state entities such as Forest Management Boards (FMBs) and state forest enterprises (SFEs), which jointly manage over 47% of the total forest area (see Table 1). All special-use and protection forests, and most of the natural forests on production forest land is still managed by these state entities (World Bank 2019). However, as with CPCs, SFEs and FMBs lack the capacity to manage all the forest under their care. Since 1991, several reviews and restructuring of SFEs have been carried out. This has involved supporting innovative and active enterprises, decommissioning those that are failing to perform, and giving Provincial Party Committees oversight of land reallocation from SAFCs to local authorities. Most provinces now have detailed SAFC restructuring plans. Between 2004 and 2012, approx. 505,000 ha was taken back from SFEs and SAFCs for allocation to households and communities. A further 1.5 million ha was transferred from these state enterprises to FMBs. The number of SFEs has fallen from over 400 to 134, and they now control less than 2 million ha, mainly natural forests and some plantation forests (Ironside 2017). Further restricting and allocation has

been hampered by lack of guidance for local authorities, unclear SFE boundaries, and lack of data, maps and funds for surveying to facilitate land allocation. Moreover, over the years people have occupied some forestland areas under SFE control, leading to overlapping land claims and conflicts when redistributing these lands. Other problems relate to valuing the land and property on the land, as state owned companies argue that the farmers should compensate them for the property on the land as part of handing over land to them. Valuation is difficult and farmers do not want to pay for the trees growing on the land (Ironside 2017).

Also, since 1995, SFEs and FMBs are allowed to subcontract forest lands to local households for forest protection and planting. The contracts require FMBs to provide forest protection or planting fees to households. The contract is normally for one-year and is renewable. However, such contracts have not provided sufficient incentive for forest protection. In most provinces, the income from forest protection contracts is too low (approx. USD 8 per ha per year) and the contracts confer no rights over forest resources or to a share of income from forest products or services (FAO 2016). There is growing support for more "collaborative" approaches, and more forest land allocated to households and communities and inter-sectoral policy coordination (World Bank 2019).

The government is interested in creating a land fund made up of land reclaimed from SFEs and SAFCs. Some enterprises may be privatized and some may be dissolved and the land transferred to communes for reallocation to households and communities. As part of the reform, the government also plans to reclassify one million ha of protection forest to production forest. Production forest can be allocated by local authorities to poor and landless households, groups and private companies, while protection forest can be allocated to communities under PFES-type arrangements. An estimated 400,000 ha now controlled by SFEs would be transferred mainly to households. Meanwhile, SFEs which have 70% or more of rich or medium forest will be allowed to continue their functions. SFEs will also be maintained in border areas (Ironside 2017).

5.2.3 The Forest Lands Allocation challenges

Despite the legal provisions and clear roles and responsibilities for the FLA process, there are numerous challenges associated with this process that need correction in order to prevent conflicts/disputes (FAO 2016):

- **Failure to follow FLA procedures** – FLA procedures have not been followed in many cases with the failure to conduct field measurements of forest areas and poor geo referencing of the allocated plots. Furthermore, lack of resources for accurate cadastral mapping, poor availability of land tenure data, and inconsistent forest data (MONRE and the Department of Natural Resources and Environment, DONRE) due to different forest classification systems and inventory methodologies has resulted in double allocation of land areas in some cases and the more common problem of overlapping boundaries and long-running conflicts between villages, between communities and companies, etc. Problems have also arisen due to poor database management; inconsistent data between demarcation of areas and formal registration of areas; and the use of out-of-date data in the allocation process. The government has been working to resolve these issues with the development of a unified, comprehensive, and decentralized land registration system covering all types of land in the country; MONRE has developed and is overseeing reliable procedures and standards for land registration that are being implemented at the decentralized levels; cadastral data, both textual and spatial, has been updated and is mostly digitally linked with a Land Information System software in land registration offices at provincial and district levels that are well-equipped with modern IT equipment. At the commune-level, access points with internet connectivity have been established in many of the commune offices (World Bank 2021)

- **No community consultation** -- Circular 38 on FLA stipulates the involvement of local communities in decision-making on forest allocation. This was to prevent any disputes resulting from the FLA process. In practice, however, there has been lack of participation of local communities and households in most of the stages of reviewing, approval and verification of forest land allocation proposals. As a result, a number of disputes related to boundaries and overlapping claims have emerged at the local level;

- **Poor households and women-led households were not prioritized** -- Criteria for the selection of recipients of forestland have at times excluded poor households due to requirements of permanent housing and sufficient labor to carry out forest protection and plantation activities. Also, focus on individuals and households in forest- and land-use allocation has substantially weakened collective, customary land management;

- **Poor quality forests and failure to use forests for intended purposes** -- Forests allocated to households and communities are usually of poor quality with limited possibility for timber harvesting for several years. Low economic returns from keeping it as forest is leading to forest conversion. FAO 2016 study showed also that higher-income households with alternative livelihood options were failing to invest in forests and forestland allocated to them. Likewise, non-State companies had also cleared areas that had been prioritized for conservation. Meanwhile, in cases where FMBs' facilitated consensus with local communities on forest protection initiatives and provided longer-term forest contracts (of 15 years or more), communities were shown to invest in forests;

- **Lack of post-allocation support** – The government has not provided post-allocation support in the form of access to credit and to markets for forest products, as well as the access to high quality seedlings for forest enrichment or replanting;

- **Lack of monitoring** – There has been a lack of an effective mechanism to monitor the implementation of FA/FLA to ensure that due process is followed or that lands have been used for intended purposes;

Overall, the forestland allocation policy has contributed to improving the livelihoods and income of individual, households, and communities, particularly ethnic minority peoples where implemented well. Studies show that the policy contributed to poverty alleviation and created a positive impact on forests. However, improved processes for FLA along with post-allocation support can greatly help to reduce conflicts and enhance such benefits. Improved FLA is also critical for landowners to benefit from PFES and REDD+ initiatives.

Gender – Although Vietnam has developed various laws and policies to promote women's rights, they are frequently disadvantaged in access to and control over forest resources. In particular, the poor and women are still structurally disadvantaged in terms of access to land, in forestry policies, and in participation in decision-making processes including decisions over use of land and forests. This is despite the fact that women have significant roles and responsibilities in many forestry value chains which are important for household well-being, food and energy security. While there has been an increase in the number of female–only and joint holders of land use title for agricultural and residential land since early 2002s, the number of formal entitlements over non–residential land for the wife was lowest among ethnic minority groups that practice patrilineal succession. Women also have limited access to rural advisory and agricultural extension services, training and technology transfer (Gender data, Dec 2021).

Ethnic minority rights – About 68% of the poor and 73% of ethnic minorities are engaged in forestry activities, compared to just 19% of the non-poor and 13% of the majority ethnic group (Kinh). Three quarters of Vietnam's minority populations live in the Northern Mountains and Central Highlands where remaining forests are concentrated. NTFPs are critical for an estimated 24 million people living in and around forest areas and are particularly important for the 8.5 million ethnic minority people living in the uplands, to whom NTFPs represent an important safety net through direct consumption and sales (World Bank 2021).

Article 14 of the 2017 Forestry Law identifies principles of forest allocation. It notes that forest allocations should respect the living space, customs, practices of residential communities; prioritize forest allocation to people from ethnic minority groups and households, individuals and residential communities with forest-associated customs, practices, culture, beliefs and traditions. In practice, approximately 25 million people, many of them ethnic minorities in remote areas, live in or near forests, their access to forestland varies. In the northwest region, half of all ethnic minority households report using forestland. In the central highlands, which hold the country's largest forest area, only 4%

of ethnic minorities report having forest use access. World Bank (2010) study noted that by the end of 2009, ethnic minorities held certificates to only 1% of all Vietnam's forestland. Ethnic minority practice of shifting cultivation further prevents them from securing their forest rights, as shifting cultivation may be practiced on agricultural but not on forest lands (Ironside 2017). The recognition of customary land often depends on the acceptance by the local authorities. State administrators and local communities are mostly unaware of the local customary systems for managing resources and the legal options for allocating land to communities (WB 2021). According to Tien et al., 2011), shifting cultivation lands decreased with the implementation of the land allocation process. It resulted in 85% of villagers cultivating their upland fields permanently, with significant reductions in food security, decline in NTFP collection area. The significance of recognizing customary systems is that they provide important livelihood security for these groups who make up 70% of the extreme poor in the country (Ironside 2017). Centralized land and forest management has seriously impacted on customary tenure. Policies such as assigning management to SFEs has overridden customary management and been a major cause of conflict (USAID 2013).

Consultations with ethnic minority groups found a generalized dissatisfaction in relation to access to forests, specifically: i) restrictions prevent extraction of logs for housebuilding; ii) conflicts in relation to the over-exploitation of NTFPs; iii) arbitrary imposition of penalties for breach of existing forest protection laws; iv) very low contract fees for forest protection services; v) a lack of respect for traditional knowledge of forests and forest management and governance; vi) the lack of recognition of customary and traditional forest rights; vii) inability to use land use rights certificates for obtaining finance for investment in income-generating activities.

Finally, political sensitivities around customary lands and traditional governance and recent history in Central Highlands have exacerbated the problems. These political sensitivities are linked with the mass protests in early 2000s over loss of land, culture, and autonomy; flight of ethnic minorities across border into Cambodia; accusations of religious persecution by ethnic minorities, etc). For the reasons described above, recognition of customary, collective rights is fraught. Nonetheless, customary tenure systems and institutions have persisted despite the strong forces of political, economic, and social change and can play a positive role in the protection and management of land and forest resources is increasingly recognized in law (e.g., 2017 Forest Law), and receive increasing references in government strategies and other programs (e.g. the Adaptive Collaborative Management Approach (ACMA)/Forest Management Councils (FMCs) process emerging out of the REDD+ program) (World Bank 2021).

5.3 Land and forestry tenure in the target Provinces

Provinces in the central highlands share many land and forest tenure and forest land allocation related concerns discussed in the sections above. However, there are some variations between the provinces. A summary overview of forest areas by formal tenure groups is provided in the table below.

Table 2: Forest areas by formal tenure groups in December 2020

	Dak Lak	Dak Nong	Lam Dong	Gia Lai	Ninh Thuan	National
Special use forest management boards	227,918 (30.86%)	46,478 (14.10%)	96,834 (15.53%)	59,446 (8.22%)	39,213 (25.59%)	2,183,809 (14.88%)
Protection forest management boards	54,778 (7.42%)	46,785 (14.19%)	237,996 (38.18%)	290,794 (40.21%)	66,089 (43.13%)	3,023,864 (20.60%)
Economic organizations (State owned enterprises & other companies)	201,241 (27.25%)	146,287 (44.37%)	237,388 (38.08%)	141,209 (19.08%)	45,617 (29.77%)	1,720,913 (11.73%)
Armed forces	58,703 (7.95%)	16,530 (5.01%)	1,338 (0.21%)	10,390 (1.44%)	561 (0.37%)	188,291 (1.28%)
	0	0	14,333	0	256	237,274

Scientific, Tech, Educ. Orgs	(0%)	(0%)	(2.30%)	(0%)	(0.17%)	(1.62%)
Individual households	33,279 (4.51%)	445 (0.14%)	5,656 (0.91%)	8 (0%)	0 (0%)	3,193,169 (21.76%)
Village communities	49,526 (6.71%)	3,628 (1.10%)	2,443 (0.39%)	8,012 (1.11%)	0 (0%)	1,166,470 (7.95%)
Foreign Investment Enterprises	10,058 (1.36%)	0 (0%)	15 (0%)	0 (0%)	0 (0%)	22,941 (0.16%)
Communal People Committees	98,674 (13.36%)	69,514 (21.09%)	27,431 (4.40%)	211,235 (29.21%)	1,480 (0.97%)	2,940,484 (20.03%)
Others	4,309 (0.58%)			2,063 (0.29%)		
Total	**738,486**	**329,668**	**623,434**	**646,992**	**153,215**	**14,677,215**

Source: Forest Monitoring Status

Dak Nong

Overall, very few forests in the province have been allocated to individuals and households, and to communities. The Province intends to allocate forests to these stakeholder groups (16 Dec 2021 RECAF meeting). The province had in the past allocated nine forest areas to communities. However, forest management was not very successful and the government reallocated six of these forest areas to forest agencies (16 Dec 2021 RECAF meeting). It appears that the state provided no support to the beneficiary communities towards forest rehabilitation and management.

The province has a SFE restructuring plan according to which it intends to dismantle six and restructure 10 of the 16 SFEs that hold forests in the province. This is expected to release approx. 79,816 ha of forests which would be transferred to local authorities for allocation to those in need, and especially the land-lacking ethnic people (Forest Trend et al. 2016). The FLA process has not been implemented however, due to shortage of budget, human resource and accurate data (map, profile of land parcels, etc.). Instead, most of these forest lands have been occupied by local people or converted to use for agricultural crops (cassava, corn) or industrial crops (rubber, coffee, pepper), and the area is disputed between SFEs and local people (Forest Trend et al. 2016).

Dak Lak

Dak Lak contains the largest remaining natural forest in the country and is the traditional homeland of many ethnic minorities (Ngi 2002). As in Dak Nong, FMBs and SFEs in Dak Lak manage most of the forest in the region. During the 1980s and 1990s, the growing coffee industry brought many newcomers to the province as in other parts of the central highlands. Between 1976 and 1996, Dak Lak province received 311,000 migrants (many of them ethnic minorities), a number exceeding the area's entire indigenous population. Conflict has arisen as locals are pushed from their lands and as migrants clear forestland, fallowing swidden lands or community fields that appear to be unoccupied (USAID 2013).

The People's Committee of Dak Lak province has gone further than the national policy and played a pioneering role in allocating existing natural forest to households, user groups and communities with long-term land use rights. A total of 15,000 ha of good quality forest from six SFEs were allocated to households, user groups and communities with Red Book certificates. In Ea Hleo and Cu Jut districts the process was particularly advanced (Ngi 2002). As in Dak Nong province, communities were limited by lack of funds to invest in forest development, and the use of Red Book as collateral for bank loan remained complicated for farmers.

Lam Dong

In Lam Dong, 23 SFEs manage nearly all the forest land in the province (Ironside 2017). Large-scale in-migrations from the north of Vietnam have shaped the recent history of the province. In addition, government resettlement schemes have aimed to convert the ethnic minority groups into sedentary lifestyles and to give up traditional shifting cultivation (Traedal and Angelson 2020).

Lam Dong has made frequent use of the contracting modality of forest protection and management. In the contracting process for forests and forest land allocation, there is active participation of all stakeholders including provincial and local government, SFCs, FMBs and contracting households and communities (FAO 2016). Some households have been contracted for protection of relatively large areas (6ha to 30ha), exhausting the supply of eligible land. Many of these larger allocations have not been used properly. While some recipients did not carry out any activities on their large contracted areas, but leased or sold part of the land to others (FAO 2016). Meanwhile, households with forest protection contracts are not clear about their rights and responsibilities, considering the payment for protection as a subsidy from the government and often do not carry our protection roles. When receiving payment, in many cases recipients did not understand the basis for the amount they received (by size of contracted area or by number of days spent on patrol etc.), resulting in complaints and potential conflict (FAO 2016). There is no remaining land available for interested low-income households (FAO 2016).

Private companies have planted some 10,000 ha of rubber plantations on the leased forestlands. Procedures to lease forest to companies have not always been properly followed. This is mainly because relevant agencies did not conduct field measurement of forest areas or did not consult carefully with the local government or state forest entities, resulting in overlapping claims by multiple users and conflicts (FAO 2016).

Commercial coffee is the main crop and source of livelihoods in Lam Dong and has been a main historic driver of forest loss. In the five year period between 1995 and 2000, Lam Dong Province saw coffee area increase by 77% (Kissinger 2020). Several studies have found clear linkages between global coffee prices and area expansion, confirming that high agricultural rent, in combination with forest access, is a very potent driver of forest loss (Traedal and Angelson 2020). Higher coffee yields on existing lands, in combination with intercropping of subsistence crops, is a key element of the provincial REDD+ strategy to reduce pressure on marginal lands. However, higher productivity of the commercial crops may stimulate further expansion (Traedal and Angelson 2020).

Conversion of forest and former shifting cultivation land to coffee, rubber, cashew and other commercial crops, has limited poorer minority groups' access to land and turned them into plantation labourers. This, and the allocation of agricultural land to individual households instead of to communities, means little community forest land remains for access by ethnic minority groups (Ironside 2017).

Other factors causing deforestation include: i) Unclear boundaries between forest and non-forest lands, and between the three forest categories has contributed to unsustainable practices. The confusion has permitted powerful actors, such as rubber companies, to convert degraded forest lands into plantations (Traedal and Angelson 2020). Some leasing companies have not managed the forest areas properly, causing deforestation or degradation including, in some instances, clearance of some sensitive environmental areas. Other companies have not used the leased lands at all and are expecting to covert to other uses as per Circular 58/2009/TT-BNNPTNT of MARD that allows conversion of plots in rich forests, of fewer than 3 ha, to other land use purposes. This provision has sometimes been abused, resulting in loss of rich forest in the province (FAO 2016).

Lam Dong has the largest PFES scheme in Viet Nam. Many hydropower companies provide PFES to forest communities by collecting water tax and redistributing to the poor in forest areas. The rates of PFES payments is quite high. There is further scope of PFES based on carbon credits, but the associated funds are too low to generate interest. The tenure ambiguities have been a key discussion point in the implementation of the Lam Dong PFES pilot scheme; clarification of tenure is expected to

have many benefits including preventing conflicts over landuse and PFES (Traedal and Angelson 2020).

Ninh Thuan

The province has not allocated forests to communities or households, but has been using forest protection contracts with local communities for protection of forests. The province has programs on-going to strengthen afforestation and protection of special-use, and protection forests with coordination among forest-prevention forces, armed forces, local authorities and residents (SEARCA KC3 2021).

The province has also allocated forest land to local households for protection under contracts. On average, each household receives about 30 ha of forest to protect for 400,000 VND (17.4 USD) per hectare each year. Since 2016, local households have used additional income earned from forest protection contracts to develop forest-linked livelihoods such as livestock breeding and planting more than 22,500 fruit trees. The department is expanding these effective forest-linked livelihood models.

Approximately, 22% of the population of Ninh Thuan belong to ethnic minority groups. Floods and land acquisition for the construction of reservoirs had damaged lands cultivated by many ethnic minority households in the Province. Loss of lands led many households to cultivate in new forest areas. In Bac Ai district, authorities in several communes have plans to reallocate forestry land to people who lack space to grow crops. Besides local support, poor households from ethnic minority groups in disadvantaged areas will receive VND 15 million (USD 714) each from the State budget and access to preferential loans up to VND 15 million (USD 714) from the Bank of Social Policies to reclaim and improve production land (VUFO-NGO 2019).

5.4 Recommendations for RECAF

5.4.1 Land tenure specific recommendations

The recommendations below emerge from the key findings that: i) Provincial level data show that most natural forests in the target provinces are currently held by FMBs, SFEs or CPCs; ii) findings of the research suggest that most forests under FMBs, SFEs and CPCs are not currently properly managed; iii) the target provinces have significant population of ethnic minority many of whose lives have depended on forests but are now lacking access to forests; iv) conflicts over land and forest tenure are rife in this region. Areas that have been under customary tenure of indigenous ethnic communities have been allocated to FMBs, SFEs and during restructuring to CPCs. State-facilitated migration of outsiders including of non-indigenous ethnic groups, and forest land allocations to outsiders has further created situations of forest land related conflict. Land including forest land acquisitions are further creating discontent and conflict at the local level.

Meanwhile, openings are already in place. In particular, most Provinces already have restructuring plans for forests held by FMBs and SFEs. The 2017 Forest Law provides for prioritizing peoples and communities who have customs, traditions, culture, beliefs, and traditions attached to forests. This provides an important opportunity for securing customary, collective forest rights of ethnic minorities (World Bank 2021). As of 2019, the government had identified over 3 million ha of forests currently under CPC control for providing LURCs to communities and households, which requires support both for the FLA process, and subsequently for livelihood support. Finally, district officers in many cases are supportive of local communities and in supporting recognition of their rights to forests although they lack adequate info on process.

Overall, in order to improve forest governance, improve forest land access and livelihoods of the poor including indigenous ethnic minority groups, and reduce conflict it is imperative that strategies be identified for restructuring of SAFCs and SFEs, while forest lands under CPCs be reallocated through collaborative or co-management arrangements if not through full allocation of forests to communities and households. It is also critical that forest land (re)allocation be done following FPIC with customary as well as current users, sound dispute resolution systems be put in place (by strengthening local dispute systems), and (re)allocation of forest lands to communities be prioritized over any individual allocations (given many ethnic group preference of collective over individual/household rights). Given

the high political sensitivities to devolution of forests to indigenous ethnic communities, re-allocations will need to be done with care. Academia is respected. Engaging academia in appropriate ways can serve to be beneficial, for conducting studies that requires a neutral voice, in developing guidance documents, participating in monitoring activities, and overall in promoting dialogue between government and non-government stakeholders such as NGOs and civil society groups.

To this end, RECAF can support the following activities (output numbers based on IFAD 2018):

- **Strengthen oversight over new allocations in intact natural forests –** Work with Central, Provincial and district governments to ensure that any new allocations made in intact natural forests follow strict guidelines on sustainable forest management and preventing any conversion to plantations and other landuses. Work with provinces to ensure monitoring mechanisms are designed, instituted, and that enforcement is strengthened (Output 1.1);

- **Public land management including land zoning** – Strengthen central and province level policies on forest conversion preventing use of bare forest land for agricultural purposes; by making land conversion contingent on having an approved plan; ensuring that all land use plans are publicly available for all stakeholders. Establish protocols for sharing land ownership and planning information across ministries and between different levels of administration. Ensure transparency and consultative processes in land use zoning to balance strategic planning objectives and local plans. Ensure that methodologies are informed by economic value, land requirements, social objectives, and environmental planning (Output 1.1).

- **Forest land acquisitions** – Strengthen the forest land acquisition process in line with good practices by: i) clarifying the criteria of land acquisition for public purpose, clarifying methodology (e.g. notification, adequate period for objections, procedures for appeal) and procedures for their evaluation; ii) strengthen valuation processes by improving standards, train and deploy independent land appraisers, and strengthen implementation; iii) facilitate the PPCs in regularly publishing the schedule for compensation based on fair and reasonable values; iv) ensure application of laws requiring market price compensation for compulsory acquisitions; and v) monitor incidences of expropriation and compensation and support paid, in order to assess whether it is unavoidable, fair and provides affected parties equivalent or improved livelihoods (Output 1.1)

- **Review existing forest land allocations and improve governance** – Work with Provinces and districts to review forestlands controlled by FMBs, SFEs, CPCs and private leases to identify misused areas to be reallocated or re-contracted, prioritizing poor and disadvantaged communities and households. Prioritize largest allocations to speed up the review process. Work with the Provincial and district governments to put in stricter measures for preventing forest degradation, as well as systems for systematic monitoring and enforcement of these measures. Improve forest management practices by FMBs, SAFCs and SFEs, promoting re-allocation else co-management with communities and households with improved terms of forest protection contracts for more appropriate benefit sharing with local stakeholders.

- **Provide supportive environments for the expansion of community and collaborative forest management** – Prioritize allocation of forests to ethnic minority communities hence reducing their tenure insecurity and providing incentive for forest management. In particular,

    o Advocate for improved regulatory framework for community forestry management – This should be done with the purpose of accommodating the diverse community groups and allowing community forestry enterprises; facilitate legal recognition of customary rights of ethnic groups and accelerate forest land allocation to them; allow allocation of natural and protection forests rather than only production forests; revise Decision 178 to allow communities to harvest timber from natural forests in accordance with Sustainable Forest Management plans; adopt simplified Community Forest Management guidelines issue locally suited guidelines to support communities and local authorities with community forestry implementation;

- o Institutionalize and scale up community forestry and collaborative forestry arrangements -- Train government officials, NGOs and CSOs in community based forestry models, principles and practices. Institutionalize the implementation of community and collaborative forestry management in target provinces.;

- o Accelerate forest land allocation to communities – This should include allocation of misused forest land held by FMBs, SFEs, CPCs and forestlands leased to private entities prioritizing poor and disadvantaged communities and households in the area. Put in place a streamlined approach to facilitating allocations by identifying forest areas, assessing and mapping the land to demarcate boundaries; strengthen the application of FPIC processes to ensure the allocation process is in line with community wishes for communal rather than individual holdings. Ensure active involvement of all vulnerable groups in the allocation and selection processes. The Adaptive Collaborative Management Approach (ACMA) evolving out of the REDD+ program and the establishment of local, multi-stakeholder Forest Management Councils (FMCs) can be promising in ensuring due process in FLA (Output 1.1);

- o Promote collaborate/co-management models where forest land allocation to communities is not an option -- Based on Decree 75/2015/ND-CP, state organizations should sign new Forest Protection Contracts (with FMBs, SFEs and CPCs) giving priority to vulnerable groups. Work with PPCs to increase the payment rate for such contracts using diverse budgets or funding sources as needed. REDD+ implementation agreements in Vietnam have also standardized the amount of payment for forest protection contracts and enforced conditionality for performance based payments. Allow for longer contract periods and greater access rights for households to encourage local communities to protect forests (as has been done in Lam Dong province in the revision of contracts). Upgrade existing contracts between State organizations and local communities to co-management status in which State organizations, local communities and authorities share benefits and obligations based on their contributions. Under these contracts, allow households to carry out specific low-impact livelihood activities in designated locations to be approved and jointly monitored. Engage SFEs and villagers in the development of carbon-rich landscapes on the basis of existing use and customary rights. Assist SFEs and communities to together obtain global funds for climate change mitigation through high-carbon-offset management of tree plantations and improved management of degraded forest lands;

- o Provide post-allocation support to communities – Help communities to develop and implement forest management plans taking into consideration customary uses of forests; strengthen local management capacity for improving forest governance; facilitate access to finance through government schemes and mechanisms; support the development of forest based enterprises and improve possibilities for communities to benefit from the sale of timber and non-timber forest products; facilitate access to good quality seedlings and training for commercial timber production; introduce tax cuts for natural forest timber, woodchips, and sawn timber originating from regenerated natural forests; promote partnerships with large private sector entities; provide insurance for forest plantation Investments. Work with agricultural and forestry extension services in providing these services. Facilitate access to PFES and other forms of finance. In particular, review and improve PFES system to increase revenues, payment rate, fairness and transparency by expanding the type of ecosystems covered, changing payment methods, revenue sources and redefining beneficiaries. Consider direct payment to communities rather than through communes to ensure transparency. Allow PFES payment to all registered communities with allocated forests regardless of LURCs, make PFES performance based following initial years of allocation. Promote sustainable shifting cultivation following agroforestry practices and livelihood improvement. Closely coordinate program activities with other donors (USAID and others) who are also supporting projects to improve conditions for ethnic minorities, the rural poor and other marginalized communities;

- o <u>Strengthen community and household forestry cooperatives and associations</u> – Facilitate formation of community and household forestry associations. Local level cooperatives and associations will help to ensure that the interests of local forest users are adequately represented in forest allocation processes, and to ensure they are able to protect their rights and realize the benefits from forest ownership. Such institutions will also help to strengthen producers of forest based products and associated enterprises. Promote new models of cooperation where communities and households focus on production while cooperatives and associations provide market linkages. Engage landless farmers in the cooperative/association providing income generation opportunities. Support these cooperatives and associations by raising awareness of laws and people's rights. Support communities to negotiate with government authorities and outside actors to strengthen their customary claims. Strengthen understanding of customary leaders to understand state laws and find appropriate ways to incorporate these into customary legal processes;

- **Strengthen local Conflict Resolution Mechanisms and Provide Legal Assistance –** Strengthen grievance redress mechanisms and service standards for first instance administrative disposal of disputes, complaints, grievances, and appeals. Provide legal literacy training to mediation committee members and others, while also improving court capacity. Support efforts for land dispute resolution between SFEs and ethnic minority communities. Clarification and resolution of forest tenure and associated conflicts will have multiple benefits, such as in the implementation of PFES, REDD+, FLEGT. It will help to reduce open access, and improve governance and investment in forests. Prioritize these activities including clarification of land and forest boundaries among the forest entities in hotspots areas;

- **Amend policies and procedures for forest land allocation** – Improve processes for forest land allocations to communities and households. Circulars of MARD and MONRE should be amended to include the necessity for community participation in the selection of households for allocations. These amendments would require participation in the appraisal committee, disclosure of selected households for public comment, boundary demarcation in the field with participation of all affected households and State forest owners including signature of all parties, require FPIC before contracts are signed, disclosure of land and environmental information on the websites of MONRE /DONRE and MARD / DARD including costs for cadastral mapping and LURCs, division of responsibility for mapping forest boundaries. Speed up the allocation process by Providing technical assistance and training to forest companies and CSOs. Simplify and streamline processes of forest allocation, in particular, provide option of community level allocations; ease process of forest communities obtaining legal recognition when being allocated community forest areas; require simple management plans and include rights to harvest timber to limits approved under the management plans. Allocate natural forests for the collection of non-timber forest products and forest restoration, allocate barren lands to be used for plantation development;

- **Promote forest restoration through the adoption of appropriate agroforestry models** -- Work with the national agriculture and forestry extension services to support agroforestry models that take advantage of short-term crops while waiting for the return of plantation forests. This can enhance farmers' food security and short-term income, which is likely to help secure their livelihood when participating in afforestation. This approach will be particularly appropriate and sustainable for the poor localities as well as project target areas with high vulnerability, high food insecurity, and that are geographically located away from city centers;

- **Gender integration** -- Pilot legal education programs targeted at women, local communities and entities charged with adjudicating and implementing women's property rights (including mediation groups, mediation committees, People's Committees and courts). Pilot legal aid services that help women navigate complicated procedures that prevent them from obtaining and using their forest land rights. Promote change of LURCs to include names of both spouses. Monitor gender-disaggregated data and explore options for increasing forest land allocation to interested women. Provide livelihood development for women, including training

in forest value chains and entrepreneurship, and establishment of women's groups in forest-dependent communities. Diversify forest based livelihood options from sustainably harvested NTFPs, including measurable benefits for women.

Province specific recommendations

- In Dak Nong province: i) support the province in a systematic FLA process that includes review, demarcation and rebuilding the land map to include the FLA data; develop criteria and process of FLA with full participation of all stakeholders. Also, strengthen efforts to prevent and resolve problem of land encroachment, deforestation and the forest conversion. Mobilize sufficient financial and technical support for FLA. It is critical that future allocations to communities and households consider post-allocation support in the form of access to finance, good quality tree seedlings, various technical support as needed by them, access to PFES and REDD+ funds. Support for forest/tree based income generation activities will further incentivize communities and households in sustainable management of the forests, including support for deforestation free value chains and access to markets. New allocations should prioritize the many indigenous ethnic minority groups (approx. 40 of them), providing the option of collective community rights rather than household rights if they wish. Establishing local level dispute resolution systems to guide the FLA process will be indispensable. Coordination and collaboration of RECAF project with the EU funded sustainable landscape management project will be beneficial with regards to FLA and post-allocation support to communities and households (GEF 2020).

- Dak Lak plans to further its work on allocating forests to households (16 Dec 2021 meeting). The province appears to lack interest in community allocations, but collaborative management with sound post-allocation support can be an option. Where possible, indigenous ethnic minority groups should be prioritized. The province also plans to expand commercial plantations of coffee and fruit trees. Such expansion of such areas including FLA to households should be done with extreme caution and should adopt well developed FPIC and dispute resolution processes to safeguard rights of local ethnic minorities and prevent landuse conflicts in forested areas. The province expects to expand private sector engagement in land-based investments, mainly certified coffee. It will be critical that the project advance discussions on responsible land-based investment business models to ensure local rights recognition, and community-private sector partnerships for mutual benefit.

- In Lam Dong province (in line with the province's proposal for this project) RECAF can support the province in the: i) Review existing contracts for proper implementation (to SFEs, households, private sector entities). Revoke then re--allocate the misused/ineffective used forest land to others. All re-allocation should be done with appropriate consultations with related parties (governmental authorities, companies, forest rangers, village leaders, and the households who claimed the land) and with appropriate dispute resolution systems in place. Support the province to put in place clear and detailed sanctions of any violations to the terms of forest contracting or allocating. Monitoring mechanism should be collectively developed and mutually agreed among the parties; ii) Facilitate adoption of regulation to strictly prohibit conversion of natural forests, regardless of the size; iii) strengthen SFEs (9 targeted) in forest protection activities by proposing collaborative forest management with local communities and with revenues obtained through PFES and carbon credits; iv) expand application of contracting with communities under PFES with forest management support and clear performance frameworks; v) support communities as well as households with forest protection contracts to develop other agro-forestry based incomes facilitating them with production through processing and sale; vi) facilitate formation of cooperatives and associations of producers to strengthen this group. The commercial sector strategy should be combined with restrictions on expansion into forest land

- In Ninh Thuan province, RECAF project can work with the province to: i) improve the terms of forest protection contracts with communities and households (with consideration of longer contracts and with technical and financial support); ii) speed up signing of new contracts for protection providing technical and financial support to communities in households for

protection as well as livelihood support activities; iii) strengthen terms of co-management contracts for the management of mangrove forests; iv) introduce measures for joint monitoring of performance.

5.4.2 Land tenure and land use typology matrix

To gain more insights in the combination of forest classification and types of actual forest cover or land use, and issues to address under RECAF, the project team developed the typology matrix, presented in the following excel file.

Forest and Land
use Typology matrix

References

Anderson, Kirsten Ewers. 2011. Communal Tenure and the Governance of Common Property Resources in Asia: Lessons from Experiences in Selected Countries. Land Tenure Working Paper No. 20. FAO. http://www.fao.org/docrep/014/am658e/am658e00.pdf

FAO. 2016. Improving policies, processes and practices of forest and forestland allocation in Veit Nam, UN-REDD Programme, FAO, UNDP, UNEP.

Forest Trend, CIRD, CRD, CIEM, RECERD, VNForest. 2016. Promotion of the reallocation of forest land from state company to local ethnic minority people: a case study of Dak Nong Province. Mekong Regional Land Governance (MRLG), Hanoi. https://www.mrlg.org/wp-content/uploads/2019/06/Vietnam-SFC-study.pdf

Global Environment Facility (GEF). 2020. Sustainable forest and forest land management in Viet Nam's Ba River Basin landscape, GEF. https://www.thegef.org/sites/default/files/web-documents/10539_MFA_PIF_v1.pdf

Giang, P.T. and T.N. Thang. 2020. Forest land allocation to communities in Viet Nam — Recommendations for CSOs. Briefing paper. Hue City, Viet Nam: Tropenbos Viet Nam. Wageningen, the Netherlands: Tropenbos International.

Hai, N.T., B. Dell, V.T. Phuong, R.J. Harper. 2021. Towards a more robust approach for the restoration of mangroves in Vietnam. Annals of Forest Science, Springer Nature (since 2011)/EDP Science (until 2010), 2020, 77 (1), pp.18. ff10.1007/s13595-020-0921-0ff. ffhal-03141074f

IFAD. 2018. Project Concept Note. Reduced Emissions through Climate Smart Agroforestry (RECAF) (or Achieving emission reductions in the Central Highland and South Central Coast region of Viet Nam to support National REDD+ Action Programme goals).

Ironside, J. 2017. The Recognition of Customary Tenure in Vietnam. MRLG Thematic Study Series #6. Vientiane: MRLG.

Marsh, S.P. and T.G. MacAulay. 2006. Farm Size and Land Use Changes in Vietnam Following Land Reforms. Paper presented at 47th Annual Conference of the Australian Agricultural and Resource Economics Society. 13–15 February 2003. Fremantle, Australia. http://ageconsearch.umn.edu/bitstream/57919/2/2003_marshmacaulay.pdf

Ngi, Tran Huu. 2002. Decentralization and Devolution of Forest Management in Vietnam: A Case Study of Ea Hleo and Cu Jut Forest Enterprises, Dak Lak Province. Tropenbos International.

Rural Development & Natural Resources, East Asia & Pacific Region (EASRD). 2004. Customary Land Titling in Vietnam. Policy Brief No. 37418. World Bank, Washington DC. http://www-

wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/09/22/000160016_20060922
163747/Rendered/PDF/374180VN0Custo1PolicyBrief01PUBLIC1.pdf

Salemink, O. The Ethnography of Vietnam's Central Highlanders: A Historical Contextualization 1850–1990; Routledge Curzon: London, UK, 2003.

SEARCA KC3. 2021. Ninh Thuan to expand protection-forest cover. https://climatechange.searca.org/news/harvested/vietnam/ninh-thuan-to-expand-protection-forest-cover

SPERI/CODE. 2011. The Role of Customary Law in Ethnic Minority Community Development. Social Policy Ecology Research Institute (SPERI) and Consultancy on Development Institute (CODE), Hanoi.

Tien, N.D., Vien, T.D., and Lam N. T. 2011. Too Much Focus on Forest Conservation, Too Little on Food. In Sikor, T., and Tan, N.Q. Realizing Forest Rights in Vietnam: Addressing Issues in Community Forest Management, pp 14-17. Bangkok: RECOFTC – The Center for People and Forests.

To, P., S. Mahanty and A. Wells-Dang. 2019. From "Land to the Tiller" to the "New Landlords"? The debate over Vietnam's latest land reforms. Land 8: 120

Traedal, L.T and A. Angelson. 2020. Policies drive sub-national forest transitions in Vietnam. Forests 11:1038

USAID. 2013. Property Rights and Resource Governance Country profile: Vietnam. Washington DC

Viet Nam News (VNA). 23 August 2021. Ninh Thuan to expand protection-forest cover. https://en.vietnamplus.vn/ninh-thuan-to-expand-protectionforest-cover/206794.vnp

VUFO-NGO Resource Centre Vietnam. 2019. Ninh Thuan ethnic minority residents to be allocated land. https://www.ngocentre.org.vn/vi/news/ninh-thuan-ethnic-minority-residents-be-allocated-land

World Bank. 2010. Vietnam Development Report 2011: Natural Resources Management, Joint Development Partner Report to the Vietnam Consultative Group Meeting, 7–8 December 2010, Hanoi, Vietnam. http://siteresources.worldbank.org/INTVIETNAM/Resources/VDR2011EnglishSmall.pdf

World Bank. 2013. Improving Land Sector Governance in Vietnam: Implementation of Land Governance Assessment Framework (LGAF). Washington DC.

World Bank. 2019. Vietnam: Country forest note. Washington DC

World Bank. 2021. Opportunity Assessment to Strengthen Collective Tenure Rights in FCPF countries. The World Bank Group, Washington DC.

Chapter 6 - FOREST POLICY AND REDD+ IN VIET NAM

6.1 Management and Implementation of REDD+ in Viet Nam

6.1.1 Viet Nam National REDD+ Program to 2030 (NRAP)

Following the Bali Action Plan in 2007, Viet Nam was among the first countries to join both the UN-REDD Programme and the World Bank's Forest Carbon Partnership Facility (FCPF); the two major international initiatives for supporting developing countries to prepare for REDD+. Thus, Vietnam was one of early-movers of REDD+, and adopted its first National REDD+ Action Plan (NRAP) in 2012. After 5 years, it updated the NRAP in 2017. In 2018, Viet Nam became the first country in the Asia and Pacific Region, and among the first five countries in the world, to complete the Warsaw framework for REDD+ implementation. This fulfilled the four key UNFCCC requirements under the Warsaw framework, and that was when Vietnam graduated from the REDD+ readiness phase, to the implementation phase. The maturing of REDD+ in Vietnam is also evident by the role of REDD+ in national priorities. In 2009, REDD+ was considered the preserve of a specific division in the forestry administration under the Ministry of Agriculture and Rural Development (MARD). In 2019, REDD+ was managed through a State Steering Committee headed by the Deputy Prime Minister. This underscores not only the elevated importance of the REDD+ agenda, but also a wide appreciation of the multi-sectoral nature of REDD+, and the relevance of various agencies within and outside MARD.

This section details the 2017 NRAP, while Section 6.1.2 explores more specific details on how the NRAP is implemented, Vietnam's actions to meet the Warsaw Framework requirements, and what activities are being pursued to implement REDD+.

The Viet Nam National REDD+ Action Plan (NRAP) to 2030 (Decision 419/QD-TTg of April 2017) was developed based on the NRAP of 2012, Vietnam's Nationally Determined Contribution (NDC) to the Paris Climate Agreement, national strategies on climate change and green growth, and PFES policies. The overall goal of the NRAP is to contribute to protecting and improving the quality of the existing natural forests, expanding the forest area and improving the quality of plantation forests; linking with the implementation of national goals of reducing greenhouse gas emissions, forest protection and development, green growth; mobilizing international support, getting access to carbon markets; and improving people's lives and the country's sustainable development.

The principles of the NRAP are that the REDD+ Programme:
- Contributes to the implementation of sustainable forest development, national strategies on responding to climate change, national strategies on green growth, linking to sustainable development, ensuring national environmental security and poverty reduction;
- Is designed in compliance with policies and laws of Vietnam, and consistent with international treaties and agreements that Vietnam has participated or signed;
- Ensuring the consistency of the State in steering, management and coordination; optimizing the participation and monitoring of socio-political, professional associations, non-governmental organizations and communities, utilizing mechanisms for effective international cooperation in the development and implementation of the REDD+ Programme;
- Addresses, inter alia, the drivers of deforestation and forest degradation, forest governance issues, gender considerations and REDD+ safeguards, ensuring the full and effective participation of relevant stakeholders, inter alia indigenous peoples and woman in local communities; REDD+ activities need to be implemented in accordance with the specific context of Vietnam as well as UNFCCC regulations, taking into consideration socio-economic conditions and associated risks;
- Contributes to progressively shifting priority to improving the quality of natural forest and plantations and reducing forest loss in order to maximize social, economic and environmental

benefits; extracting more value from the environmental services from forests, and mobilizing financial resources for the protection and sustainable development of forests.

Based on a phased approach in design, the NRAP has determined its specific objectives for two periods as indicated in the table below:

2017-2020	**2021-2030**
• By 2020, contribution made by REDD+ activities to reduction in GHG emissions, increased national forest cover by 42%, maintained area of all kinds of forests at 14.4 million hectares; • Well responded to requirements on REDD+ readiness, secured capacity to access financing sources in favour of performance/ result-based payment relevant to international requirements; • Enhanced quality of natural and planted forests for enhancement of carbon stocks and forest environmental services; replicated models of effective forest plantation and sustainable management, protection and conservation of natural forests; • Contributed to improvement of forest governance, job creation, people livelihoods linking to new rural development and security maintenance	• By 2030, stabilized area of natural forests equivalent to that achieved by 2020 at least and increased national forest cover by 45%, contributed to the national targets of a reduction by 8% of the total emissions by 2030 compared to BAU (scenario) under the commitment to the Paris Agreement, and possible increase by up to 25% with international support; • Replicated models of effective performance in REDD+ and sustainable forest management, integrated REDD+ into sustainable forestry development program; • Finalized a framework of policies, regulations and actions for implementing REDD+ programs and approaching financing sources to enable payment for result-based performance

The NRAP has included a conceptual framework for implementing the program in the period 2017-2020, indicated by specific actions and their expected outcomes as well as responsible actors involving into three areas of REDD+ performance: activities to mitigate deforestation and forest degradation, activities to conserve and enhance carbon stocks and sustainable management of forest resources, and activities to consolidate factors ensuring REDD+ readiness in correspondence to international requirements. To realize this into operation, MARD has developed a plan to implement the NRAP in the period from 2018 to 2020 (known as Decision 5264/QD-BNN-TCLN dated 28 December 2018), aligning and integrating with implementation of the national target program on sustainable forestry development from 2016-2020. However there has been no operational plan in place guiding to implement the NRAP for the period 2021-2030 even though the program has assigned MARD being responsible for assessing the NRAP performance in the period 2016-2020 and requesting Prime Minister with necessary addition and adjustment for its implementation in the period 2021-2030. The following summaries key contents framed for the NRAP implementation until 2030:

1. Policies and measures to reduce deforestation and forest degradation
   • Continue the review and adjust the land use master plan and land use plans to ensure the target of 16,24 million hectares of forest land is achieved by 2020.
   • Promote sustainable and deforestation-free agriculture and aquaculture.
   • Improve forest governance and livelihoods for people living near and in the forest.
   • Strengthen law enforcement.
2. Policies and Measures to conserve and enhance forest carbon stocks and sustainable management of forests
   • Evaluate and replicate enhanced forest production and long-term rotation timber plantation business models.
   • Pilot, evaluate and replicate sustainable models for natural forests enhancement, protection and conservation.
   • Enhance the economic and financial enabling environment for forests.
3. Achieve full REDD+ readiness and engage in step-wise improvement
   • Finalize and upgrade the core REDD+ instruments, in accordance with step-wise principle, and in compliance with UNFCCC's provisions.
   • Set up and implement financial management mechanisms for REDD+.

- Strengthen international and regional cooperation to promote REDD+ and mitigate risks of displacement.
- Effectively coordinate, backstop, communicate, build capacities and monitor NRAP implementation.

Because the NRAP (2017) defines policies and measures at the national level, implementation activities at Provincial level requires refining these at the sub-national level. The following are the key policies and measures defined in the National REDD+ Plan which are crucial to RECAF:

1. **Promoting sustainable and deforestation-free agriculture** (NRP PAM 1.2): Focusing on the largest commodities driving forest loss—rubber and coffee—this intervention focuses on the actions necessary to restrict further expansion into forests, thus resulting in maintenance of existing natural forest. *Thus, deforestation-free commodity interventions in coffee, rubber, pepper, and cassava would help implement this PAM.*
2. **Improving forest governance and livelihoods for people living near and in the forest** (NRP PAM 1.3): Based on current socio-economic dynamics in the key hot spots of deforestation, forest degradation and potential areas for forest carbon enhancement, these interventions seek to address tenure and livelihood improvements that can have direct impacts on forest health and promote greater private investment at the local level. *The work with MCCFM's (local community groups to receive the full bundle of rights to forests), land tenure, NTFP and ecotourism interventions seeks to implement this PAM.*
3. **Strengthening law enforcement** (NRP PAM 1.4): Interventions seek to augment and not duplicate actions already underway through the FLEGT process to address illegal logging and forest conversion. Illegal logging is a significant contributor to forest degradation. These interventions support improved monitoring systems to serve multiple purposes, including deforestation-free supply chains and illegal logging. *Though RECAF does not invest in supporting improved law enforcement, recent improvements under FLEGT should help assist, and this relates to readiness to meet EUDR requirements.*
4. **Upscaling enhanced forest production models** (NRP PAM 2.1): Investments in interventions seek to promote reforestation and agroforestry to increase tree cover while diversifying farm incomes.
5. **Natural forest enhancement, protection and conservation** (NRP PAM 2.2): Closely aligned with the first intervention, promoting **sustainable and deforestation-free agriculture, this intervention focuses activity to support GoV's interests to protect 2.2 million hectares of** natural forest protection. The primary means is by reducing pressures to expand into forests, address tenure and livelihoods needs of marginalized populations at the forest frontier.
6. **Enhanced economic and financial environment for forests** (NRP PAM 2.3): Besides the direct investments to promote alternative economic livelihoods for people near forests, the deforestation-free commodities approach has also identified specific changes to be made to public and private bank lending practices, and new innovations to enable the most marginalized populations to access finance. These activities will be closely linked to disincentives to expand into forests.

Together with strengthening law enforcement and improving forest governance, the NRAP has also identified supports to develop sustainable zero-deforestation production in agriculture, forestry and fishery as the ways of mitigating emissions from deforestation and forest degradation. To do this, a number of actions are placed for the REDD+ implementation framework in the period 2017-2020, including

(i) supporting and establishing forums of information exchange on commodities to stimulate dialogue and transition toward sustainable production without deforestation and forest degradation;

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continuing pilot, assessment and replication of more sustainable agricultural production models with high adaption to climate change in aquaculture, coffee, rubber, cassava and other commercial crops;
initiating and developing financial mechanisms to support and facilitate the development of sustainable agriculture, forestry and fishery production without deforestation and forest degradation; and
(iv) continuing supports on structural and organizational arrangement for effective production, ensuring benefits generated from such sustainable production models based on access to information, collaboration for production, and linkages of value chains.

To implement the NRAP (2017), the midterm National REDD+ Action Plan Implementation Plan for 2018– 2020 was endorsed by the Ministry of Agriculture and Rural Development (MARD) in December 2018. The implementation plan marks the successful cross-sectoral and in-depth engagement with key stakeholders. It lays the foundations for accelerating resource mobilization for implementing the National REDD+ Action Plan. A draft monitoring and evaluation framework for REDD+ implementation has been designed to track and support REDD+ implementation by stakeholders. Continued support was provided on REDD+ implementation in pilot provinces. In 2018, progress was made in engaging private-sector actors, including on the development of responsible investment guidelines, forest certification and engagement with commodity industry groups such as rubber, coffee and cashews, towards deforestation-free sustainable investments. Moreover, the UN-REDD Programme helped develop a deforestation-free jurisdictional approach for the Central Highlands, with a focus on mobilizing finance to introduce deforestation-free practices in the coffee supply chain.

The Government produced the NRAP Investment Plan (NRIP) with the support from the UN-REDD Vietnam Phase II Program in 2018 (through Decision 5264/QD-BNN-TCLN dated 28 December 2018). Strengthened work has been carried out to formulate and operate a robust M&E system for NRAP and NRIP.

Provincial RAPs have been completed in all Central Highlands Provinces. These can be updated every 5 years. District RAPs are completed, these can be updated every year. Commune level RAPs are completed (check this), also updated annually. More information is needed to understand the amount of budget allocated to these activities.

6.1.2 REDD+ implementation through REDD+ Phase 2 and 3 activities

Based on review of various REDD+ documents, the following is provided as an overview of Vietnam's progress so far in implementing the 2017 NRAP:

Vietnam has fulfilled all four of the requirements under the Warsaw Framework for REDD+.[20] This incudes the 2012 and 2017 versions of its National REDD+ Action Plan (NRAP), National Forest Monitoring System (NFMS) and Forest Reference Emission Level (FREL)/ Forest Reference Level (FRL). In 2018, Vietnam fulfilled the final requirement—an operational and online Safeguard Information System (SIS), and the Summary of Information (SoI) on safeguards. The (SoI) was completed in November 2018 and submitted to UNFCCC in January 2019, outlining how the country will address and respect the safeguards throughout REDD+ implementation.

As mentioned above, the NRAP Implementation Plan, NRAP Investment Plan, Provincial, District and Commune RAPs are completed for the Central Highlands Provinces.

Forest Monitoring:

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[20] https://redd.unfccc.int/fact-sheets/warsaw-framework-for-redd.html

Vietnam has both technical and financial capacities to produce activity data and emissions factors for deforestation and forest degradation. Vietnam submitted its 3rd Biennial Report to UNFCCC in 2021.[21] Vietnam's FREL was submitted in 2016, so advances have occurred since then.[22]

National forest inventory, monitoring and assessment is robust: The FCPF Emission Redution Monitoring Report of May 2023[23] identifies that:

1. The NFIMAP Cycle 5 (2016-2020) has been completed at the end of 2020 and the results have been appraised and approved by DOF. The NFIMAP Cycle 6 (2021-2025) is now being implemented. The Program uses remote sensing in combination with ground surveys to monitor forest resources changes. Each cycle has generated provincial forest cover maps at the scale of 1:100,000; regional forest cover maps at the scale of 1: 250,000; and a national forest cover map at the scale 1:1,000,000. Data from a systematic sample plot system were also collected in each cycle. The forest cover maps and sample plot data of NFIMAP Cycle 3 and Cycle 4 are used for FREL/FRL setting in the Accounting Area. The MMR of the FCPF ER-P is based mainly on the NFIMAP. The sample plot data are used for EFs calculation and the forest cover maps of NFIMAP are used for Avoided Deforestation generation in the Accounting Area.

2. Based on Prime Minister's Decisions, several NFIS Projects have been carried out in the past and the latest NFIS Project was being implemented during 2011-2016. In the latest NFIS Project, there are two stages in generating the forest cover maps: (i) "Forest survey stage" - interpretation of RS imagery will be used in combination with ground surveys to generate non-cadastral-dossier-based forest cover maps (which are called the "forest inventory maps"); (ii) "Forest statistics stage" - the forest inventory maps will be used as inputs to overlay with the cadastral-based forest owner boundary maps to generate the cadastral dossier-based forest cover maps (which are called the "forest statistics maps"). The forest statistics maps will be printed out as a deliverable to each forest owner for verification and revised as necessary. The scales of forest cover maps are 1:10,000 or 1: 25,000 for the commune level, 1: 50,000 for the district level, and 1: 100,000 for the provincial level. During the forest inventory stage, a system of sample plots is inventoried to estimate the mean volume stocks for each forest type. These sample plot data can also be used to estimate the mean carbon densities in AGB pool for each forest type. The main agency to implement the forest inventory stage is FIPI under MARD. For the forest statistics stage, the main actors are provincial authorities and local forest owners with the technical support from national institutions such as FIPI, Vietnam National Forest University and Vietnam Academy of Forest Sciences. Due to the coarse frequency (almost every ten years) and the different approach on generating the FCMs, the FCMs of NFIS will not be used to generate the Avoided Deforestation of the FCPF ER-P. However, these FCMs can be used as a reference layer for AD verification and improvement.

3. Annual Forest and Forestry Land Resources Monitoring and Reporting Program (Program No. 32 or FRMS) This Program has been conducted by FPD under DOF/VNFOREST since 2001 following the Directive No. 32/2000/CT-BNN-KL dated 27/03/2000 by MARD. Based on forest baseline maps of the latest NFIS Project, forest rangers collect information on changes in the communes under their responsibility, and then update these changes in a database. These updates are usually based on reports from forest owners and do not require remote sensing imagery or field surveys. Data are then aggregated through the FPD system from commune to district to province up to the central level. The Program has generated a dataset on area of forest and forestry land, broken down by **drivers, forest owners, forest functions, and administrative units.** However, this dataset **still has some limitations, including**: (i) the data are just for forest area; there is no data on forest stocks; (ii) the data on area changes cannot be tracked spatially as they are not associated with maps; and (iii)

[21] https://unfccc.int/documents/273504
[22] https://redd.unfccc.int/media/2016_submission_frel_viet_nam.pdf
[23]
https://www.forestcarbonpartnership.org/sites/default/files/documents/vietnam_mmr1_final_06.09.2023_vn_updated_01.10.2023_clean.pdf

Recently, with support from JICA, this element has been improved by addressing limitations on accuracy, credibility, transparency and quality assurance of Program no. 32. Where forests are allocated to villages a Village Based Forest Patrolling Team will be established and undertake forest patrols and report to commune-based forest rangers. The team will conduct field measurements of forest change, and submit the collected data to a data server. Satellite images and photographs are used to verify forest changes, and the resulting information is used to update forest cover maps and the use of a tablet-based approach will allow update information to be sent to a data server.

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

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

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

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

Development of standard operating procedures, including the National Forest Inventory (NFI) cycle V Quality Assessment and Quality Control (QA/QC) protocol, is under way. Viet Nam has determined not to resubmit an FRL, so is still using the first FRL (2016). It appears DoF is reviewing and gaining advise on options for updating the FRLs to increase chances and score of Vietnam to access RBP under the GCF pilot scheme.[24]

The national FREL/FRL was submitted to UNFCCC assessed in 2016. The modified national FREL/FRL proposed by Viet Nam for the historical reference period 1995–2010 (split into three five-year periods, which is in accordance with the country's NFI cycles) cover average annual carbon dioxide (CO2 emissions and removals from three of the activities listed in reducing emissions from deforestation, reducing emissions from forest degradation, and enhancement of forest carbon stocks.

Viet Nam submitted a modified national FREL of 59,960,827 tonnes of carbon dioxide equivalent (tCO2e)/year and FRL of −39,602,735 tCO2e/year, in the context of accessing results-based payments for the activities referred to in decision 1/CP.16, paragraph 70. 9 The proposed FRL includes an adjustment of 8,183,337 tCO2e/year, which is based on analysis of the annualized effect of a programme (Programme 661) to encourage reforestation, forest restoration and forest protection over a 12-year period between 1998 and 2010.

The proposed modified FREL/FRL includes the above- and below-ground biomass pools. The soil organic carbon and dead organic matter pools are not included. The proposed FREL/FRL includes only CO2 emissions and removals. Although it was noted in the modified submission that non-CO2 gases are emitted during forest fires, those emissions were estimated to account for less than 0.1% of the total national emissions.

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https://www.forestcarbonpartnership.org/system/files/documents/FCPF_Participants%20Progress%20Report_Vietnam_2019.pdf

For RECAF, it is identified that there is a need to support technical assistance on Activity Data and Removal factors for afforestation, and this appears to not be funded by other donors. In submissions to the UNFCCC Vietnam used the average carbon stock of forest types based on all NFI plots in the targeted forest type. While the use of average carbon stock provides an accurate representation of the forest types considered, it does not track the purpose of the afforestation projects (protection or production) and is not based on growth models. To help distinguish the different types of plantation, planting plans approved by each province in the project area need to be collected and made available. Growth models for dominant plantations species would also be needed. On the activity data side, a registry of newly afforested areas would need to be developed to keep track of emission reductions from removals based on locations and purpose (this may be funded by Norway, still checking up on this).

Technical support is needed to develop the 2015 land use land cover map, and likely timeseries after that at 5-year intervals, which is of course crucial for EUDR compliance due diligence, which requires an accurate 2020 map.

Monitoring and evaluation of GHG emission reduction targets for NDC purposes:

According to Vietnam's 2022 Nationally Determined Contribution to the Paris Climate Agreement, the monitoring and evaluation of GHG emission reduction targets is conducted through the Measurement, Reporting, and Verification (MRV) system, regulated by Government Decree No. 06/2022/ND-CP dated January 07, 2022. Specifically:

- At the local level: People's Committees at the provincial level are responsible to reviews and monitor local implementation of GHG reduction plans and compliance with MRV regulations; provides relevant information and data for MRV at the national and sectoral level upon the requests from relevant authorities.
- At sectoral level: Ministries managing energy; agriculture, forestry and other land use; waste management; and industrial processes are responsible for developing and promulgating procedures and technical regulations on sectoral measurement, reporting, and verification within the field of management; guide facilities within the scope of management to conduct measurement, reporting, and verification of GHG emission reduction; inspecting the compliance with regulations on MRV of GHG emission reductions by facilities within the scope of management; developing and operating an online database on within the scope of management of GHG emission reduction within the scope of management synergizing with the national online database on measurement, reporting, and verification of GHG emission reduction.
- Other ministries and ministerial-level agencies are responsible for providing activity data and relevant information for measurement, reporting, and verification of GHG emission reduction at national and sectoral levels upon the request of the Ministry of Natural Resources and Environment; coordinate with the Ministry of Natural Resources and Environment and other line ministries to inspect the compliance with regulations on measurement, reporting, and verification of GHG emission reductions within the scope of management.
- At national level: The tasks in the NDC are reviewed and evaluated at the national level every two years. Ministry of Natural Resources and Environment is the focal point for monitoring and evaluation at national level, responsible for leading and coordinating with ministries, ministerial-level agencies, and provincial-level People's Committees in monitoring and evaluating the implementation of NDC; develop and operate a national online database on MRV verification of GHG emission reductions; synthesize and develop monitoring and evaluation reports for governmental management of climate change and reports as regulated by UNFCCC; update, implement NDC, Biennial Transparency Report and other national reports on climate change and ozone layer protection in accordance with the provisions of international treaties to which Viet Nam is a signatory.

The management of GHG related data and information:

The FCPF Emission Monitoring Report[25] details GHG related data and information are managed by DOF as follows: DOF relies on an information system, has a GIS database that stores all the maps and data collected by the Measurement, Monitoring and Reporting Emissions and Removals (MMR) as well as information about the methods, and a web-based information portal to provide information to stakeholders, users and reviewers. Detailed information on key data and methods to enable the reconstruction of the Reference Level, and the reported emissions/removals are documented and made publicly available online via this web-based portal. The following information are made publicly available online ERPA program webpage (English):: http://vnff.vn/?hl=en.

The specific links to specific data are as follows:

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

- MC analysis: http://vnff.vn/erpa-program/mmrs/mc-analysis?hl=en

- Maps: http://vnff.vn/erpa-program/data/maps?hl=en

- Activity data: http://vnff.vn/erpa-program/data/activity-data?hl=en

- Accuracy assessment: http://vnff.vn/erpa-program/data/accuracy-assessment?hl=en

- Emission factors: http://vnff.vn/erpa-program/data/emission-factors?hl=en

- ERPD: http://vnff.vn/erpa-program/erpd/erpd?hl=en

- Annex of ERPD: http://vnff.vn/erpa-program/erpd/annex-of-erpd?hl=en

- Safeguard: http://vnff.vn/erpa-program/safeguard?hl=en

Processes for collecting, processing, consolidating and reporting GHG data and information for the ER-P to be performance-based, a MMR is needed to estimate ERs generated by the ER-P. To be consistent with Decision 11/COP19, the MMR will be built based on existing forest monitoring systems.

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

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

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

Information to be reported to VRO includes:

- FREL and/or FRL of the Accounting Area, prepared on the basis of agreed guidelines (Decision 12/CP.17 and the FCPF Methodological Framework Document), IPCC methodologies (including the 2003 Good Practice Guidance for Land Use, Land Use Change and Forestry), and other relevant information (historical data, information on methods,

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[25]

https://www.forestcarbonpartnership.org/sites/default/files/documents/vietnam_mmr1_final_06.09.2023_vn_updated_01.10.2023_clean.pdf

> approaches, models and assumptions used, pools/gases, and activities included in FREL and/or FRL and the reasons for any omission);

- Information on forest-related emissions/removals resulting from REDD+ activities in the
- Accounting Area (prepared following agreed guidelines in Decision 12/CP.17 and Decision
- 13/CP.19 and IPCC methodologies) and other relevant information (information on methods, approaches, models and assumptions used, pools/gases, and activities included and the reasons for any omission); and
- Information on how safeguards are respected and addressed (Decision 1/CP.16) in the ER-P.

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

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

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

Benefit-sharing:

Vietnam has not yet finalized a nation-wide benefit sharing model, though it has a strong foundation for this, as the Benefit Sharing Agreement was finalized in the North-Central Provinces as part of the FCPF ERPA in March 2023. Previously, Vietnam began work on piloting benefit sharing in sustainable forest management, protection and development of Special-Use Forests in 2012 (Decision No. 126/QD-TTg), in six pilot provinces in 2015 (Decision No. 5399/QD- BNN-TCLN).

With support from the UNREDD programme, Vietnam completed a first large-scale pilot to integrate the benefit distribution system (BDS) into site-level REDD+ Action Plans (SiRAP) and Implementation Agreements. The pilot encompassed 17 sites across six provinces and covered more than 43,000 ha of forests and forestland. 191 communes and more than 331,000 local people benefitted from this activity. The UNREDD programme has also been piloting the integration of two SiRAP BDS with Payment for Forest Ecosystem Services (PFES) in Lao Cai and Lam Dong Provinces over a total area of 4,000 ha[26].

Vietnam passed *Decree no.107/2022/ND-CP on Pilot GHG ER result transfer and financial management of ERPA* in 2022, and finalized the Benefit-Sharing Agreement for FCPF RBPs in 2023.[27] RBPs are a large percentage of the US$51.5 agreed upon by World Bank FCPF and Government of Vietnam. Payments will be made as follows:

- National level government is to receive up to US$ 1,545,000 which is 3% of proceeds, for Support forestry related activities for GHG ER, M&E, measurement and verification, communication and propaganda. There is an additional 96.5% of the RBPs are set to be transferred to the provinces.
- Disbursements will go to the Vietnamese National Forest Protection and Development Fund (VNFF). VNFF's fees for carrying out administrative activities is US$ 257,500. The VNFF receives funds based on the estimated ERs and coordinates and disburses these funds to the

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https://www.forestcarbonpartnership.org/system/files/documents/FCPF_Participants%20Progress%20Report_Vietnam_2019.pdf

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https://documents1.worldbank.org/curated/en/099084503102316232/pdf/P1626050c673020320adf60bbaaf0f53be4.pdf

provincial Forest Protection and Development Fund. US$ 44,727,750 (86.85% of the $51.5 million) is to be disbursed to Provinces. The amount will depend on how successful the Province has been in delivering ERs. A formulae has been developed under the above-mentioned Decision.

- The payment amount transferred to provinces is based on: i) ER results of the province (tCO2e); and ii) Natural forest area of province (ha). The basis for identifying the forest area is periodical forest inventory and annual forest change monitoring by MARD. The total revenue is determined by the total transferred emission reduction multiplied by the unit price/ton of emission reduction.
- The Provincial Fund disburses funds to the beneficiaries. The beneficiaries - forest owners as organization, Communal People's Committee (PC), other organizations - will receive payments into designated bank accounts.
- The VNFF is permitted to deduct 8% of total revenue collected to cover management and coordination costs and other remaining tasks in accordance with the plan approved by MARD. In particular, key national policies and measure will be assessed and enacted. There will also be an additional 2% for contingencies.
- From the remaining balance, VNFF coordinates to the Provincial Funds. The Provincial Fund is allowed to deduct 10% of the total received amount to cover costs for management and coordination tasks, as well as sub national policy implementation. The remaining balance will be paid to the forest owners, commune PC and other organizations allocated forest for management by the State.
- The forest owner is permitted to deduct 10% of the total amount received from the Provincial Fund to pay for forest management activities. The remaining balance of 90% will be paid by the forest owner for participatory forest management activities, of which 85% is paid to the communities participating in this agreement; 5% is paid to the commune PC.
- Forest owners as households, individuals, communities and forest contracted communities are allowed to use all of the paid amount for forest protection, management and development and livelihoods improvements.

VNFF has implemented the PFES programme since 2008, and was chosen as the financial manager to implement the Benefit-Sharing Plan. PFES plays a significant role in financing the forestry sector in Vietnam, accounting for 29% of total forestry investments in 2019. The VNFF has had capacity building support from GIZ, ADB, CIFOR and USAID and has experience of working in 45 provinces. VNFF already has a suitable M&E system working for PFES and this will accommodate ERPA fund disbursement. The VNFF is expanding the use of electronic payment methods that increase the transparency and efficiency of the payment process while reducing risks in transacting amounts of cash and it is expected that these will be used in the BSP. The VNFF has developed a comprehensive M&E system for the PFES and this will form the basis for the monitoring and reporting on the BSP. The VNFF is required to report nationally on the implementation of the PFES program and has a comprehensive set of indicators that are used at the community level to provide monitoring, evaluation and feedback on implementation. A Feedback and Grievance Redress Mechanism (FGRM) is in place and is already used in practice for the PFES.

LEAF Coalition/Emergent is completing an institutional capacity assessment (ICA) of VNFF's ability to act as financial intermediary to channel Results-Based Payments in the Central Highlands region. Though the ICA is not yet available for review, indications are that there are concerns about transparency and accountability as Provincial levels. Deficiencies would need to be addressed by GoV before an ERPA is signed.

Safeguards:

Based on information provided by VN Forest to the Leaf Coalition in 2021[28], progress on meeting multiple safeguards requirements (FCPF, LEAF, GCF, UN-REDD) has matured towards a unified approach. Vietnam has developed Vietnam's Country Safeguards Framework (CSF), based on a participatory process led by the multi-stakeholder Sub-Technical Working Group on Safeguards

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[28] https://resources.leafcoalition.org/wp-content/uploads/2021/12/Vietnam_LEAF-Proposal.pdf

(STWG-SG). The CSF aims to reduce the potential risks and promote the benefits of REDD+ actions, and to demonstrate fulfilment of the country's commitments under the UNFCCC. As part of the CSF, the Cancun Safeguards were clarified in the national context, the legal framework and governance arrangements assessed to identify and progressively resolve gaps, a Participatory Governance Assessment was conducted in pilot provinces, and potential impacts of REDD+ assessed through national and subnational processes, including: an assessment of benefits and risks associated with the NRAP (complemented by assessment of benefits and risks at provincial scale as part of PRAPs). National guidelines (MARD Decision No. 5414/2015/QD-BNN-TCLN) set out the requirements for PRAPs, including stakeholder participation, impact assessment, information disclosure, and monitoring.

Vietnam has established a national Safeguards Information System (SIS) that provides accessible and transparent information in Vietnamese and English on how the safeguards are addressed and respected, linked to existing information systems and planned subnational monitoring of REDD+ and safeguards implementation. Launched in December 2018 the SIS portal is managed by the SSCO and Division of Information Development, under DOF, and incorporates information from multiple sources at national and subnational level. The system is currently undergoing upgrades, in line with Vietnam's phased approach to SIS development, to incorporate more information and reporting against multiple safeguards standards, including FCPF, ART-TREES and others. Vietnam also officially submitted its first Summary of Information (SoI) to the UNFCCC in January 2019. [29] The SOI focuses on the CSF, how safeguards are addressed, the SIS design, and the anticipated approach for respecting the safeguards. This approach centres on implementation of relevant policies, laws and regulations (PLRs), together with specific safeguards-relevant measures and processes, such as collaborative forest management. Improved implementation of both PLRs and safeguards and processes will require strengthened institutional capacities. The respecting of safeguards will be demonstrated through the SIS, and reported in subsequent summaries.

Vietnam has already designed and piloted key processes to support safeguards implementation. Building on existing regulations, particularly the Law on Environmental Protection (2014), the Law on Grassroots Mediation (2013), and the Law on Complaints (2011), a grievance redress process has been set out, based on mediation at local level, with referral to other higher-level GRMs when needed. Grievance redress was piloted together with benefit sharing in six provinces (based on Decision No. 5399/2015/QD-BNN-TCLN), and further guidance integrated into final draft Subnational Safeguards Guidelines. Vietnam was one of the first countries to pilot ''free, prior and informed consent'' (FPIC) for REDD+ in Lam Dong Province in 2010 (now known as ''free, prior and informed consultation'' in the Vietnam context). Lessons learned fed into the development of national guidelines, which then informed the development and revision of the NRAP and the MARD Guidelines on PRAPs. As noted, Vietnam also piloted benefit sharing in 2015, and has developed a model further via the ER-P in the North Central Provinces; Vietnam will build on these pilots to formalize a national benefit sharing approach for use in REDD+ implementation areas

At the subnational level, Vietnam has progressed in designing, implementing and reporting on the safeguards, and its safeguards processes aim to ensure coherence across national and subnational scales. Vietnam's provinces follow the legal framework set out at national level, and coordinated socio-economic, land and environmental planning further promote coherence. In the North Central Provinces, the FCPF ERP has prepared an Environment and Social Management Framework, based on a Strategic Environmental and Social Assessment (SESA), as well as a Feedback & Grievance Redress Mechanism, Benefit Sharing Plan, Ethnic Minority Planning Framework, and Gender Action Plan. The FCPF First Monitoring Report was submitted to the Carbon Fund in 2021. To support implementation and monitoring of REDD+ and safeguards across provinces, Vietnam applies the MARD PRAP Guidelines (with 22 provinces having approved PRAPs as of 2021), has developed a REDD+ monitoring and evaluation framework, and has tested Subnational Safeguards Guidelines in 2020. These guidelines provide detailed information on planning, implementing and monitoring

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[29] https://redd.unfccc.int/uploads/4850_1_first_soi_viet_nam__28eng_29.pdf

REDD+ to ensure adherence to Vietnam's CSF. Further support will be directed towards disseminating and building capacity for applying the guidelines and reporting to the SIS.

Preliminary gaps and gap-filling measures related to the ART-TREES safeguards have been identified, further considering those already identified in Vietnam's first Summary of Information. These include some processes already underway, such as: specific improvements to the legal framework; and strengthening subnational implementation and reporting on safeguards. Other areas for strengthening include: finalization and dissemination of agreed mechanisms for grievance redress and benefit sharing; improved reporting on key processes such as Environmental Impact Assessment; more systematic use and reporting on REDD+ information-sharing channels; clarification and documentation of definitions and processes related to tenure, mapping and review of the NRAP; and strengthened implementation and reporting on non-carbon benefits.

Alignment with other Government of Vietnam Ministries and priorities:

In an update to World Bank, Government of Vietnam identifies progress (up to 2019) in activities and partnerships to engage new sectors and institutions for NRAP implementation: with MPI (with a coordinated support from various partners to operationalize and support the Master Planning process in Lam Dong, including fully integrated forest and spatial dimensions, as a pilot to the new Planning Law implementation), MONRE (on ecosystem accounts and land use planning), CEMA (joint event on NTFP with Vice Prime Minister patronage), MOF (on harmonizing provisions for forest carbon pricing), MOT/Civil Aviation Association of Vietnam (on opportunities to offset forest carbon as a CORSIA pilot), MPS (organization of a regional and multi-sector capacity exchange event on forest crime in November 2018 in Hanoi), MOJ (on institutionalizing the grievance redress mechanism).[30] It will be helpful to have an update on major updates since then.

6.1.2.1 Baseline Activities and Investments

Historic, current and future programmes, donor commitments, and activities that contributed to NRAP capacity-building and implementation, and other aligned activities, are documented below. RECAF will leverage and build upon past and ongoing REDD+ support initiatives, specifically the UN-REDD Programme, the Forest Carbon Partnership Facility (FCPF) of the World Bank, and the Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition[31], among others. Given the overlapping provincial coverage between LEAF and RECAF, careful coordination between the two initiatives will be established to ensure a complementary relationship. The Integrated Sustainable Landscape Management through Deforestation-Free Jurisdiction project, lead by UNDP and in partnership with IDH, UNEP, and CIAT pursued a detailed Central Highlands jurisdictional planning effort to design activities to reach deforestation-free value chains. The full project design was not funded, but a portion of the concept received European Union support for some activities which are further elaborated below. This is being implemented in Lam Dong and Dak Nong Provinces. The IDH Initiative for Sustainable Landscapes (ISLA) is actively implementing deforestation-free activities in Lam Dong and Dak Lak, and these are further elaborated below. Because IDH has pursued multi-stakeholder Compacts, which are essentially the same concept as the 4P platform anticipated in this project. As the key government actors, supply chain entities and local stakeholders are already involved in the Compacts in some districts, it is likely this project will dovetail with IDH's effort in those districts. This project also envisions coordinating with IDH on the spatial planning and mainstreaming PRAP elements into SEDPs, as they have already worked on this in the two Provinces.

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[30] See:
https://www.forestcarbonpartnership.org/system/files/documents/FCPF_Participants%20Progress%20Report_Vietnam_2019.pdf
[31] On 31 October 2021, MARD and Emergent - the trustee of the LEAF Coalition, signed the Letter of Intent. With this Letter of Intent, Viet Nam transfers to LEAF/Emergent 5.15 million tons of CO_2 emissions reduction from forests in the South Central region and Central Highlands during the 2022-2026 period. LEAF/Emergent will pay for this service with a minimum price of USD 10/ton of CO_2, resulting in USD 51.5 million. The registered area of emissions reduction commercial forest is 4.26 million ha, including 3.24 million ha of natural forest and 1.02 million ha of plantation forest. Given that RECAF is focused on REDD+ activities in the same provinces as targeted under LEAF, IFAD is in a good position for joint planning of IFAD-GCF-LEAF resources, to ensure complementarity. An agreement between MARD and IFAD has been prepared in which MARD would consider IFAD as the third-party intermediary as the geographical match between LEAF jurisdictions and RECAF.

Another area of potential large-scale synergy is with the State Bank of Vietnam (SBV), which issued Document 5631/NHNN-TD in 2023, guiding commercial banks to implement a credit package worth VND 15 trillion (US$ 641 million), direct to agroforestry and fisheries. SBV has already committed US $600 million in loans before end of 2024, 25.7% of which went to agroforestry. There is potential to boost this to US$ 1 billion (portion for agroforestry TBD). Twelve commercial banks have registered to participate in the program, including Agribank, BIDV, VietinBank, Vietcombank, LPBank, Sacombank, MB Bank, ACB, Nam A Bank, OCB, Eximbank and SHB. RECAF will assess the degree to which this source of agroforestry sector (coffee, cashew, etc.) lending can be aligned with and advance NRAP (2017) objectives.

These initiatives serve as foundations for ensuring the additional value of RECAF, to bring a comprehensive approach across the entire Central Highlands region, for comprehensive NRAP implementation through deforestation-free agricultural production, addressing cross-sectoral challenges, capacity and finance constraints at Provincial levels, and to support rural producers and value-chains to meet the deforestation-free jurisdictional requirements of the EUDR. RECAF will assist the Government of Viet Nam in reinvesting these benefits into further REDD+ outcomes, aligning with the country's NDC commitments.

Table 20. Relevant REDD+ baseline investment and complementarity

Baseline Investment	Objectives	Key Deliverables	Complementarity/ Additionality to RECAF
UN-REDD Viet Nam National Programme Implemented by: FAO, UNEP and UNDP Implementation status: Ongoing Location: National	The objectives of the UN-REDD Programme in Viet Nam are to develop a national REDD+ strategy, establish forest monitoring and MRV systems, engage stakeholders and build capacity, create sustainable financing mechanisms, and ensure safeguards and social benefits guided by the decisions under the Warsaw Framework for REDD+ and Cancun Agreement of UNFCCC. UN-REDD will also support LEAF Coalition below.	UN-REDD's key contributions include: - Developed a national REDD+ strategy (i.e., National REDD+ Action Plan (NRAP)). - Established robust forest monitoring and MRV systems (i.e., NFMS) - Implemented safeguards to protect rights and the environment. - Developed and implemented national Forest Reference Emission Level/Forest Reference Levels (FREL/FRLs). - Piloted innovative approaches for sustainable forest management and livelihoods. - Provided policy and institutional support. - Facilitated knowledge sharing and cooperation.	RECAF build on UN-REDD and FCPF outcomes to focus on the following capacity gaps: - Capacity building at the local level to implement NRAP. - Strengthening governance and law enforcement (i.e., provincial forestry plans). - Integrating REDD+ into development planning (i.e., provincial SEDPs) - Mobilizing adequate and sustainable financing, including addressing RBPs. - Enhancing monitoring and reporting systems with operational feedback and early warning mechanisms. - Addressing social and gender inequalities.
FCPF Implemented by: World Bank Implementation status: Ongoing Location: National and North Central for the Emission Reduction Purchase Agreement (ERPA).	In coordination with UN-REDD, the objectives include developing a robust measurement, reporting, and verification system, supporting the development of a national REDD+ strategy, promoting sustainable forest management and conservation, strengthening institutional capacity and governance, and mobilizing and managing financial resources for REDD+ activities.	FCPF's key contributions include: - Robust MRV system development. - Support for national REDD+ strategy. - Promotion of sustainable forest management and conservation. - Strengthening institutional capacity and governance. - Mobilization and management of financial resources. - Facilitated emission reduction monetization. - Created financial incentives for REDD+ projects.	
LEAF Coalition/ART TREES Implemented by: Emergent Implementation status: Planning stage Location: South Central and Central Highlands	LEAF aims to generate 11 MtCO2eq in emissions reductions while strengthening forest governance and utilizing emission reduction results (i.e., RBPs) for 5.2 MtCO2eq using the ART TREES standard for sustainable livelihoods (with support from UN-REDD)	LEAF targets 4.26 million ha of forest, of which 3.24 million ha is natural forest and 1.02 million ha is plantation within 11 contiguous provinces (Lam Dong, Dak Nong, Dak Lak, Gia Lai, Kon Tum, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan and Binh Thuan). LEAF will support capacity building in forest monitoring, emission reduction (ER) title management and benefit-sharing.	RECAF will complement LEAF in the following areas: - Deforestation-free value chain enhancement for ERs. - Local financial infrastructure development. - Benefit-sharing and RBP reinvestment through SEDPs. - Leveraging additional RBPs in accordance with Article 6 of the Paris Agreement to support Viet Nam's NDC commitments.
State Bank of Vietnam (SBV) Implemented by: Vietnamese state bank Implementation status: Ongoing Location: National	Document 5631/NHNN-TD, guiding commercial banks to implement a credit package, worth VND 15 trillion (US$ 641 million)	Already committed US $600 million in loans before end of 2024, 25.7% of which went to agroforestry. Potential to boost this to US$ 1 billion (portion for agroforestry TBD). 12 commercial banks registered to participate in the program, including Agribank, BIDV, VietinBank, Vietcombank, LPBank, Sacombank, MB Bank, ACB, Nam A Bank, OCB, Eximbank and SHB.	RECAF will assess the degree to which this source of agroforestry sector (coffee, cashew, etc.) lending can be aligned with and advance NRAP (2017) objectives.

SilvaCarbon Program: Forest Monitoring for Climate Change Implemented by: US Government Implementation status: Ongoing Location: National	SilvaCarbon focuses on forest monitoring to assess changes in forest cover, carbon stocks, and biodiversity to improve understanding of forest dynamics, identify areas of concern, and support evidence-based decision-making for effective forest management.	By working SilvaCarbon closely with UN-REDD and FCPF, the program contributed to the development of: • Robust forest monitoring systems • Accurate data and information products • Technical training initiatives • Policy support for forest conservation and management • Knowledge sharing and dissemination.	As with UN-REDD, FCPF and LEAF, RECAF will build on these technical capacities to focus on building decentralized capacities to operationalize REDD+ at the provincial, district and commune levels, by ensuring data informed enforcement, planning and incentive mechanism.
Project for Sustainable Natural Resource Management (SNRM) Phase 1&2 Implemented by: JICA Implementation status: Ongoing Location: 4 Provinces (Hoa Binh, Son La, Lao Cai and Tuyen Quang)	SNRM aims to maximize multiple benefits derived from forest ecosystems, which contributes to improved livelihoods of local people and mitigation of climate change impact through promotion of Sustainable Forest Management (SFM) and REDD+.	SNRM achievements include establishing Payments for Environmental Services (PFES) frameworks, identifying priority areas, designing payment schemes, implementing monitoring systems, and conducting capacity building and awareness campaigns for PFES participation. .	RECAF will incorporate the PFES approach piloted by SNRM as well as lessons learned and best practices in SFM
Sustainable Forest Management and Biodiversity Conservation (VFBC) Project Implemented by: WWF Implementation status: Ongoing Location: North Central and Central Highlands	VFBC aims to restore and manage forests, conserve biodiversity, empower communities, and raise awareness for sustainable forest management and a sustainable future in Viet Nam.	The key outputs of the VFBC Project in Viet Nam include restored forests, enhanced biodiversity conservation, strengthened institutions, increased community participation, and improved awareness of forest conservation and biodiversity.	RECAF will coordinate with VFBC where appropriate to ensure investment effectiveness in community level activities (e.g., institutional building, SFM, and knowledge sharing.
Coffee Agroforestry and Forest Enhancement for REDD+ (CAFÉ-REDD) Implemented by: SNV Implementation status: Ongoing Location: Lam Dong	CAFÉ-REDD supports the implementation of Lam Dong Provincial REDD+ Action Plan (PRAP) through coffee value chain.	The project aims to achieve three results: establishing a multi-stakeholder partnership for forest landscape conservation, engaging the private sector in deforestation-free coffee supply chains, and promoting sustainable coffee production with local communities.	RECAF will collaborate with these projects to establish a harmonized approach for creating multistakeholder platforms for deforestation-free commodities, production standards and value chain interventions, integrating REDD+ objectives into Provincial SEDPs, implementing changes to PFES to incorporate performance standards, and improve the quality of monitoring systems through Terra-I and others.
Integrated Sustainable Landscape Management through Deforestation-Free Jurisdiction project (EU funded) Implemented by: UNDP Implementation status: Ongoing Location: Lam Dong and Dak Nong	It aims to promote sustainable land use and forest management practices, reduce deforestation, and enhance livelihoods in Lam Dong and Dak Nong provinces of Viet Nam.	The key outputs include strengthened institutional and policy frameworks for sustainable land and forest management, increased adoption of sustainable agricultural practices, improved livelihoods for local communities, and the establishment of robust monitoring and reporting systems to track deforestation rates and land-use changes.	
Initiative for Sustainable Landscapes (ISLA) Implemented by: IDH Implementation status: Ongoing Location: Lam Dong and Dak Lak	ISLA 2021-2025 goal: to set up four Verified Sourcing Areas (VSAs) on district level - 110.000 ha of agricultural land	Production, Protection and Inclusion (PPI) Compacts for forest protection, GHG emission reduction and improved agricultural production (coffee, pepper and fruit) signed in Krong Nang and Cu'Mgar districts (Dak Lak province), Di Linh and Lac Duong districts (Lam Dong province),	RECAF will build on the basis already established through the VSAs and the PPI Compacts
Voices for Mekong Forests (V4MF) project (EU funded) Implemented by: WWF, RECOFTC, and PanNature Implementation status: Ongoing	Comprehensive monitoring and evaluation system and its mobile application to support the monitoring and	Designed to enhance accountability, performance, and participation in policy-making, planning, and law enforcement, to assist implementing the Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA) between the European Union and	RECAF will integrate these tools as necessary with communities for localized monitoring

Location: Piloted in Quang Nam, applicable nationwide	evaluation of forest governance[32]	Viet Nam, begun in 2019. Piloted in Quang Nam province.	
Viet Nam Forests and Deltas (VFD) Program Implemented by: Winrock Implementation status: Completed Location: Delta region	VFD focuses on conserving forests and deltas in Viet Nam, aiming for restoration, biodiversity conservation, climate adaptation, livelihood support, and water resource management.	Successful implementation of payments for ecosystem services (PES) schemes is a key achievement of the VDF Program to provide financial incentives to landowners and communities for conserving and managing ecosystems.	RECAF will incorporate lessons learned and best practices from this initiative.

6.1.2.2 UN-REDD Programme Technical Assistance

Vietnam continues to receive assistance from UN-REDD Programme, though the programme is no longer a priority partner[33] for Norway's NICFI. According to UN-REDD Programme 2023 Semi-Annual Progress Update,[34] as of June 2023, the UN-REDD TA for Viet Nam is progressing albeit with some delays. The TA for Viet Nam focuses on supporting the Department of Forestry (DOF) in its preparation of the ART/TREES Registration Document (TRD), particularly for carbon accounting, safeguards, legal title to transfer, and support to conducting national and sub-national level consultations.

So far, the carbon accounting gaps have been largely filled, and is undergoing internal review. Work on safeguards aspects under the TRD is also progressing, with the involvement of the Institute for Policy and Agriculture and Rural Development (IPSARD). Legal and benefit sharing considerations are expected to largely echo the institutions applied under the Carbon Fund ERPD – but require further consultations with forest owners who, under ART/TREES need to enter into agreements to transfer ER title. The consultation plan is being drafted and envisages a campaign to be rolled out 2023 from national, provincial and local levels to inform, discuss and engage stakeholders in taking part in the LEAF jurisdictional program. Considering institutions such as for benefit sharing are not new – as they are applied also under the government's Payment for Forest Ecosystem Services (PFES) program – major obstacles are not foreseen.

In parallel, TA to support MoNRE in its NDC enhancement and assessing blended climate financing options such as Article 6 and emerging international market mechanisms are progressing according to schedule. According to UN-REDD Programme's 2024 Work Plan,[35] UNDP is leading this effort on behalf of UN-REDD. FAO and UNEP are leading the TA support to assist Vietnam in accessing RBPs for measured, reported, and verified REDD+ results, most of which entails supporting the activities related to the LEAF jurisdictional programme.

6.1.2.3 SilvaCarbon

SilvaCarbon is assisting DOF to allocate development targets (e.g. forest protection, afforestation, timber harvest) to each province and identify emission reduction scenarios and increased removals.

In the GHG emission reduction plan of the Agriculture and Rural Development sector for the period 2023-2030, MARD has set a target of net emission reduction of 129.8 mil tons of CO2eq by 2030, of which the forest and land use sectors should achieve net emission reductions (including increased removal) of 84.5 million tons CO2eq with national effort and 21.8 million tons CO2eq with international support. In parallel, current participation in the forest carbon credit trading market and result-based payment for REDD+ implementation in Vietnam is also progressing. Vietnam has received the first payment installment from FCPF ERPA for the North Central region and is preparing for ERPA with the LEAF Initiative. Many Vietnamese provinces are also proposing to implement additional REDD+

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[32] Manual in Vietnamese: https://nature.org.vn/vn/wp-content/uploads/2021/07/280721_WWF_FGMS-Manual.pdf

[33] https://www.nicfi.no/partner-countries/

[34] https://www.un-redd.org/sites/default/files/2023-08/UN-REDD%20Semi-Annual%20Progress%20Update%202023_FINAL-%2015%20Aug%202023.pdf

[35] https://www.un-redd.org/sites/default/files/2024-03/UN-REDD%202024%20Integrated%20Workplan%20DRAFT%20rev%2021%20Mar%202024.pdf

projects. To balance the exchange/trade of carbon credits from REDD+ and the contribution to reducing emissions from the forest and land use sector of each province to the NDC, MARD requested FIPI to work on "Estimation of emission reduction potential and emission reduction quota from forest and land use sector for each province".

In June 2024, FIPI completed the draft estimates for the period 2021-2030 per province, through calculating the activity data using forest cover maps for 2010 and 2020 and carbon density from the national forest inventory cycle 4 and 5. To complete the assessment, FIPI plans to analyse Vietnam's forest development strategy for the period 2021-2030 to allocate development targets (e.g. forest protection, afforestation, timber harvest, etc.) to each province and identify emission reduction scenarios and increased removals. SilvaCarbon is assisting with technical support.

6.1.2.4 World Bank Forest Carbon Partnership Facility

The World Bank FCPF worked to implement emission reduction activities in the North-Central Coast region. This program encompasses the entirety of the North-Central Agro-Ecological Region, an area of land totalling 5.1 Mha (16% of the total land area of Vietnam), of which 80% is hills and mountains and the remaining is coastal plains with agricultural land, accounting for 14% of the natural area. The region includes the six provinces of Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue – and has a population of about 10.5 million people. The landscape of the ER Program was chosen due to its critical biodiversity importance and socio-economic status. The ERPD was completed in 2018.[36] Vietnam completed the FCPF Emission Reduction Payment Agreement (ERPA) in 2018. All key technical requirements were finalized, including a revised Environmental and Social Management Framework (ESMF) and other safeguards instruments, emission reductions (ER) title transfer documentation, a reversal risk management mechanism, benefit sharing plan (BSP) and related procedures for the Adaptive Collaborative Management Approach (ACMA). Several components, such as the development of a feedback and grievance redress mechanism (FGRM) and the Safeguards Information System (SIS), were coordinated with the UN-REDD Program. The national SIS is used to report on safeguards for the Emission Reduction Program (ER-P), for which the FCPF Carbon Fund is to provide results payments. Capacity at the central level and in the project provinces has been strengthened and will enable Vietnam to implement the signed ERPA effectively and successfully to provide additional resources to address the drivers of deforestation and forest degradation in the North Central (NC) provinces.

The Emission Reduction Registry is under discussion and appears to be finally supported by Government of Norway (pending confirmation of this)

Viet Nam has received a $51.5 million payment for verified emissions reductions ("carbon credits") for reducing deforestation and forest degradation and for enhancing carbon stored in forests through reforestation and afforestation, making it the first country in the East Asia Pacific region to receive a results-based payment from the World Bank's Forest Carbon Partnership Facility (FCPF).

The payment was made to Viet Nam for reducing 10.3 million tons of carbon emissions between February 1, 2018 and December 31, 2019. It is the largest single payment to date made by the FCPF for verified and high integrity carbon credits. The payment will benefit 70,055 forest owners and 1,356 communities near the forest, to be distributed according to a robust benefit sharing plan designed through a consultative, participatory, and transparent process.

The program generated 16.2 million verified emission reductions between 2018 – 2019, which is 5.9 million more than the 10.3 million contract volume in the Emission Reduction Payment Agreement. The World Bank has issued a call option notice to buy an additional 1 million emission reductions beyond the contracted amount.

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[36] https://www.forestcarbonpartnership.org/system/files/documents/00_FINAL%20ER-PD%20Vietnam%205%20Jan%202018__0.pdf

The Emission Reduction Monitoring Report[37] of May 2023 identifies, "The key lessons learned for effective control of deforestation and forest conversion are strong legal framework directed by highest legal level (government and prime minister) and the effective collaboration of line ministries and departments across levels (page 4)."

A Benefit-Sharing Agreement was signed. See above section on safeguards and benefit-sharing for details, as the agreements forged via FCPF pave the way (functionally as well as defining legal aspects) for other similar initiatives implementing similar NRAP aligned activities in other regions of Vietnam.

6.1.2.5 LEAF Coalition / Emergent Forest Finance Accelerator

The Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition represents a voluntary global alliance linking companies interested in investing in voluntary carbon offsets and governments to provide results-based finance to jurisdictions committed to forest protection and deforestation mitigation. Coordinated by Emergent, a nonprofit entity facilitating transactions, the LEAF Coalition supports tropical and subtropical forest governments in advancing their efforts to combat deforestation while aligning with their Nationally Determined Contributions (NDCs) under the Paris Agreement.

The LEAF Coalition prioritizes the reinvestment of proceeds from credit transactions in large-scale REDD+ programs aimed at curbing emissions from deforestation across entire countries or subnational regions, involving all relevant stakeholders, including Indigenous Peoples and local communities (IPLCs). The LEAF Coalition exclusively purchases forest carbon credits meeting the stringent criteria of the Architecture for REDD+ Transactions (ART) and the REDD+ Environmental Excellence Standard (TREES), thus seeking to uphold high standards of environmental integrity and social safeguards.

Vietnam aims to transfer 5.15 million tonnes of CO2 emissions reductions to LEAF and Emergent between 2022 and 2026, at a minimum price of $10 per tonne, thus providing US$ 51.5 million in results-based payments. The credits transferred to LEAF will be counted towards Vietnam's National Determined Contributions (NDC) commitment.

In August 2021, Vietnam submitted a proposal to LEAF,[38] outlining plans to verify emissions reductions across 11 contiguous provinces in the Central Highlands and south central Coast through ART. There was a signing of a Letter of Intent with MARD in October 2021 at COP26.

LEAF Coalition is lining up buyers for emission reductions that favour avoided deforestation, thus they are not looking at CO_2 removals, such as afforestation (DOUBLE CHECK THIS). The legal framework for benefit-sharing has already been established by World Bank FCPF and Government of Vietnam, so it is unlikely that a different approach would be pursued, especially as the Central Highland has a more challenging land title and tenure situation.

Emergent and MARD are in a process of defining terms and conditions (including adequate MRV), Government of Vietnam capacity to deliver upon the agreed terms, setting milestones, and carrying out a Institutional Capacity Assessment (ICA) of VNFF to administer the funds. Parties will also determine use of RBPs, and it is hoped that after a negotiation phase in September 2024, a final agreement will be signed before the end of 2024.

6.1.2.6 UNDP-UNEP-IDH-CIAT Deforestation-free Jurisdictional Approach (2022-2026)

In the last Phase of the UN-REDD Programme, UNDP led a partnership with UNEP, IDH, and CIAT to complete a deforestation-free jurisdiction approach (DFJA) for the Central Highlands (focusing on Dak

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[37]

https://www.forestcarbonpartnership.org/sites/default/files/documents/vietnam_mmr1_final_06.09.2023_vn_updated_01.10.2023_clean.pdf

[38] https://resources.leafcoalition.org/wp-content/uploads/2021/12/Vietnam_LEAF-Proposal.pdf

Nong and Lam Dong Provinces) to implement NRAP and address the direct and underlying drivers from the agricultural sector. The DFJA was developed in close consultation with the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD). The DFJA articulated strategies to achieve deforestation-free commodity supply chains (coffee and rubber), promote non-timber forest products, encourage more trees on farms, and ways to engage the business and the financial sector (including PFES reform).

Though the DFJA Framework Plan was drafted (last version December 2018), international funding to implement the full plan was not secured in full, rather only for a series of sub-activities. UNDP secured funding for a first phase from the European Union for €5M, for (EU Project number 00098749) *Integrated sustainable landscape management through deforestation-free jurisdiction project in Lam Dong and Dak Nong.*[39] For 2025, US$2,185,000 will be spent to advance project activities. The ProDoc[40] identifies the initiative will run to 2025. The budget[41] for the project (to 2024) indicates that a range of activities are being carried out which relate directy to activities identified in the RECAF workplan. For instance, integrated land use planning is occurring, which will bring REDD+ into related (driver) sectors, and this either served to influence the last 5-year plans, or most certainly will influence the 2025-2030 sector plans. Platforms for multi-stakeholder engagement in the DFJA is funded (and RECAF should not duplicate this, but rather align with these activities). Early warning systems are funded (CIAT activity). Innovations to reform PFES, and assessment of business models for agroforestry and more trees on coffee farms is being completed (UNEP).

6.1.2.7 The Dutch Sustainable Trade Initiative (IDH) - IDH's Initiative for Sustainable Landscapes (ISLA)

The Dutch Sustainable Trade Initiative (IDH) has operated in the coffee growing regions in the Central Highlands for a number of years. IDH's Initiative for Sustainable Landscapes (ISLA), funded by the Dutch Ministry of Foreign Affairs, was first launched in 2015 and its second funding period was 2021-2025. Information below details results from a mid-term review of IDH's ISLA activities in the Central Highlands of Vietnam.[42]

IDH's ISLA-funded effort was set up with the aim to promote forest protection and natural resources conservation, alongside with improving farmers' profitability and supply chain resilience at scale. By the end of ISLA phase 1 (2015-2020), three Production-Protection-Inclusion (PPI) Compacts were initiated in Krong Nang district (Dak Lak province), Di Linh and Lac Duong districts (both Lam Dong province). Multi-stakeholder governance structures were established under the leadership of the local district authorities, supported by investment and off-take from more than 10 coffee companies. Field-level projects focused on forest protection, sustainable water management and use of agro-chemicals, and agroforestry and reforestation. During ISLA phase 1, 128,000 ha of forest, 51,000 ha of farmland and 40,000 households were directly reached by the programme interventions piloted at commune level.[43]

In 2021, when the second phase of the ISLA programme started, the focus grew to three key commodities: coffee, pepper, and fruits. A PPI Compact in Cư Mgar was established (the largest coffee producing area of Dak Lak province), increasing the total number of Compacts in the Central Highlands to four. During ISLA phase 1 (2018-2020), three SourceUp areas were piloted at commune level, amounting to 15,000 ha of agricultural land. The strategy for ISLA 2021-2025 was to set up four Verified Sourcing Areas (VSAs) at district level. This will amount to 110.000 ha of agricultural land.

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[39] https://www.undp.org/vietnam/projects/integrated-sustainable-landscape-management-through-deforestation-free-jurisdiction-project-lam-dong-and-dak-nong-viet-nam

[40] https://undpngddlsprod01.blob.core.windows.net/pdc/00098749-PPMProdoc%20-%20EU%20Integrated%20landscape%20project%20after%20LPAC%20signed.doc

[41] https://undpngddlsprod01.blob.core.windows.net/awp/00098749.pdf

[42] https://www.idhsustainabletrade.com/uploaded/2023/12/KIT-2023-Final-Report-MTE-IDH-ISLA-Phase-2-Final-Web.pdf

[43] Unique (2021) Evaluation of Initiative for Sustainable Landscapes Programme (ISLA) Evaluation. Unique forestry and land use

The mid-term review identified that most of the projects started in mid-2022, which made it too early to claim any impacts on indicators. The 2021-2022 results indicate: a) there is a carbon-driven project signed with JDE, Simexco, ACOM and LDC; and b) 70% of coffee produced in Cu M'gar, Krong Nang and Di Linh are compliant with market requirements (the MTE references 'due diligence and/or responsible production' but it is unclear if 'deforestation-free' is included on this).

IDH was a partner in the above mentioned DFJA, but the US$ 5 million budget of the DFJA[44] did not allocate much funding to IDH.

6.1.2.8 JICA submission on behalf of Government of Vietnam for REDD+ Results-Based Payments

In 2020, the Japan International Cooperation Agency (JICA) submitted a Concept Note for REDD+ Results-Based Payments for the period of 2014.[45] The NDA was Ministry of Planning and Investment, and the REDD+ entity/focal point was the National Steering Committee Office for the Target Program on Sustainable Forest Development and REDD+ Implementation, MARD. Vietnam is proposing 30,000,000 tCO2eq out of the total annual result for 2014 to the GCF for the RBP. This total amount of 30,000,000 tCO2eq, the potential removals or emission reductions would be finalized in the final funding proposal, considering the estimated discount rate calculated based on the GCF RBP score card.

6.1.2.9 JICA REDD+ Support: The Project on Enhancing Sustainable Natural Resource Management Phase 2 (SNRM2) (2021 – 2025)

JICA, in collaboration with other donors and various stakeholders conducted the "Sustainable Natural Resource Management (SNRM) Project" from 2015 to 2021, which focused on providing support to the revision of the Law on Forestry, forest sector reform, and promotion of national REDD+ action program activities. Phase 2 (SNRM2)[46] seeks to strengthen the efforts related to the revised Law on Forestry. Under the revised Law on Forestry, the Vietnamese Government is planning to revise the Vietnam Forestry Development Strategy 2006-2020 and the Sustainable Forest Development Program 2016-2020. In addition, the Vietnamese Government is promoting new initiatives such as the establishment of a Vietnamese version of sustainable forest management (SFM) framework and the SFM certification system in compliance with the international standards. Since there has been a gap between the program/policy design and its implementation, SNRM2 plans to support four northern provinces (Hoa Binh, Son La, Lao Cai, and Tuyen Quang) in the formulation, implementation, and monitoring of SFM plans by target forest owners. The SFM plan formulation is an important prerequisite for the SFM certification. SNRM2 also supports some of the activities carried over from the previous phase including the implementation of REDD+ activities in provinces, the application of the improved forest monitoring system, and the access to the REDD+ results-based payments by the Green Climate Fund (GCF).

Project activities also include assisting to improvs the forest monitoring system, building capacity of central and provincial government agencies on operation of forest resources monitoring system, assisting in reviewing and/or revising the Law on Biodiversity (20/2008/QH12) and drafting legal documents under the revised Law, assisting in improving the National Biodiversity Database System and in building capacity for biodiversity survey, monitoring and reporting, enhancing the national and international network on Biosphere Reserves (including the replication of the Collaborative Management System model developed in the Lang Biang Biosphere Reserve), and providing support to address other emerging issues related to biodiversity conservation.

6.1.2.10 Other major initiatives of note

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[44] https://undpngddlsprod01.blob.core.windows.net/pdc/00098749-PPMProdoc%20-%20EU%20Integrated%20landscape%20project%20after%20LPAC%20signed.doc
[45] See: https://www.greenclimate.fund/sites/default/files/document/25080-vietnam-redd-plus-results-based-payments-results-period-2014.pdf
[46] https://www.jica.go.jp/Resource/project/english/vietnam/058/outline/index.html

The EU REDD Facility, which is part of the European Forest Institute (EFI), conducted an analysis[47] in 2020 of public investments related to land use in the five provinces of Central Highlands. It was conducted by the Central Institute for Economic Management of the MPI and the EU REDD Facility of the European Forest Institute, in partnership with the Vietnam REDD Office and the UN-REDD Programme. It aims at supporting the implementation of the NRAP in Central Highlands and the integration of sustainable land-use objectives into provincial socioeconomic development.

This study analysed planned international, national and provincial public investments for the period 2016-2020 in five provinces of Central Highlands (Kon Tum, Gia Lai, Dak Lak, Dak Nong and Lam Dong) that have a potential impact on forest cover. It considered public finance related to both the revenue and expenditure of public authorities. The definition of revenue used in the study includes revenues collected from private entities and redistributed to public entities, such as the PFES scheme. The analysis focused mostly on national and provincial ministries and bilateral and multilateral donors. While public enterprises and funds were integrated to the extent possible, private investments were not covered. Key findings are: a) 57% of total planned public investments in the region for the period 2016-2020, or VND 23.4 trillion, are related to land use. b) Two-thirds of these investments, or VND 16.2 trillion, are not aligned with NRAP objectives and could potentially drive deforestation in the future. c) About 90% of planned donor investments identified by this study are not aligned to NRAP objectives, calling for greater coordination between Vietnam and its partners. This study an important resource to build upon for future engagement with Provinces, donors, and other actors in the Central Highlands.

Additional EU funding

There is evidence of a major EU funding commitment of EUR 20 million going into forest sector activities related to EUDR, REDD+ and NDC, but at the time of writing this could not be verified with the EU Delegation in Hanoi and not with Vietnam's DOF. This funding is meant to build on the $5 million that the EU contributed to the

The ProDoc for the funding[48] describes, "The contribution is for an amount of EUR 20 000 000 from the general budget of the European Union for 2024, subject to the availability of appropriations following the adoption of the relevant annual budget." Again, this could not be verified yet through the EU Delegation, and it is unclear which organizations would implement, but given that it is indicated to have German and Italian financial support, presumably GIZ would have a role in implementation.

Specific Objectives of this action are:
1. To strengthen climate change mitigation and adaptation capacity in Northwest and Central Highlands regions through climate-sensitive, sustainable conservation, restoration and management of forests. 2. To promote climate-sensitive, environmentally sustainable forest-based value chains with more equitable, inclusive and gender-balanced involvement of all stakeholders is promoted. The Outputs to be delivered by this action contributing to the corresponding Specific Objectives are:

Contributing to Outcome 1 (or Specific Objective 1) (Euro 12.8 million):

> 1.1. Landscape-level models restoring carbon sinks and increasing GHG removals through sustainable and inclusive multi-purpose forest management are reviewed and scaled up in two target regions.

> 1.2. Climate-sensitive, inclusive, and sustainable forest management planning (SFMP), including solutions supporting climate change adaptation through alternative incomes, are piloted with selected communities and small holders in vulnerable situation.

> 1.3. Effective, collaborative, and responsive forest protection methods are reviewed and replicated in selected landscapes and communities to reduce unauthorised use.

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[47] https://euredd.efi.int/wp-content/uploads/2022/07/CH_Vietnam_executive-summary-EN.pdf
[48] https://www.gtai.de/resource/blob/1049848/c74b7b59b9276caf4c08a78f569ff9f5/PRO202311031049842%20-%20Annex%201.PDF

Contributing to Outcome 2 (or Specific Objective 2) (Euro 6.7 million):

2.1. Capacity on production, organisation and human resources as well as knowledge on business and investment planning, on requirements related to NDC, VNTLAS, EVFTA, and EUDR among target groups in targeted provinces is strengthened, ensuring women participation.

2.2. Support systems on Information and Communication Technology (ICT) for monitoring the change of forest cover, the implementation of the NDC, traceability of forest-based products, and forest-based products market is developed/updated and piloted in target areas.

2.3. Legal framework and institutions for strengthening the sustainable conservation, restoration and management of forests as well as promoting climate-sensitive, environmentally and socially sustainable forest-based value chains is improved.

2.4. Feasibility studies on climate sensitive, forest-based products value chains requirements at landscape and regional level are carried out and available for investment.

6.1.3 REDD+ implementation through forest policies

To address the direct and underlying drivers of deforestation the government has introduced a number of policies and programs, as well as measures to improve implementation. Vietnam's commitment to its forests is enshrined in the national constitution. The Communist Party and the Prime Minister have made high-level commitments: Directive 13/2017 on forest management, protection and development, which specifically highlights the need ''to strengthen mechanisms to manage and closely monitor projects on conversion of forest use purposes.''

Decision 886//QD-TTg (June 2017)[49] builds on Directive 13 and approves the target program for sustainable forest development for the period 2016-2020. Based on sound analysis the Decision identified priority policies and measures (PAMs) covering forest and non-forest interventions. This includes:

- PAM 1.1 to strengthen the development of integrated provincial land use planning through the new Planning Law, which comes into force in 2018 and will be the first time provinces will be required to develop inter-sectoral plans.
- PAM 1.2 supports the promotion of sustainable and deforestation-free agriculture, focusing on the major commodities driving forest loss—rubber, shrimp and coffee.
- PAM 1.3 supports improving forest governance and livelihoods for people living near and in the forest in key hotspot areas, indicating the need for more collaborative management approaches for forest and land use.

The new Forest Law, passed in November 2017, further highlights the need for collaborative management approaches.

The Forestry Law 2017

The Vietnam Forestry Law 2017 took in force from 2019 has regulated at its Article 61 that "Carbon sequestration and restoration; reduction of GHG emissions from mitigation of deforestation and forest degradation, sustainable forest management and green growth" as one type of forest environmental services. Therefore, as stated by the law, payment of this service has to respect and ensure those principles of transparency, democracy, objectivity, equity and relevance to the Viet Nam's existing regulations and international agreements which Viet Nam is of membership (Article 62). And beneficiaries under this payment mechanism are also legalized for forest owners, forest protection and development contractors (organizations, households, individuals and local communities), and communal authorities who are formally involving in forest management within their territories.

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[49] Target Program for Sustainable Forest Development for the 2016-2020 Period (Decision No.: 886/QD-TTg, approved in June 2017)

The Forestry Law classifies forestland into three categories: 1) special-use forests, designated for national parks and nature reserves, comprising approximately 15% of the total forest area; 2) protection forests, established to safeguard the environment, regulate climate, and prevent erosion, desertification, and natural disasters, accounting for 38% of the forest area. The third category is production forests, allocated for timber and non-timber forest product production and trade, making up 46% of the forest area. This law provides a legal framework for forest ownership, financing, and inclusive investment planning and equitable resource distribution mechanisms, including provisions related to forest carbon payments. However, specific regulatory details regarding these mechanisms are still unclear.

Different from the former version, the Forest Protection and Development Law 2004, the current Forestry Law 2017 adopts a value chain approach to enable sustainable forest management, thus expands its regulations from forest management, protection, development and usage through processing and trade of forest products and non-timber forest products, ensuring legality throughout the chains. This law supports and make significant advantages for REDD+ implementation, remarked by regulations to limit and control conversion of natural forests in stricter manners, for instance "Do not convert natural forests to another purpose of use, except for those projects of national importance, defence and security and/or urgency decided by the Government" (Article 14), and to adopt closure of natural forests in order to facilitate sustainable forest management, conservation of forest resources and biodiversity, prevent from severe deforestation and illegal forest exploitation which place forest resources at high risks of depletion, and enable restoration of exhausted forest, biodiversity and protection capacity (Articles 29 and 30).

The Forestry Law 2017 has strengthened community rights in forest tenure, for which it firstly accepts (village) communities as (formal) owners to those religious forests and/or watersheds which being traditionally protected and used by them (Article 16). It also emphasizes on priority of allocating forests for ethnic minorities, households, individuals and local communities who's custom, culture, religion and tradition that are closely linked with forests. Though this law does not include specific regulations about agro-forestry development, but it confirms that "the State ensure ethnic minority and forest dependent communities to be allocating forests together with land for production practices" (Article 4).

To make this law operationalized, a number of under-law guidelines as decrees, decisions and circulars that have been issued by the Government, Prime Minister and MARD, for instance:
 + Decree 156/2018/ND-CP dated 16 November 2018 issued by the Government regulating in details the implementation of some articles of the Forestry Law; and Decree 83/2020/ND-CP dated July 15th 2020 issued by GoV amending and supplementing some articles of Decree 156/2018/ND-CP
 + Decree 01/2019/ND-CP dated 01 January 2019 issued by the Government regulating forest rangers and professional forest protection forces
  + Decree 06/2019/ND-CP dated 22 January 2019 issued by the Government on management of endangered, precious and rare forest wild fauna and floral species and implementation of CITES; and Decree 84/2021/ND-CP dated September 22nd 2021 issued by GoV amending and supplementing some articles of Decree 06/2019/ND-CP
 + Decree 35/2019/ND-CP dated 25 April 2019 issued by the Government regulating administrative punishment to violations in forestry sector
+ Decree 102/2020/ND-CP dated September 1st 2020 issued by GoV regulating the Vietnam Timber Legality System
+ Circular 27/2018/TT-BNNPTNT dated November 16th 2018 issued by MARD regulating management and tracing of origins of forest products
+ Circular 28/2018/TT-BNN-TCLN dated 16 November 2018 issued by MARD regulating sustainable forest management
+ Circular 29/2018/TT-BNNPTNT dated November 16th 2018 issued by MARD regulating measures of silviculture;
+ Circular 30/2018/TT-BNNPTNT dated November 16th 2018 issued by MARD regulating List of main forestry tree species; recognition of varieties and their origins; management of materials of main forestry tree varieties;

+ Circular 31/2018/TT-BNNPTNT dated November 16th 2018 issued by MARD regulating forest boundary demarcation;
+ Circular 33/2018/TT-BNNPTNT dated November 16th 2018 issued by MARD regulating forest inventory and monitoring of forest changes

Many of these legal documents, including Decree 156, are currently being treated as the subjects of amendment by MARD in 2022 aligning with their implementation of USAID funded project on Vietnam's Sustainable Forest Management (2020-2025). One of new amendments that is to focus on institutionalizing management and operationalization of PFES related to carbon sequestration (C-PFES), making it consistence to respective regulations set in Decree 06/2022/ND-CP through formulating new regulations on rights for transferring carbon credits and mechanisms for sharing benefits based on market-oriented approaches, financial management of C-PFES revenue and payment in order to ensure principles of transparency, equity and effectiveness. Initially proposed revision assumes different options that C-PFES could be executed through forest owner, province or ministerial levels from measurement, negotiation, transaction and payment activities. Direct and indirect payment for C-PFES is also considered, but MARD prefers integrating C-PFES implementation through the VNFF system based on its comparative advantages (organization, capacity, regulations, guidelines), making it compliance to the Forestry Law.

A newly-incorporated decree on policies for investment in forestry.
This decree has been prepared by MARD and was submitted to the GoV in April 2022 for reviewing in prior its finalization, approval and promulgation expectedly within the year. The circulated draft decree provides sets of policies regulating investments for protecting and developing forests and forest products. These policies refer to activities of using and managing state budget and other eligible funding sources for investment, investment support and post-investment support in forest protection and development and processing of forest products based on the following principles:
- The State secures finance, including sources of funding for development investment and non-business activities, for management, protection and development of special use forests and protection forests that is relevant to ability of funding balance by state budget made for medium and annual terms;
- The State provides investment support for protecting production forests as natural forests in the duration of executing forest closure (stop logging) that is relevant to ability of funding balance by state budget made for medium and annual terms; and
- The State encourages and enable favourable conditions for organisations and individuals to invest and mobilize eligible funding to implement projects in protection and development of forests and forest products;

They include regulations covering cost norms with respective items of expenditure and procedures of reimbursement for which state budget will be financing in the forms of funding or financial support for different forestry activities to be carried out by and in different types of forests by different forest owners, either forest management boards, households and communities, state forestry enterprises or communal authorities among others. In general, state budget will fund for protection of special use forests, protection forests and production forests as natural ones (from VND100,000-450,000 ha/ha/year) and natural regeneration (min VND 1,000,000/ha/year in 06 year). Village communities living in the buffer zones of special use forests are financially supported VND 50,000,000/year/village to enable their livelihood development and living improvement linking with their collaborative management of forests. In addition, households as the poor and ethnic minority are also the subject to be subsidized with rice (15 kg/person/month) from governments to enable them participating in forest protection, natural regeneration with supplementary plantation, plantation of protection forest and development of NTFPs, making alternative livelihoods to replace for shifting cultivation and settlement.

To strengthen restoration of natural forests in SUF and PF, this policy provides a range of budget norms to invest in natural regeneration through new plantation (min. VND 30,000,000/ha), supplementary plantation (avg. VND2,000,000/ha/year), enrichment plantation (avg. VND 4,000,000 ha/year) or rehabilitation of natural forests (avg. VND3,000,000 ha/year). Regarding to production

forest, different norms of funding support to forest owners particularly as households as ethnic minority, poor households as Kinh people, individuals and communities residing in those communes categorized as II, III that are specified for investment activities in natural regeneration with supplementary plantation in natural forests planned for production forests, plantation of production forests and development of NTFPs, and longer rotation forest plantation on allocated, leased or legally certified forestry land (granted use rights without conflicts) as well as construction of forestry infrastructures. Beside these, organizations, households and individuals investing in production of forestry seedlings are legally subjected for investment support by governments in developing seedling forests, gardens and nurseries.

Vietnam Forestry Development Strategy for the period 2021-2030, a vision to 2050
This VFDS has been approved by Prime Minister in April 2021 at Decision 523/QD-TTg, aiming at developing the forestry sector to be an economic-technical one; protecting, developing and sustainable uses of forests and forestland planned for forestry purposes; ensuring broad and equal participation of economic sectors in forestry activities; mobilizing at maximum social resources and utilizing advancing and modern technologies; enabling forestry sector with increasingly significant contribution to socio-economic development, environmental and ecological protection, water resource security, mitigation of natural disasters, proactive and effective responses to climate change, conservation of nature and biodiversity, diversified provision of forest environmental services, creation of jobs and incomes for people. With views on sustainable development, this strategy has indicated specific objectives to be achieved by 2030 respectively to three areas of economic, social and environmental outcomes.

Economic Objectives:
- Increased values of forestry production from 5.0 – 5.5% per year
- Exported value of timber commodities and forest products US$18-20 billion by 2025 and US$23-25 billion by 2030; Domestic market consumption values at US$5 billion by 2025 and over US$6 billion by 2030
- Planted production forest about 340,000 ha/year until 2030; and increased value of income a multiple 1.5 times by 2025 and 02 times by 2030
- Planted protection and special use forests with native, endangered, precious and rare species an average at 4000-6000 ha/year
- Restored protection and special use forests an average at 15,000 ha/year
- Harvested yield of timber from planted forests as 35 mil m3 by 2025 and 50 mil m3 by 2030
- Developed forest environmental services, diversified and expanded eligible sources of revenues; increased total revenue an average at 5%/year
- Enhanced quality of natural forests, productivity and effectiveness of planted forests and agro-forestry systems; achieved area of certified sustainable forest management over 0.5 million hectares from 2021-2025 and over 01 million hectares from 2026-2030

Social Objectives:

- Trained labour rate in forestry accounted for 45% by 2025 and 50% by 2030 and ensured gender equity;
- Percentage of households in uplands and forest dependent ethnic minority people engaged with forestry commodity production accounted for 50% by 2025 and 80% by 2030
- Increased average incomes in forestry activities by ethnic minority twice by 2025 compared to that in 2020, contributed to poverty reduction in ethnic minority areas at the rate of 3% per year

Environmental Objectives:

- Remained forest cover nationwide from 42-43%, effectively contributed to implement the NDC commitments in reduction of GHG emissions, targeting to a green Viet Nam;

By 2030, 100% of the forest area under organizational owners to be of sustainable management; 10% and 20% of the natural forest area to be enhanced with quality and effectiveness of biodiversity

conservation, and protection ability through the periods 2021-2025 and 2026-2030 respectively; maximized mitigation of forest violation cases;

The VFDS provides a twin approach directing the country's forestry development in next 10 years, consisting of directions for sectoral and regional development which many are fitting to policies and actions for REDD+ being framed for the NRAP. For sectoral directions, the strategy focuses on forestry planning in principle of compliance to the Planning Law 2017 as well integration of other planning (as national land-use, SFE land-use reform) and strategies (as biodiversity, climate change, livelihood support, sustainable forest management, agro-forestry development, etc.); forest management, protection and biodiversity conservation of forest ecosystems, focusing on activities of retainment, restoration and quality enhancement of the existing natural forests in favour of biodiversity conservation, provision of forest environmental services, development of ecotourism, NTFPs, agro-forestry, plantation and restoration, and mitigation of deforestation and forest degradation, including restriction of conversion of natural forests to non-forestry uses. It stresses on strengthening capacity of forest owners in forest governance as well linkages between (forest) conservation and development with active participation of stakeholders in forest management based on collaborative community engagement, fair sharing of benefits, forest certification, forest monitoring and forestry information management systems among others.

For the regional directions, the strategy has identified priorities in sustainable forestry development for each geo-ecological regions: Northern uplands and mountains, Red river delta, North Central, South Central, Central Highlands, South East, and Mekong river delta. Some of these regions would have their own forestry development plans. In the Central Highlands, the strategy prioritises on strict protection of the remaining natural forests, termination of illegal logging and deforestation, gradual restoration and development of forests with relevance given to regional resources and natural conditions; determination of stable forestry zoning for watersheds, special use forests, biodiversity conservation, ecotourism and leisure, production forest, agro-forestry, timber processing industry and key NTFP development (Bời lời đỏ *Litsea glutinosa*, Xoay *Dialium cochinchinensis*, Macadamia, Song mây / Rattan, Ngoc Linh ginseng *Panax vietnamensis*); enhancement of management of the existing special use, protection forests and high conservation value landscapes through adoption of co-management and community forestry. The entire regional program for forest protection, restoration and sustainable development in the Central Highlands for the period 2016-2030 that has been detailed at Decision 297/QD-TTg issued by Prime Minister on 18 March 2019. In the South-Central Coast region, such priorities are given to protection and development of protection forests as watersheds and coastal forests, prevention of sand erosion, drought, reclamation of water resources and cultivated land; expansion of forest plantation to prevent flying-sand, wind and waves; expansion and enhancement of the existing special use forests management; development of ecotourism and leisure, long-rotation plantation, agro-forestry and NTFPs (such as cinnamon, Dầu rái *Dipterocarpus alatus*, Trôm *Sterculia foetida*, Lòn bon *Lansium domesticum*, Xoay *Dialium cochinchinensis*, Ngoc Linh ginseng *Panax vietnamensis*, Đẳng sâm *Codonopsis pilosula*, Rattan, Ươi). In this regard, recently Prime Minister has approved a national plan for protection and development of coastal forests in response to climate change and promotion of green growth for the period 2021-2030 (known as Decision 1662/QD-TTg dated 4th October 2021)

To implement this VFDS 2021-2030, MARD has worked out an action plan (as Decision 3458/QD-BNN-TCLN dated 03 August 2021) determining key activities and initiatives to be developed and performed, including the NRAP 2016-2030 mentioned above, in response to the strategy's objectives, directions and tasks. VNForest is the responsible agency for all key activities listed below:

	Key Activities	Approval time	Implementation duration
1	Developing and implementing investment policies for forest protection, development and processing and trade of forest products	2021/2022	2021-2030
2	Developing policies to facilitate mobilization of social resources for management of natural forests, development of community forestry, forest environmental services	2024/2025	2025-2030

3	Developing policies to enable management boards of special use and protection forests to be acting as non-business public service supplies/provision	2021	2021-2030
4	Developing policies to encourage innovation and scientific, technological application in commodity processing of timber and NTFPs and their branding, market development	2024/2025	2025-2030
5	Developing and implementing the national forestry master-planning for 2021-2030, a vision to 2050	2021/2022	2021-2030
6	Developing and implementing national programs on sustainable forestry development for 2021-2025	2021	2021-2025
7	Implementing the national program on REDD+ to 2030		2021-2030
8	Implementing the regional program on forest protection, restoration and sustainable development in the Central Highlands for 2016-2030		2021-2030
9	Implementing the national program on plantation of 01 billion trees for 2021-2025		2021-2025
10	Developing and implementing the national program on development of sustainable timber and NTFP processing industry for 2021-2030	2021/2022	2021-2030
11	Developing and implementing the national program to pilot forest environmental release for plantation and development of medical herbs	2021	2021-2025
12	Developing and implementing the national programs on capacity building for special use and protection forest systems, for ranger forces in forest fire prevention and treatment for 2021-2030	2021; 2024/2025	2021-2030
13	Developing and implementing the national program on sustainable and intensive NTFPs development	2024/2025	2021-2030
14	Developing and implementing the national program on sustainable development of Macadamia for 2021-2030	2021	2021-2030
15	Implementing the sub-project on forestry economic development linking forest protection with improvement of community income within the NTP on Socio-Economic Development in Ethnic Minority and Mountain Areas 2021-2030	2021/2022	2021-2030

To strengthen management of the VFDS 2021-2030 implementation, MARD has developed and promulgated **an Indicator Framework for Monitoring and Evaluation of VFDS Performance** in the period 2021-2030 (known as Decision 1382/QD-BNN-TCLN dated April 15th 2022). This consists of 40 indicators measuring different aspects (or criteria) of the strategy, such as: increase rate in the value of forestry production, values of consumed forest products, timber harvest from planted forests, forest development, improvement of forest productivity and quality, development of forest environmental services, sustainable forest management, income values generated from forests, capacity building for organizations and individuals in forestry sector, participation of upland dwellers in forestry production, forest cover, quantity of planted trees, forest protection, biodiversity conservation and forestry law enforcement, improvement of forestry sector management efficiency, and capital mobilization. It is clearly this framework does not include any indicator to enable monitoring and measuring reduction of carbon emissions caused by deforestation and forest degradation, or increases in carbon sequestration and restoration from forest plantation, conservation and restoration. As indicated by this decision, VNForest will be responsible for developing an operational guidance to use these M&E indicators and facilitating DARDs to collect, synthesize and report provincial performance of VFDS in according to these indicative measures.

National Program on One Billion Trees Plantation 2021-2025
A strategic action supporting to REDD+ performance, as stated by the VFDS 2021-2030, that Viet Nam continues implementing and enforcing policies "closure of natural forests to 2030", no timber logging permitted in natural forests, adopting sustainable use of biodiversity and genetic resources, species and ecosystems. This is also echoed by the national program on "Plantation of one billion trees for the period 2021-2025" which was approved by Prime Minister at his Decision 524/QD-TTg dated 01 April 2021, making a nationwide effort to operationalize political commitments on proactive responses to climate change and enhancement in management of natural resources and environmental protection. Specifically, this 5-year program plans to plant 01 billion trees throughout the country, of which 690 million trees are of scattered plantation in urban and rural areas while 310 million trees (180,000 ha) to be of concentrated plantation in special use forests and protection forests (70 million trees or 30,000 ha) and newly-planted production forests (240 million trees or 150,000 ha). This plantation program will be integrating into the implementation of the Vietnam National Program

on Sustainable Forestry Development for the period 2021-2025 being developed by MARD and other national target programs like NRAP. This plantation campaign focuses mobilizing resources for plantation based on eligible donation and contribution from business sectors, organizations, individuals and international funding. Principal guidelines on tree selection for both scattered and concentrated plantation are also included in the program. Many provinces have been developing their action plan to implement this 01 billion tree plantation.

National Program on Sustainable Forestry Development in the period 2021-2025 (SFDP)
Approved by Prime Minister at Decision 809/QD-TTg on 12th July 2022, this program aims to protect and sustainably develop the whole existing forests and newly-established forests between 2021 and 2025, contributing to stable maintenance of national forest cover at about 42%; to continue increasing forest quality, matching requirements of supplied timber materials for production and consumption; to protect environment and protection functions, conserve biodiversity and mitigate negative impacts caused by natural disasters, and strengthen adaptation to climate change. It also targets to increase in value of forestry production (5.0-5.5%/year) and achieve a total value of exported timber and NTFPs about USD20 billion by 2025, of which exported NTFPs accounted over USD1.5 billion, added by more jobs and incomes created for people participating in forest protection, development and plantation.

Total investment for this 5-year program is about VND 78,585 billion, of which 17.4%, or VND 13,682 billion, comes from state, and the rest (VND 64,903 billion or 82.6%) to be mobilized from other eligible capital sources. In regard to state budget, GoV will secure a capital of about VND 7,484 billion from central budget, equivalent to 9.5% of the total investment of the program, and provincial budget will invest VND 6,198 billion or 7.9% of the total investment, underlined by provincial plans on mid-term public investment for the period 2021-2025.

This program prioritizes its investment for the following issues:
(a) Forest protection, prevention and treatment of forest fire, and development of special use forests, protection forests and coastal forests
- Investing for protection and sustainable development of the existing area of special use forests, protection forests and production forests as natural forests, and effectively implementing programs and projects on biodiversity conservation of forest ecosystems;
- Investing for restoration and development of protection forest systems, especially watersheds and coastal protection forests;
- Investing for facilities/equipment using in protection, prevention and treatment of forest fire, construction of infrastructure for forest protection, conservation and development at forest management boards, ensuring their regular operation and forest patrolling; supporting construction of forestry roads in the areas of socio-economic hardship and/or of concentrated material timber production;
- Organizing implementation of projects on national investigation, assessment and monitoring of forest resources; development, finalization and operationalization of automatic systems on forest fire tracking; application of advancing technology in management, investigation, inventory and monitoring of forest changes
(b) Development of forest tree varieties and long rotation plantation
- Investing and supporting investment in development of varieties of forestry trees and NTFPs in order to enhance productivity and quality of forest products
- Supporting plantation of long rotation production forests and transformation of short-term to longer rotation production forests
(c) Development of NTFPs based on regional and local advantages, focusing on concentrated plantation to supply materials linking with processing industries, matching market demands and consumption. The program anticipates to establish 700,000 – 800,000 ha of NTFPs plantation by 2025 nationwide;

Regarding to measures/solutions to implement the program, management of forest and forestry land planning is a priority which covers the following requirements in focus:

- Developing and deploying the National Forestry Planning for the period 2021-2030, a vision to 2050 that matching with national land use planning, national forestry development strategy, national biodiversity strategy; ensuring sustainable forest management; integrated utilization and conservation of natural resources; increase of forest economic values, forest dependants' livelihoods, and adaptation to climate changes
- Facilitating strict control of converting forests to other uses; strengthening law enforcement to forest violations with extent to illegal transaction of forests and forestry land;
- Continuing allocation and lease of forests to households, individuals and local communities and other economic entities in according to existing regulations to ensure that all forests are managed by actual forest owners, and effectiveness in forest management and development
- Encouraging collaboration and joint-venture in forest plantation, development, and establishment of concentrated material timber production to advance timber processing industries;

Managed and executed by MARD, this program is implemented nationwide and excluded from other forestry development activities invested by national target programs (NTPs) and those programs and projects using ODA, preferential loans, non-refundable aids from international donors. Their implementation will be integrated in order to help achieve national forestry objectives and tasks planned by this program. It stresses that forest protection and development activities implemented in those communes of hardship (areas II and III) belonging to ethnic minority and mountainous regions will be implemented and financially secured by the NTP on Socio-economic Development in Ethnic Minority and Mountainous Areas in the period 2021-2030.

Regarding to institutional arrangement for provincial implementation, this program requires each province to establish a Provincial Steering Committee on Sustainable Forestry Development Program based on consolidation of the former operated in the period 2016-2020. DARD is in charge as the standing institution for the program, assisting the provincial steering committee to facilitate the program implementation. This program also requires collaboration and integration with implementation of NTPs, especially forestry related projects framed by the NTP on SED in Ethnic Minority and Mountainous Areas, and other national plans and programs such as REDD+/NRAP (as Decision 419/QD-TTg in 2017), Strengthening Capacity for Management of Protected Areas System to 2025, a vision to 2030 (as Decision 626/QD-TTg in 2017), Forest Protection, Restoration and Sustainable Development in the Central Highlands Region 2016-2030 (as Decision 297 in 2019), Sustainable Forest Management and Forest Certification (as Decision 1288/QD-TTg in 2018), Plantation of One Billion Trees in the period 2021-2025 (as Decision 524/QD-TTg in 2021),…

Regional Program on Forest Protection, Restoration and Sustainable Development in the Central Highlands for the period 2016-2030
Approved by Prime Minister at Decision 297/QD-TTg dated March 18th 2019, this policy aims to prevent and force back the forest loss and gradually restore and develop forests in the Central Highlands, targeting to 2030 the forest area reaches to 2.72 million hectare and forest cover increases at 49.2% with secured sustainable forest management, protection and development, environmental protection, biodiversity conservation, and provision of forest environmental services, contributing to socio-economic development in the region. This policy offers to develop a regional project on the Central Highlands' forest protection, restoration and sustainable development to be implemented from 2021-2030, focusing on urgent interventions with extent to forest protection and development, high-tech forestry development, community forest management, livelihood improvement, value-chain forestry development, development of production forests for timber supply plus sustainable forest management and certification. This decision is known as a responsive policy in compliance to an order by the Party on "Forest Closure" at the Directive 13-CT/TW issued in 2017.

Specifically, this policy requires all Dak Lak, Dak Nong, Gia Lai, Kon Tum, Lam Dong provinces making efforts to protect 2,246,068 ha of existing natural forests (by 2019), prevent the on-going deforestation and encroachment of forestland, illegal forest exploitation and transportation of forest products and wildlife, as well as proactively prevent forest fire and critically reduce the area of forest loss by any reasons. Regarding to forest management, this policy requires to definitively handle

282,896 ha of forests and forestry land which their tenure and use that are being overlapped, disputed and encroached; strengthen community forest management and promote sustainable upland cultivation toward agro-forestry practices; continue forest allocation together with land allocation for communities and households to manage from those areas being managed by communal authorities. It also targets to forest restoration and development through planting 7,100 ha of special use forests and protection forests (470 ha/year), 136,600 ha of production forests (9,100 ha/year), zoning for regeneration an average of 36,600 ha/year consisting new and follow-up establishment, and maintaining scattered plantation 48,4 million trees. All these objectives are still sufficient for directing implementation from 2021 to 2030 but their performance from 2016 to 2020 has not yet been clearly reviewed and/or assessed by MARD and provinces.

Protection and development of coastal forests in responses to climate change and promotion of green growth for the period 2021-2030
Approved by Prime Minister at Decision 1662/QD-TTg dated October 4th 2021, this policy aims at managing, protecting and sustainably using the existing and new coastal forests in order to strengthen their protective functions, protection of environment and coastal infrastructure, prevent desertification and soil degradation, conserve biodiversity, mitigate GHG emissions, create jobs and income for coastal dwellers as well as reduce risks from natural disasters and climate change. For those coastal provinces like Ninh Thuan, this policy covers three main tasks including (i) effective management, protection and use of coastal natural forests as protection, special use and plantation forests; (ii) forest restoration and development though establishing new plantation, enrichment and regeneration of mangrove forests and coastal terrestrial ones; and (iii) capacity building and livelihood development in order to engage local communities in protection and development of coastal forests. This policy is an instrument to implement the national strategy on forestry development of Viet Nam from 2021-2030.

Enabling timber legality, sustainable forest management and nature conservation
The VPA-FLEGT (Voluntary Partnership Agreement on Forest Law Enforcement, Governance and Trade) mutually signed between Viet Nam and EU in April October 2018 has started taking effect since June 2019. Viet Nam is one of 15 countries globally, and 05 in Asia, that have been negotiating such VPA FLEGT with the EU. This VPA has provided a legal framework aiming to ensure all timber products imported into the EU from Viet Nam are legally produced and come from legal timber sources. It highlights joint commitment by both parties particularly towards enabling sustainable management of all types of forests in Viet Nam. Enclosed to VPA, a Vietnam Timber Legality Assurance System (VNTLAS) and a FLEGT Licensing Scheme that are already designed, providing principles and regulations covering both exports of timber and timber products from Viet Nam to the EU as well as domestic market (Viet Nam) and all other export markets. It is believed that VPA would make significant contribution to control and fight illegal logging and facilitate legal trade of timber and timber products from sustainably managed forests with meaningful considerations of environmental and social safeguards in Viet Nam. To implement this agreement, a number of legal documents has been promulgated or drafting as results from institutionalizing the Forestry Law 2017:
- Decree 120/2020/ND-CP dated September 1st 2020 by Government of Viet Nam regulating Vietnam Timber Legality Assurance (VNTLAS), taken effect as October 30th 2020
- Decree 06/2019/ND-CP dated January 22nd 2019 and Decree 84/2021/ND-CP dated September 22nd 2021 issued by Government of Viet Nam regulating management forest faunal and floral endangered, precious and rare species and implementation of CITES
- Decree 35/2019/ND-CP dated April 25th 2019 issued by Government of Viet Nam regulating administrative punishments to violations in forestry sector
- Circular 27/2018/TT-BNNPTNT dated November 16th 2018 regulating management and tracing of forest products (to be revised in 2022)
- Circular 28/2018/TT-BNNPTNT dated November 16th 2018 regulating sustainable forest management

VPA-FLEGT is also included in the EVFTA (European-Vietnam Free Trade Agreement) which has been taking effect since August 1st 2020. Article 13.8 of EVFTA's Chapter 13 - Trade and Sustainable Development addresses sustainable management of forest resources and trade of forest products,

requiring Viet Nam to adopt measures in consistence with national regulations and international treaties which Viet Nam as of obligated membership to strengthen conservation of forest resources and fight against illegal logging and trade of timbers, encourage facilitation in trade of forest products harvested from sustainably managed forest areas. This Chapter also covers Viet Nam's roles and responsibilities to implement its international commitments in biodiversity conservation such as CBD, CITES (Article 13.7) or climate change (Article 13.6) to promote domestic and international carbon markets including through carbon credit transaction and REDD+.

Promoting compliance to VPA-FLEGT and operationalization of VNTLAS that are critically important for REDD+ implementation in Viet Nam as they are functioning to prevent from illegal logging and secure legality of timber production and sustainable forest management. These have been included in **The National Projection on Sustainable and Effective Timber Processing Industry in the period 2021-2030** which is approved by Prime Minister at Decision 327/QD-TTg dated March 10th 2022. This policy aims at developing sources of legal woody materials from:
- Raising awareness of people and business to engage them with intensive forest plantation, improvement of forest productivity and quality, quality control of forestry seedlings; and ensuring 90% of the planted forest area with well-certified and managed varieties;
- Incentivizing collaboration between timber processing enterprises and forest owners and establishing larger-sized woody material production/plantation areas; expanding the forest area of sustainable management certification to 0.5 million ha by 2025 and 1.0 million ha by 2030;
- Effectively implementing the national program on 1 billion tree plantation; sustainably and effectively managing and utilizing the existing forest area and nearly 1 million ha of rubber in order to supply large-sized timber materials from planted forests with volumes of 27 million m3 by 2025 and 35 million m3 by 2030 plus 7-8 million m3/year harvested from scattered plantation and rubber timber, enabling to match about 80% of total demand in timber materials for production and processing.

Prime Minister's Directive 05/CT-TTg dated May 18th 2022 on Strengthening management of forest protection and solving illegal deforestation and forestland encroachment
This administrative instrument is stated as a government attempt to follow up its commitment to COP26, aiming at making effective prevention from increasing illegal deforestation and encroachment of forestland being happened and threatened to forest resources. It requires provincial leadership (PPCs) with critical attention to strictly address monitoring, law enforcement, litigation and punishment to those informed violations that linking to deforestation, conversion of forests and misuse of forestland, particularly in SUF and PF driven by spreading market demands in land use for housing, gardening and leisure facilities particularly happened in the Central Highlands' provinces. In particular, forest rangers (known as Forest Protection Departments) are requested to review, inspect and assess all areas of natural forests in their locations, especially those being managed by management boards of SUFs and PFs, in order to timely disclose, prevent and solve activities damaging forest resources. It asks PPCs with strict management of forests and forestland areas that are legally ratified and full integration of forest and forestland information that are made available in the provincial master planning 2021-2030. This directive also expects provinces strengthening forest allocation and lease in association with land allocation and lease especially from the forestland areas being managed by communal authorities (CPCs). Together with provinces, MARD, MONRE and Ministry of Public Security are presented as those key actors to implement this directive.

Environmental Protection Law (2020): The Environmental Protection Law of 2020 clarifies the establishment of a "carbon market" as an economic tool to promote the reduction of greenhouse gas emissions in the country. This market contributes to fulfilling the country's commitment to emission reduction under the Paris Agreement. The law introduces the polluter pay principle for carbon emissions and emphasizes the development of domestic and international carbon markets.

Decree No. 06/2022/ND-CP on Mitigation of Greenhouse Gas Emissions and Protection of the Ozone Layer (2022): This decree establishes the mechanism for exchanging and offsetting carbon credits, which involves registering and implementing programs and projects to reduce greenhouse gas emissions and issue internationally or nationally recognized carbon credits. Carbon credits generated

from these programs and projects can be traded on the carbon market or used to offset greenhouse gas emissions exceeding allocated quotas. The decree encourages organizations, households, individuals, and communities to adopt sustainable forest management practices, protect and enhance forest cover, biomass, and quality, thereby increasing their capacity to absorb greenhouse gases. Furthermore, it outlines domestic and international carbon credit exchange and offset mechanisms in accordance with the law and international treaties, with the participation of all relevant entities.

Decree No. 08/2022/ND-CP   Detailing a number of articles of the Law on Environmental Protection (2022): This decree focuses on payment for natural ecosystem services and specifies that forest environmental services of forest ecosystems should be regulated according to the provisions of the forestry law. Payment for natural ecosystem services includes services provided by wetland ecosystems, marine ecosystems, mountain ecosystems, caves used for business, tourism, recreation, decoration, aquaculture, and more. However, the specific details regarding payments for emissions reductions and removals are still unclear.

Updated Nationally Determined Contribution (NDC) (2022): The revised NDC sets more ambitious targets for reducing greenhouse gas (GHG) emissions in Viet Nam. The country commits to reducing emissions by 15.8% unilaterally and by 43.5% with international support. The agriculture and land use, land use change, and forestry sectors are among the main sectors that will contribute to achieving these targets.

National Climate Change Strategy with Vision to 2050 (2022): This strategy aligns with the updated NDC targets and aims to reduce GHG emissions by 43.5% compared to a business-as-usual (BAU) scenario by 2030. It also seeks to increase carbon sequestration by 20% in the agriculture and land use, land use change, and forestry sectors. Viet Nam's ultimate goal is to achieve net-zero emissions, with emissions peaking by 2035, by the year 2050.

Decree No. 107/2022/NĐ on Piloting Carbon Payment for Forest Environmental Services in the North Central Region (2022): Under this decree, the Ministry of Agriculture and Rural Development (MARD) represents Viet Nam in signing agreements related to the transfer of emissions reduction results. The proceeds from the program are considered as revenues from forest environmental services for carbon sequestration and storage, and they are accounted for separately from other service revenues. The implementation costs of the program are not overlapped with other state budget expenditures. The criteria for determining the distribution of proceeds to each province are based on the results of emissions reduction and the provincial forest area.

The National Strategy on Biodiversity of Vietnam to 2030, a vision to 2050
This strategy prepared by MONRE in compliance to implement the Biodiversity Law 2008 and Environmental Protection Law 2020, has been approved and promulgated by Prime Minister at the Decision 149/QD-TTg dated January 28th 2022. This policy aims at increasing the area of protected and restored natural ecosystems and ensuring their integrity and connectivity and conserved and sustainably used biodiversity in order to contribute to socio-economic development directing towards green economy and proactive response to climate change. By 2030, this strategy targets to expand and strengthen management effectiveness of the country's natural heritage systems and protected areas, of which 70% sites to be assessed management effectiveness and at least 20% of degraded natural ecosystems to be restored; the population status of at least 10 endangered, precious and rare wildlife species to be improved; and values of biodiversity and ecosystem services to be assessed, maintained and enhanced through sustainable uses with limited negative impacts, adoption of nature-based solutions; promotion of fair access and equal sharing of benefits from utilization of genetic resources. In response to these objectives, the strategy has proposed a wide range of focal works and tasks, including NRAP implementation, deployment of GreenList standards for protected area management and/or OECM (Other Effective Conservation Measures) outside protected areas, co-management, ecological restoration and regeneration in biodiversity corridors and high conservation valued areas, ecological agriculture, ecotourism development, pro-biodiversity responsible commodity production and supply among many others. It also recommends to explore and utilize indigenous knowledge and nature-based solutions in enhancing carbon sequestration linking with biodiversity conservation and sustainable use and community livelihood improvement. As requested by this

strategy, all provinces are assigned to develop their provincial action plan on biodiversity but as usual, it is not reliable that annual budget for biodiversity conservation will be secured by provinces.

The National Project Proposal on Capacity Building for Forest Rangers in forest management, protection and forest fire prevention and treatment for the period 2021-2030
Approved by Prime Minister in February 2022 (Decision 177/QD-TTg), this proposal aims at mitigating at least 10-15% with extent to the number of forestry violations and the area of damaged forest in comparison to theirs recorded in the period 2015-2020, with references to particularly those behaviors associated with deforestation, exploitation and transport of illegal timber and forest products and forest fires. It targets at least 50% of those forces in forest management, protection and forest fire prevention and treatment that are intensively trained and equipped with facilities for forest protection and forest fire treatment by 2025 as well as enhanced forecast, early detection and warning of forest fires and losses. In collaboration with MPI, MoF, Ministry of Defence, Ministry of Police and PPCs, MARD is assigned to lead this program implementation, mobilizing funding from state budget (expenditures of development investment, regular spending, contingency) and eligible grants and aids, making this integrated into the sustainable forestry development programs 2021-2025 and other NTPs and relevant projects. Main tasks to be implemented through this program will be covering (i) education and training for forest rangers, professionalized forest protection forces and community-based forest protection teams in management of forest protection and fire prevention and treatment, law enforcement, forecast and warning of forest fire, forest loss and degradation with high-tech application, etc.; (ii) enhancement of capacity in forecast and early detection of forest fire and loss through developing case-response scenarios, collaboration mechanisms between army forces, police, forest rangers and civil military forces; facilitating digitalized monitoring and inventory of forest resources with satellite and GIS technological application; and (iii) investment of equipment, facilities and infrastructures for management of forest protection and fire prevention, e.g. forestry roads, fire-preventive trails, water channels, reservoirs, restoration, pump-stations, fire-towers, etc from central to local bodies with priority given to district FPDs, ranger stations, forest protection stations. At provinces, on behalf of DARD, FPD will be responsible for developing investment proposals and submitting PPCs, MARD and relevant ministries to seek funding for this program implementation in their locations, particularly for facilities and infrastructures for forest fire prevention and treatment, installation of automatic monitoring systems to detect and warn forest fires, high-tech application in forest monitoring, detection of deforestation and forest degradation, forest patrol, etc.

6.1.4 Other related policies

The Voluntary Partnership Agreement between the European Union and the Socialist Republic of Viet Nam on forest law enforcement, governance and trade (FLEGT) signed in 2018 provides a legal framework to ensure all imports into the European Union from Vietnam of timber and timber products have been legally produced, to promote trade in timber products that are from sustainably managed forests, and form a basis for cooperation on enhanced forest law enforcement and governance. There may be opportunities for greater policy alignment between REDD+ and the **2018 Law on Crop Production** (Law No. 31/2018/QH14) which does not reference deforestation-free agriculture, but does mandate crop production shall comply with laws on environmental protection, and strategies to adapt to climate change and decrease greenhouse gas emissions are to be implemented. Similarly the **2017 Planning Law**, covering a ten-year planning period from 2021 to 2030, (with a vision to 2051) enables spatial and sector planning at Provincial and National levels, but does not provide clarity on how national target programmes, such as REDD+, relates to other policy goals related to poverty or sector growth plans. However, the Planning Law does enable implementation of some NRAP activities, such as defining spatial distribution and targets for agricultural and forest land use, and defining areas prohibited from exploitation. There are opportunities in the next 5-year development planning cycle to encourage greater alignment, and that is a key activity RECAF will pursue at Provincial and district levels. **Vietnam's Sustainable Coffee**

Plan to 2020 and Vision to 2030, does not include REDD+ or deforestation-free commitment. Given the EU Deforestation Regulation.

The National Strategy on Sustainable Agricultural and Rural Development for the period 2021-2030, a vision to 2050, presented at Decision 150/QD-TTg dated January 28th 2022 by Prime Minister, partly aims at "…improving income, living quality, roles and position of agricultural producers, creating non-agricultural jobs to develop diversified livelihoods and sustainably reduce poverty for rural people, ensuring opportunities for equal development among regions. Developing agriculture and rural economy that closely link with new rural development toward highly affective ecological agriculture, modernized rural and civilized farmers. One of its objectives to 2030 that is to develop green, environmentally friendly, climate change adapted agriculture, reduce rural environmental pollution, target to reduce 10% of GHG emissions comparing to that in 2020; stabilize forest cover at 42% and increase the forest area with certified sustainable management more than 1 million hectares. Some of key directions and tasks covered by the strategy as in the following:

- As a strategic production (area), the forestry sector to focus on strict management, protection and sustainable use of the existing natural forests; strengthening natural regeneration and quality improvement of special use forests and protection forests particularly in those locations of high environmental sensitivity (e.g. reservoirs), development of ecotourism, under-canopy economics (NTFPs, medicine plantation), agro-forestry and forest environmental services, including forest carbon credit transaction and trade; promoting decentralization and devolution in management and use of forests and forestland for organizations, communities, households and individuals in order to maximize resource mobilization for sustainable management, protection, development and use of forests and land planned for forestry purposes and for improvement of local livelihoods, including expansion of plantation of forests and perennial, high-biomass trees;

- Strengthening collaboration and alliance in development of advancing agricultural value chains and models through enhancing demonstration and replication of market oriented ecological, green, organic, circular, smart and high-tech agricultural production in combination with provision of services such as experiential tourism, environmental protection, skills training, technological transfer, etc.; transforming informal labors to be formalized in agricultural production through institutional reforms, support to access credit, market and social insurance.

Regarding to measures for implementation, this strategy also recommends those to reduce GHG emissions through effective management and economical use of natural resources as inputs, treatment and reuse of agricultural by-products and wastes; sustainable management and use of exiting forests and expansion of longer rotation timber plantation as well as natural regeneration in order to rise forest cover and capacity of carbon removals and sequestration; development of close monitoring mechanisms to promote green agriculture with low carbon emissions as well as implementation of international and regional agreements like FTAs. In general, this strategy will cover implementation of all action plans of Viet Nam related to COP26 commitments, carbon market development, environmental protection, biodiversity conservation, water resources, disaster management, forestry and land use, etc (many of them to be in place as 2022).

According to the feasibility study by VNForest/MARD for the draft of National Sustainable Forestry Development Program 2021-2025[50], it proposes proportions of forest areas in different types to be protected aligning with the subjects of investment by different NTPs as presented below:

Forest types	Unit	Area	Sources of Investment		
			NTP on SFD 2021-2025	NTP on SED in EMM	Undefined
Forest protection		**10,943,804**	**4,374,410**	**5,412,144**	

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[50] Source: https://tongcuclamnghiep.gov.vn/LamNghiep/Index/bo-nong-nghiep-va-phat-trien-nong-thon-co-cong-van-so-6151bnn-tcln-ngay-2892021-ve-viec-gop-y-ho-so-bao-cao-nghien-cuu-kha-thi-chuong-trinh-phat-tr-4417

1	**Natural forest**		**10,231,378**	**3,879,192**	**5,194,936**	
	Special use forest	ha	2,113,827	2,077,762	36,065	
	Protection forest	ha	4,090,114	1,402,301	2,687,814	
	Production forest	ha	4,027,436	399,129	2,471,057	1,157,250
2	**Plantation forest**		**712,426**	**495,218**	**217,208**	
	Special use forest	ha	97,208	71,057	26,150	
	Protection forest	ha	615,219	424,161	191,057	

The National program on resettlement in the areas of natural disasters, extreme hardship borderline, islands, free migration and special use forests in the period 2021-2025, a vision to 2030, declared by Prime Minister's Decision 590/QD-TTg dated May 18th 2000, that is institutionalized to implement the GoV's Resolution 22/NQ-CP dated March 1st 2020 to stabilize free migrants and management and use of agricultural and forestry re-arranged land. Excluding from the NTP on SED in ethnic minority and mountainous areas (as Decision 1719/QD-TTg), this program is partly targeted to those households and individuals freely migrated to and/or being legally lived within special use forests that need to be re-arranged and stabilized for long-term settlement and living improvement. In the period 2021-2025, it aims at stabilizing settlement for 10,526 households who are free migrants and being resided in special use forests nationwide, and attempting to make free migration in control with livelihood improvement from their struggles with poverty, poor housing and shortage of land use, clean water and necessary infrastructures with geographical priority given to those areas seriously facing risks from landslides, flash flood and other forms of natural disasters. While MARD is assigned as the standing agency in collaboration with MPI, CEMA and involving ministries to implement this program, PPCs are requested to develop provincial implementation plans 2021-2025 and arrange provincial budget in coordination with other eligible resources to place their plans in operation. Beside land arrangement for housing, cultivation and building infrastructure, this program plans to support target households developing production through engaging them with collective economic actions like rural cooperatives, value chain-based production connectivity, processing and storage of agricultural products, access to market information and trade promotion like OCOP, community tourism, training and technological transfer to diversify livelihoods and credit access in favour of agricultural development.

Policies related to poverty reduction and socio-economic development in ethnic minority and mountainous areas are discussed in paragraph 4.1.2.

6.1.5 REDD+ actors and implementation arrangements.

General government structure in relation to forest management

The institutional arrangements for NRAP implementation, as determined by the PM Decision 419/QD-TTg, follow the general institutional and legal frameworks for management of forestry, agriculture and land-use sectors. At the central level, under the leadership of Government, MARD is formally delegated as the national focal point for NRAP implementation, taking overall responsibilities for state management of forestry, agriculture and rural development, collaborating with other ministries and provincial authorities (PPCs) to coordinate, support and facilitate NRAP and PRAPs implementation. Under MARD, DOF is responsible for forest management nation-wide in accordance to the Forestry Law 2017, acting as national executing agency of forestry strategy, sustainable forestry development and NRAP. Another ministry, MONRE, the national focal point for UNFCCC and other environmental conventions, also takes significant responsibilities for state administration of NRAP in term of land-use, climate change, biodiversity and environmental safeguards.

At the provincial level, PPCs take overall leadership and responsibility for state management of land-use, forestry, agriculture and rural development, PPCs decide on the development of forest land tenure, and the allocation of funds to departments and projects/ programs, and through tax and subsidies. PPCs direct sectoral departments, district authorities and relevant large forest owners to implement local forestry-related targets set by provincial policies, planning, action plans and programs. Under PPCs, DARDs and its associates like provincial FPDs and VNFFs, play as key executing agencies for forest management, protection and development from their implementation and compliance to forest legislations and provincial plans on sustainable forestry implementation and PRAPs.

At the district level, District Forest Protection Unit (FPU) is the line agency of sub-FPD. FPU has field officers stationed at the commune level, who help Communal People's Committee (CPC) in forestry issues at the local level. Most forests are managed by forest Management Boards (special use forest or protection forest) or by state forest enterprises (production forest). Smaller areas have been allocated to households or communities. In a number of locations, CPCs are in charge of managing a large area of forests that have not been allocated to any specific owners or users.
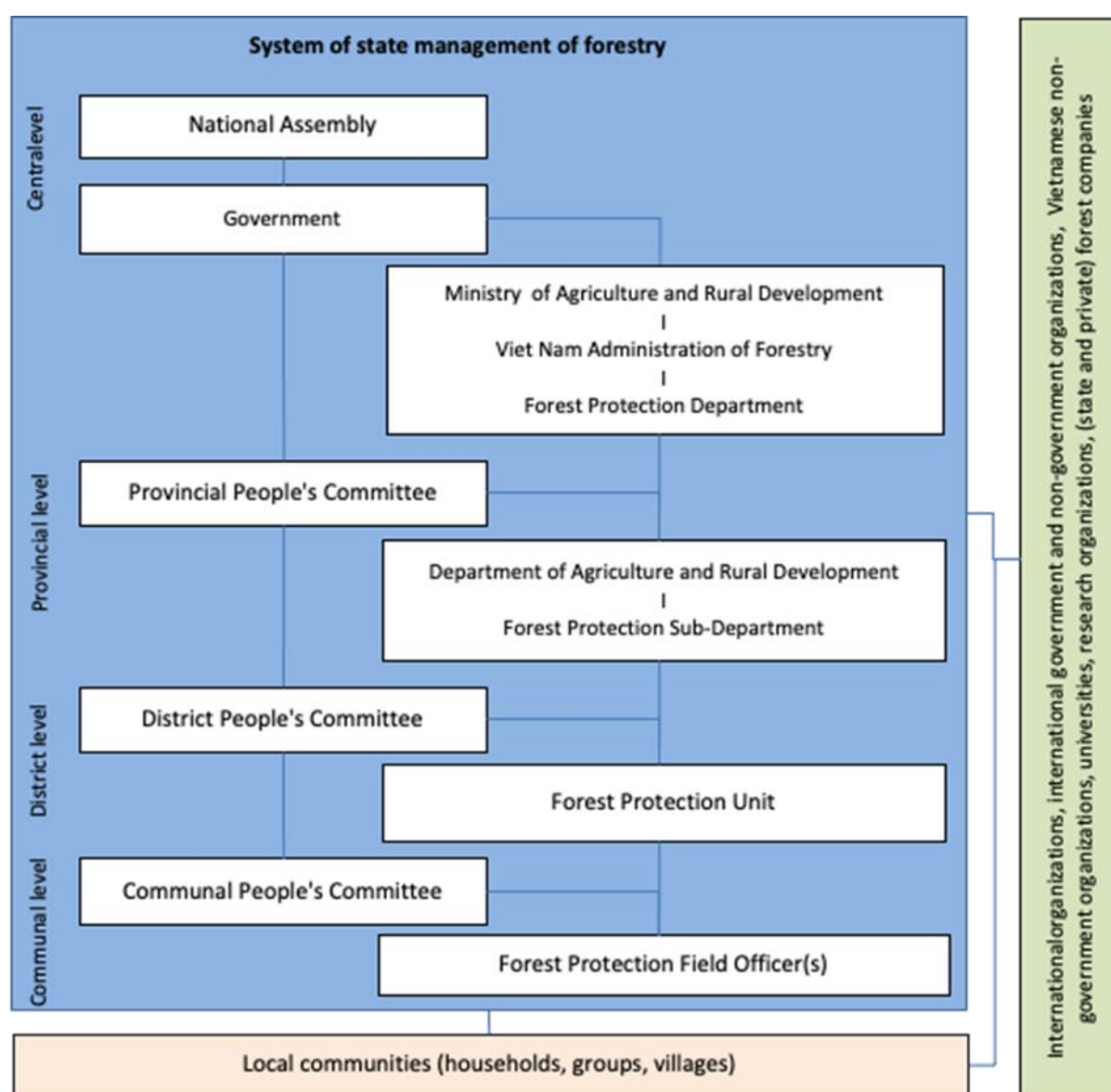
The institutional landscape for REDD+ implementation in Viet Nam also recognizes responsibility of non-forestry sectors, including state and non-state actors particularly operating in investment and development of infrastructure, energy, mining and commodity production and trade toward mitigating negative impacts from their operation on forest resources, therefore engaging them in REDD+ actions is critical for preventing leakages of carbon emissions by various drivers of deforestation and forest degradation. On other hands, as Viet Nam experienced with REDD+ development in past years, international partners, bilaterally and multilaterally, like donor governments, development partners, carbon funds and international NGOs, as well as national research institutes, mass organizations, local NGOs and civil society (networks, alliances, working groups) have actively been important actors particularly for providing and/or facilitating technical and financial assistance for REDD+ development and implementation in the country at both national and provincial levels.

Below it provides a detailed summary of REDD+ actors at national and local levels and their roles/ responsibilities in REDD+ implementation as indicated by NRAP and structures of forest governance stipulated by the Forestry Law 2017 and other existing legislations and RECAF provinces' arrangement for local forest management.

Government of Viet Nam
A State Steering Committee (SSC) will be renewed for leading the implementation of SFDP 2021-2025 based on the former committee of the NTP on SFDP 2016-2020 which was formulated in accordance to Decision 1857/QD-TTg dated November 23rd 2017. According to this decision, that committee to be chaired by a Deputy Prime Minister and his assistant as Minister of MARD (Deputy Chairman of the committee) together with other members as senior leaders of MARD, MPI, MoF, MONRE, Ministry of Defence, Ministry of Police, MOLISA, MOIT, Government Office, Vietnam State Bank, CEMA, Voice of Vietnam (VoV), Vietnam Television (VTV), Committees of Science and Technology and Ethnic Minority of the National Congress, Vietnam Central Association of Farmers, Vietnam Central Youth, and General Director of DOF. Responsibility of this committee focuses on steering, checking and coordinating ministries in implementation of national programs on sustainable forestry development and REDD+, as well as initiating / proposing policies and solutions to effectively implement such forestry programs.

To enable the operation of SSC for SFDP 2021-2025, the Office of SSC will also be renewed in order to support Minister of MARD in management, organization, implementation, check and monitoring of SFDP (and NRAP) programs, and support provincial SSCs through DARDs to lead and implement their provincial SFD programs and projects in the period 2021-2025. In last period 2016-2020, this office included a national focal point on NRAP implementation which was integrated from the former Vietnam REDD+ Office (VRO). According to Decision 419/QD-TTg, VRO used to be responsible for assisting the SSC Office (at MARD) to connect and coordinate different stakeholders in NRAP implementation, assist the SSC to negotiate, receive and distribute (funding) resources to implement REDD+ from international and domestic organizations, and to guide provinces in development and implementation of NRAP, provide technical support and information management relating to NRAP implementation.

MARD
- Chairing and collaborating with ministries, sectors and PPCs for NRAP implementation. This include those tasks relating to revision and/or development of new policies to ensure NRAP objectives achievable from its implementation.
- Developing medium and annual plans for NRAP implementation; coordinating NRAP implementation; providing technical assistance, documentation and assessment of REDD+ performance from involving actors/organizations with regard to their measures, progresses and results;
- Establishing and developing regulations for organization an operation of a Vietnam REDD+ Trust Fund relevant with national and international regulations
- Leading to initiate and formulate necessary structures in order to advise and support monitoring of NRAP performance;

- Collaborating with MONRE and other ministries and sectors to annually review demands of funding and projects on REDD+ and make them integrated into the NTP on Climate Change and other relevant programs and projects
- Leading development and operationalization of procedures relating to NRAP monitoring and evaluation, and ensuring MONRE informed this implementation
- Mobilizing international funding for NRAP implementation, taking delegation from the Government to negotiate and sign agreements on financing support with those international donors committed to make eligible donation/contribution for the Vietnam REDD+ Trust Fund
- Reviewing and assessing NRAP implementation in the period 2016-2020 and proposing Prime Minister with necessary revision and adjustment for NRAP implementation for the period 2021-2030

All those responsibilities of MARD mentioned above that are undertaken by its agencies, mainly VNForest, VNFF, ICD (International Relation Department) and Management Board of Forestry Projects (MBFP)

Department of Forests is tasked with advising and assisting MARD minister on state management of the country's forest resources and/or forestry sector in general. DOF performs its mandates and responsibilities according to regulations of the Forestry Law 2017 and other laws through forestry management systems arranged at national and provincial levels as follows:
- Inventory and monitoring forest resources nation-wide; guiding integration of agriculture and forestry production into socio-economic development;
- Facilitating effective management, protection, development, restoration and sustainable use of forest resources and forest environmental services; strengthening law enforcement and management of forests and forestry products, timber processing and trade;
- Taking the leading role in mitigation of deforestation and forest degradation, prevention and treatment of forest fires and diseases; deployment of preventive and restorative measures;
- Acting as the focal agency for NRAP/REDD+ development and implementation, in charge of coordinating all efforts and activities among government agencies, private organizations, NGOs, CSOs and international development partners in REDD+ implementation; reporting the SSC the progress of REDD+ management and performance; advising and assisting MARD in development and implementation of mechanisms and/or policies relating to REDD+, including carbon rights, carbon credit transfer and transaction;
- Assisting MARD to work in coordination with relevant MONRE agencies to prepare national reports on climate change for UNFCCC communication
- Supporting the Management Board of Forestry Projects to update annual database, forestry monitoring systems provided by provinces to ensure consistence between REDD+ programs, projects and national forestry monitoring system;
- Supporting and engaging all REDD+ stakeholders and interested parties in maintenance and operation of the existing Vietnam REDD+ Network and Sub-technical Working Groups (Local Implementation, Forest Governance, REDD+ Safeguards, Monitoring, Reporting and Verification, Private Engagement, etc) in both offline and online platforms;

VNFF – Viet Nam Forest Protection and Development Fund (the Central Fund)
- Established and managed by MARD, acting as a non-budgetary, not-for-profit state (financing) fund in order to mobilize public resources for forest protection and development; strengthening capacity and effectiveness of forest management, use and protection for forest owners, effectively contributing to implementation of the country's forestry strategy;
- Providing funds for those programs and projects relating to forest protection and management which are not covered or inadequately covered by governments' budget investment, with insurance of transparency, effectiveness and accountability;

- Signing contracts, receiving and managing trust funding collected from PFES implementation (in inter-provincial river basins); mobilizing, receiving and managing other trust funding, aids, sponsor and voluntary donation made by organizations, individuals in Viet Nam and from abroad; receiving and managing money collected for off-set forest plantation according to existing regulations;
- Overseeing and inspecting management and use of PFES money collected and spent by provincial VNFFs according to existing regulations on accounting, financing and auditing; guiding them with implementation and compliance to PFES monitoring, evaluation and reporting;
- Assisting VNForest in inspection and monitoring of collection and disbursement made by p-VNFFs with regard to inter-provincial basin generated PFES payment shared / coordinated by VNFF;
- Assisting p-VNFFs with provision of capacity building and technical assistance to improve and strengthen implementation of PFES policies nation-wide;

MBFP - The Management Board of Forestry Projects was set up to ensure program management and implementation in accordance with MARD decisions based on its following responsibilities: managing and utilizing ODA funds and preferential loans, program funding; submitting MARD the overall plan and annual plans; implementing procurement in compliance to existing regulations; negotiating, signing and monitoring implementation of contracts and addressing problems arising relevant to its authorization; ensuring monitoring and evaluation of the program according to regulations and technical requirement; guiding the Central Program Management Unit (CPMU) to prepare final reports, outputs and program liquidation reports in accordance with existing regulations.

CPMU - Central Program/Project Management Unit
- Working as national focal point supporting the SSC, MARD/VNForest and MBFP to manage and facilitate REDD+ program/project implementation in compliance to national regulations and donor policies in order to accomplish and achieve their objectives;
- Delivering main tasks (i) assisting the program/project owner(s) to prepare / develop overall planning, annual implementation plans; (ii) facilitating and supporting planned program/project implementation; (iii) ensuring and assisting procurement and contract management; (iv) assisting and managing disbursement, program/project financing and asset management; (v) formulating and managing program/project monitoring and evaluation and reporting of implementation progress; (vi) preparing deliverable reports (mid-term, final, liquidation,…)

MONRE
- Leading and collaborating with MARD to integrate data, processes and results from REDD+ implementation into the National Announcements and Biennial Updated Reports and submit to UNFCCC Secretariat.
- Leading the land-use planning and land management, including forest land, and integrating REDD+ into land-use planning practice at all levels.
- Leading and coordinating with MARD to direct and guide PPCs reviewing and accomplishing land allocation together forest allocation and issuing land-use titles; considering jurisdiction in order to issue mechanisms and policies in favour of forest land allocation or lease relevant for NRAP implementation.

MOF – Ministry of Finance
- Leading and coordinating with MARD to develop mechanisms of financial management for Vietnam REDD+ Trust Fund; mechanisms and policies relating to NRAP's financial management and use;
- Collaborating with MPI to balance and allocate funding for NRAP implementation based on approved progresses and plans;
- Monitoring stakeholders with regard to their compliance to the NRAP's financial management requirements

MPI – Ministry of Planning and Investment
- Leading and collaborating with MOF to balance and allocate co-financing (funding) for those projects to implement REDD+ program;
- Mainstreaming NRAP into implementation of NTPs such as SFDP, SED-EMM, SPR
- Collaborating with MARD and MOF to develop mechanisms and policies in favour of NRAP management and implementation;

CEMA – Committee for Ethnic Minority Affairs
- Leading and collaborating with MARD in communicating and raising awareness and capacity, motivating ethnic minority people to actively participate in REDD+ activities;
- Integrating NRAP implementation into programs and projects administrated by CEMA

Other ministries
- MOIT is requested to lead and facilitate systematic review of hydropower development planning in order to reject those projects causing negatively critical impacts to conservation of biodiversity and ecosystems of natural forests and national environmental security. And, in compliance to the orders made by the National Congress and Government, MOIT has accomplished this review, resulting to more than 400 hydropower projects, mainly small and medium ones across the country having been taken out from the national planning. MOIT is also assigned to direct hydropower investors with strict compliance to regulations on offset forest plantation or financial compensation to those damages caused by hydropower construction.
- NRAP does generally mention other ministries considering their functions and responsibilities to collaborate with MARD to implement NRAP at relevance to their working areas.

PPCs – Provincial People Committees
- Integrating / adding tasks on REDD+ into the frame of functions and responsibilities of provincial SSC on SFDP 2021-2025 (being existed or to be formulated in accordance to Resolution 84/NQ-CP)
- Developing PRAPs in order to implement NRAP in their provinces; integrating PRAPs into provincial SFDP (2021-2025) implementation plans;
- Proactively mobilizing additional resources, integrating PFES implementation and relevant programs, projects in the provinces to support implementation and achievement of REDD+/NRAP objectives
- Collaborating with ministries and sectors to direct and verify NRAP performance by organizations and individuals in the provinces
- Providing periodical reports to inform progresses of implementing objectives and tasks related to NRAP in the provinces

All those tasks that are processed by PPCs through the provincial SSC for SFDP 2021-2025, involving departments (DARD, DONRE, DPI, DOF, p-CEMA, DOLISA), district authorities, and Provincial Project Management Unit (PPMU) as well as coordination with relevant provincial NTP programs.

PSSC - Provincial State Steering Committee for SFDP 2021-2025
As directed by Government's Resolution 84/NQ-CP, each province will have to set up a PSSC – a cross-sectoral leadership to facilitate their provincial SFDP implementation plan 2021-2025 from renewing their former PSSC on SFDP 2016-2020. As usual, this PSSC will be chaired by a Deputy Chairman of the PPC who is in charge of overseeing and leading provincial agriculture, forestry, poverty, land-use, and rural development sectors, and constituted by senior representatives of DARD, DONRE, DPI, DOF, p-CEMA, p-VNFF, Department of Foreign Affairs among other relevant organizations. The committee is responsible for steering, checking and coordinating departments, districts and other stakeholders in planning, approval and operationalization of provincial programs on sustainable forestry development, REDD+ and forestry projects associated with provincial

implementation of other NTPs. Supporting PSSC operation that is the Standing Office for PSSC on SFDP 2021-2025 to be formulated and managed by DARD with representation of senior managers from DARD's Planning Division, p-FPD, p-VNFF, etc.

PPMU - Provincial Program/Project Management Units

- Established by PPCs, PPMUs work as the provincial focal points supporting PPCs and PSSCs to manage and facilitate REDD+ program/project implementation in compliance to national regulations and donor policies in order to accomplish and achieve their objectives setting for provincial performance and contributing to national targets;
- Managed and directed regular operation by a DARD (leader) and/or a proxy structure to be recruited by CPMU and/or provincial authority (e.g. DARD or DPI) with respect to working guidance provided by CPMU;
- Taking responsibility to deliver the following main tasks to be implemented in provinces (i) assisting PPCs and/or proxy department like DARD or DPI to prepare / develop overall project planning, annual implementation plans; (ii) facilitating and supporting planned program/project implementation technically and financially; (iii) ensuring and assisting procurement, contract management, project staffing; (iv) assisting and managing disbursement, program/project financing and asset management; (v) formulating and managing project monitoring and evaluation and reporting of implementation progress; (vi) preparing deliverable reports (mid-term, final, liquidation,…)

DARD – Department of Agriculture and Rural Development

- Ensuring its responsibility with extent to state management on provincial agriculture, forestry and rural development areas to be embedded for those objectives and activities of REDD+ programs/ projects with proper engagement of its functional institutions (p-FPD, p-VNFF, forest management boards, technical extension services), supporting SFM plans, contributing to implementation of relevant provincial policies;
- Establishing or assisting PPC to establish PPMUs in according to guidance facilitated by CPMU who is responsible for providing expertise, inspection, monitoring and evaluation for all the program/ project components and activities to be implemented in provinces which are complied with targets, progress, quality and efficiency as set out in the program documents, agreements and relevant regulations and laws.
- Collaborating and coordinating with involving departments and districts to prepare and submit PPCs, PSSC the annual program/project implementation plans, including mobilizing and integrating funding, co-financing sources from other NTPs and projects working on same areas; delegating its functional institutions to collaborate and/or jointly implement annual plans;
- Directing PPMUs with compliance to legislative and technical requirements on project procurements, consultancy contracts, monitoring and evaluation, reporting, documentation and publication; communication, learning and capacity building.
- Supporting PPMUs to arrange and maintain collaboration with provincial mass organizations (women union, farmer association, youth union, scientist association) in support to program/ project implementation;
- Directing and overseeing local forest rangers (or provincial and district PFDs) and forest owners, particularly management boards of SUF and PF, in forest law enforcement, prevention of forest fires and diseases, forestland management, management of timber and forest products, timber processing and trade, etc

P-FPD Provincial Forest Protection Department

- Assisting DARD to execute responsibility of state management in forest management, protection, development, sustainable use, forest biodiversity conservation, management of timber and forest products in provinces in accordance to Forestry Law 2017 and guidance provided by central FPD of VNForest;

- Leading as provincial focal point for law enforcement in forestry sector based on its forces of forest rangers arranged at provincial, district and communal levels and at some SUF management boards; collaborating with policy, military forces, forest owners and local authorities to tackle illegal logging, forest encroachment, illegal hunting and wildlife trafficking; overseeing all forest owners in compliance and implementation of forest management regulations;
- Assisting DPCs and CPCs to carry out forest allocation to local individuals, households and communities; supporting forest owners, particularly forest management boards and forestry companies to implement their SFMPs, particularly building capacity for forest owners in prevention and treatment of forest fires and diseases, timber legality, etc
- Acting as the provincial technical contact for forest inventory, assessment and monitoring; collaborating with p-VNFF to conduct forest inspection before periodical PFES payment is transferred to forest owners and/or contracted forest protectors;

p-VNFF Provincial Forest Protection and Development Funds
- Functioning as provincial public financing institutions under direct management of PPC (as Lam Dong) and/or DARD (as Dak Lak, Dak Nong and Ninh Thuan) to operationalize the national PFES policy and collect contracted-based annual payment of forest environmental services mainly from hydropower and clean water supply companies, and distribute that funding to service suppliers, including beneficiary forest owners and contracting parties in forest protection based on existing PFES regulations and provincial decisions in the purposes of forest protection and development, ensuring their transparency, effectiveness and accountability;
- Ensuring appropriate financial management and use with regards to revenues collected from implementation of PFES and off-set forest plantation policies according to regulatory and technical guidance provided by VNFF and respective decisions made by provincial authorities, contributing to provincial objectives on sustainable forestry development, especially on protection of remaining natural forests;
- Collaborating with forest rangers (p-FPD / DARD) and forest management boards to sustain regular/periodical monitoring, mapping and reporting of local PFES implementation in according to VNFF guidelines (planning, progress, results, etc)

DONRE – Department of Natural Resources and Environment
- Practicing the provincial focal institution on state management on land use planning, management and allocation in the province, given to all types of land including forestland, in according to Land Administration Law 2013, and on environmental protection and climate change (according to Environmental Protection Law 2020) and nature conservation (according to Biodiversity Law 2008)
- Leading and collaborating with DARD and DPCs to address (long-lasting) forestland use conflict management according to policy agenda/decisions and solutions made in place by PPCs, ensuring forest allocation with forestland titles legally granted to all forest owners to enable them with effective implementation of SFMPs;
- Leading to prepare provincial periodical reports on environmental state, biodiversity state, and inventory of GHG emissions as regulated by respective laws;
- Overseeing and ensuring implementation and compliance of regulations on Environmental Impact Assessment by investors regarding to their development projects, contributing to mitigation of negative impacts caused by such projects on local natural resources and biodiversity, especially preventing from conversion of natural forests to other uses;
- Collaborating with other departments to oversee environmental performance in implementation of provincial policies on green growth, new rural development.

DPI – Department of Planning and Investment
- Assisting PPCs to lead, manage and coordinate the development of 10-year provincial planning (2021-2030) in according to the Planning Law 2017, making all sectoral planning integrated and

instrumented for directing and undertaking provincial strategies in socio-economic development to 2030 and onwards;

- Acting as the provincial focal point to execute responsibility of state management in development investment plans, programs and projects which are financed by state budget, ODA and other financial sources;
- Assisting PPCs to coordinate provincial departments and districts and negotiate with ministries to identify, balance and allocate different financial / funding sources, for mid-term and annual investment, regarding to development and implementation of NTPs, including their associated sectoral projects in their provinces; overseeing annual implementation of these investments;
- Assisting PPCs to develop, coordinate and facilitate implementation of provincial action plans and/or policies on green growth and sustainable development in accordance to national guidelines
- Acting as a key member of provincial cross-sectoral institutions to steer development and implementation of NTPs such as sustainable forestry development and SED in EMM for the period 2021-2025, or PPMUs for respective projects like REDD+
- Collaborating with DARD and DOF to review investment project proposals and their funding requests prepared and submitted by forest management boards with respect to their implementation of SFMPs for the period 2021-2030

DOF – Department of Finance
- Acting as a key member of the PSSC for SFDP 2021-2025 (and other NTPs) and PPMU for REDD+ project in order to assist PPC in overseeing, supervising and guiding allocation and management of funding sources, particularly from state budget, for program/project implementation;
- Collaborating with DARD and DPI to draft and advise their PPC to approve and/or promulgate provincial/local cost norms for forestry activities in the province, for example forest and forestland allocation, and benefit-sharing mechanisms to be adopted by REDD+ projects in the province;
- Collaborating with DARD to review, check, balance and allocate provincial state budget sourced from forestry and other areas in order to annually finance for forest management boards to remain their operation, mainly related to regular expenditures (staff salary, overhead costs, forest protection, etc)

p-CEMA – Provincial Committee of Ethnic Minority Affairs
- Acting as the local focal point to assist PPCs in carrying out limited tasks of state management related to ethnic minority (and mountainous) issues in order to ensure and strengthen equality, solidarity and mutual support for advancing together development, respect and maintenance of cultural identity of ethnics living in the Viet Nam territory as regulated by Decree 05/2011/ND-CP dated January 14th 2011 by Government on ethnic minority affairs;
- Acting as the provincial focal point, and in collaboration with other departments, to assist PPCs in entirely or partly synthesizing, overseeing, coordinating and reporting the process of planning and implementation of the provincial implementation plans of the NTP for SED in Ethnic Minority and Mountainous Areas 2021-2025 under the programming guidance provided by Government, CEMA and other ministries;
- Directly developing, providing and implementing demonstrations of investment on economic and social development activities for/with ethnic minority people through collaboration with districts and communes;
- Playing as a key member of PSSCs NTPs including SED-EMM 2021-2025, SFDP 2021-2025 and sustainable reduction of poverty (applied for beneficiary provinces), and PPMU for REDD+ projects in order to assist PPC in developing, planning and enhancing coordination for project implementation in the areas of ethnic minority people;

DOLISA – Department of Labour, Invalid and Social Affairs

- Acting as the provincial focal point for managing, coordinating and reporting the provincial development and implementation of the NTP on sustainable reduction of poverty 2021-2025 and national strategy on gender equity 2021-2030
- Playing as a key member of the PSSC to implement NTPs on SED-EMM, SRP and new rural development in the province
- Overseeing and facilitating vocational training and job generation for local people and ensuring social security for those people or households affected by Covid-19 pandemic and natural disasters

Banking institutions
- The Vietnam Agriculture Bank (Agribank) and Vietnam Bank for Social Policy (ABSC) have been actively operating in all provinces in Viet Nam, made up intensive networks reaching to every commune to provide favourable credit support for rural households in poverty reduction and livelihood development, particularly for the poor, women, youth families. It commonly found local villagers borrowing money from these banks to invest and run their traditional livelihoods like raising livestock (cow, pig, goat, buffalo) and poultry (chicken, dug), investing in crop plantation (buying seeds, fertilizer) or family business, repairing houses and/or supporting vocational education.

Local political-social (mass) organizations
- Provincial, district and communal women unions and farmer associations are relatively active in networking and facilitating their members in government-initiated public campaigns, mainly raising awareness, training and facilitating engagement with groundwork in poverty reduction, micro-credit, agricultural production practice, health care, gender equality, natural disaster risk management or environmental protection, including collaborative forest protection. They also help to connect private sectors and local communities in production and business activities.
- Playing as key members in PSSCs for implementing NTPs such as SED-MM, SRP and new rural development, and similarly as in respective district-level committees
- Participating in monitoring implementation of REDD+ programs/projects in provinces

National and sub-national research and training institutions
Many research institutes and universities in Viet Nam have been engaging and/or experiencing with REDD+ development, implementation and monitoring through providing technical supervision, consultancy services and/or expertise for various areas such as community awareness and FPIC, FREL / estimation of carbon emissions, forest monitoring and mapping, land use assessment and planning, PRAP development, silviculture and agroforestry, forest restoration, etc Most of qualified researchers and experts are also members of the Vietnam REDD+ Network.
- FIPI - Vietnam Forest Inventory and Planning Institute, based in Hanoi and regional branches, authorized by MARD, is nationally responsible for assisting the ministry to prepare sectoral strategies, planning, plans and programs with extent to forest resources, forestry land use, biodiversity and conservation of forest ecosystems, for conducting inventories, monitoring and reporting of forest, forestland and forest biodiversity, forest carbon and environment as well as socio-economic status relating to management, protection, development and use of forest resources. FIPI and its subordinates also provide technical consultancy services in forest mapping (GIS, satellite image analysis), forestland allocation, design of forested landscapes, SFMP formulation, impact assessment, forest database management, and capacity-building for forest managers and rangers.
- VAFS – Vietnam Academy of Forest Sciences and its Lam Dong-based subordinate for the South Central Coast and Central Highlands Region, authorized by MARD, has been acting as the national focal point for scientific research, technological transfer, international cooperation, post-graduate training and consultancy in forestry sectors, subjecting to tropical forest ecology, silviculture and agroforestry techniques, forest plantation, restoration, regeneration, enrichment

and sustainable management of natural and planted forests in Viet Nam. VAFS plays as the core scientific authority in experimentation and development of new forestry varieties and CITES compliance. Its research works scope forestry economics as well as timber industries. The Vietnam Forest Certification Office is now operating under VAFS, supporting VNForest to facilitate expansion of certified sustainable forest management in Viet Nam, and providing services in capacity-building and endorsement for forest owners interested in application of Vietnam Forest Certification Scheme (VFCS) and/or Programme for the Endorsement of Forest Certification (PEFC) for sustainable forest management.

- The Hanoi-based Vietnam National University of Forestry (VNUF) and its subordinates like Gia Lai-based VNUF branch and Institute for Forest Ecology and Environment (IFEE), The Dak Lak-based Central Highlands University (e.g. Faculty of Agriculture and Forestry) and Lam Dong-based Da Lat University (e.g. Faculty of Agriculture and Forestry) as well as Hue University of Agriculture and Forestry that have been actively participated and extensively experienced in either forestry development or REDD+ implementation in Viet Nam at both regional, provincial and local levels, ranging from policy formulation (like IFEE, for drafting Decision 297), FPIC implementation, forestland assessment, mapping and allocation, community forest management, forest restoration, community livelihood development, capacity-building and monitoring. In the past, they collaborated and supported REDD+ projects based on individual and/or institutional consulting contracts.

- Regional research institutions like The Western Highlands Agriculture & Forestry Technical Institute (WASI) of the Vietnam Academy of Agricultural Sciences, based in Buon Me Thuot of Dak Lak province, has been extensively experienced in research, demonstration, transfer of advancing technologies and capacity building through working with local communities and private sectors in land-based farming techniques, development of agricultural and forestry systems, including agro-forestry, particularly related to coffee, pepper and fruit-trees commercial plantation, conservation of soil and water resources; production, processing and management of agricultural and forest products and by-products. This institute is also professionalized in studies of regional socio-economic and infrastructure development in the Central Highlands. WASI has been closely working with local networks of agricultural extension, as well big foreign traders to raise awareness and application of internationally standards for production of coffee and pepper in Dak Lak, Lam Dong, etc

National and sub-national business associations

A number of associations involving investors and companies in agri-business areas operating in the Central Highlands could play important roles in addressing drivers of deforestation and forest degradation or matters of deforestation-free supply chains and/or low impact production from market-driven expansion of coffee, pepper, rubber, cassava, fruit trees among others in RECAF provinces. They include those national-level ones like Vietnam Coffee-Cocoa Association (VICOFA), Vietnam Pepper Association (VPA), Vietnam Cashew Association (VINACAS), Vietnam Cassava Association (VICaAs), Vietnam Rubber Association (VRA) or Vietnam Fruit and Vegetables Association (VINAFRUIT), and sub-national ones like provincial enterprises associations, provincial cooperative alliances and young businessmen societies that are found being active in all RECAF provinces. Together with internationally big traders and extension services, these associations play important roles in connecting enterprises and smallholders in capacity building and application of sustainability standards or procedures in commodity production for coffee (e.g. 4C, UTZ, VietGAP) or rubber (e.g. FSC). The RECAF could accelerate private sector engagement in development of PRAPs or demonstration of deforestation-free commodity chains through working with these associations.

International and national NGOs and development partners

The RECAF provinces have long been destinations for many international and domestic NGOs, civil societies and development partners actively working with local institutions to address poverty reduction, forest management, governance and nature conservation, REDD+, PFES, land use and

sustainable commodity production, climate change among other development supports. Regarding to on-going engagement, IDH and SNV that have been collaboratively and extensively facilitating private sectors and smallholders toward reducing emissions from certified coffee and pepper production in Lam Dong, Dak Lak and Dak Nong provinces through their projects ISLA (Integrated Sustainable Landscape Approaches) and CAFÉ-REDD (Coffee Agroforestry and Forest Enhancement for REDD+) respectively. Particularly, IDH has been committed to promote COMPACTs – a kind of multi-stakeholder alliance of local authorities, civil society, producer groups or cooperatives and buyers/traders in order to develop and expand 140,000 ha of sustainable agricultural production by 2025 in Dak Lak (Ea Tan, Krong Nang, Cu M'gar, Krong Ana) districts) and Lam Dong (Lac Duong, Di Linh districts). Aligning to ISLA, another Dutch-funded, multiple-year project, known as GLA – the Green Livelihoods Alliance – Forested Landscape for Equity, that have been implemented by Tropenbos-Vietnam and its NGOs partners (PanNature, VietNature, NTFP-Vietnam) to involve local stakeholders in capacity building and demonstrations of landscape governance assessment, community forest management and restoration and improved farmer livelihoods in Dak Lak province, particularly in Krong Bong district.

In Lam Dong, a focal site for implementing UN-REDD program (02 phases, from 2010 to 2017), SNV and RECOFTC have technically supplemented and demonstrated various capacity building and guidance for local stakeholders, ranging from FPIC, PRAP and SiRAP development, environmental and social safeguards monitoring and provincial participatory governance assessment (PGA). And recently ICRAF has provided technical assistance to help Lam Dong develop the provincial action plan for green growth 2021-2030. Further guidelines for monitoring and evaluation of implementation and effectiveness of local PFES have also been introduced and adopted in Dak Lak and Lam Dong either by CIFOR and/or PanNature in collaboration with central and provincial VNFFs.

Regarding to biodiversity conservation, WWF Vietnam, FFI, WCS, GreenViet, PanNature, CCD and SVW (Save the Vietnam Wildlife) have been supported and/or supporting different national parks and protected areas in Ninh Thuan (Nui Chua), Lam Dong (Bidoup Nui Ba, Cat Tien), Dak Lak (Chu Yang Sin) and Gia Lai (Kon Ka Kinh) to enhance their capacity in primate surveys, eco-tourism development, environmental education and community-based forest law enforcement. In Gia Lai and Dak Lak, PanNature and VIFORA (Vietnam Forest Owners Association) have been closely worked in collaboration with provincial VUSTAs to facilitate community forest management and community-based conservation areas, while in Ninh Thuan, the Song Foundation, a not-for-profit institution, has been successfully demonstrating tree plantation and restoration on coastal degraded uplands.

The RECAF provinces, probably Lam Dong and Dak Lak, are likely becoming study sites for a Nature-based Solutions Initiative hosted by an international academic consortium of University of Oxford, ETH Zurich University in order to develop a High-Agricultural Reforestation Potential (HARP) Toolkit. To be developed and implemented tentatively from October 2021 through September 2024, by adopting Human-Centered Design (HCD) approach, this project will facilitate the integration of scientific and practitioner knowledge through directly working with coffee and cocoa value chain actors to co-design the HARP toolkit, supporting stakeholders to overcome key-user identified challenges in implementing agroforestry-based reforestation in coffee and cocoa landscapes. Similarly, ICRAF (Viet Nam) has also been collaborating with different partners, such as WASI, Pepper Research and Development Center, CIAT, Plant Protection Research Institute, Tay Nguyen University, Vietnam Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD), private sectors among other institutes and Australian universities, to implement their project "Vietnam Towards Sustainability for Coffee and Pepper" (V-SCOPE) which being taken place in provinces of Dak Lak (Krong Nang district), Dak Nong (Dak Song district) and Gia Lai (Dak Doa district) from February 2021 through September 2024. This project aims at enhancing smallholders' livelihoods in the Central Highlands, including vulnerable populations, through improving the sustainability of coffee and black pepper farming systems and value chains. Both these projects could be potential partners

for the RECAF program in exchange of knowledge and expertise in support to realize the program interventions.

6.1.5 Financing REDD+ activities

Vietnam has not successed yet in determining a national financing mechanism for NRAP implementation as it has been proposed to do so in NRAP policies (Decision 779/QD-TTg in 2012, and Decision 419/QD-TTg in 2017). The current NRAP has planned to formulate and operate a REDD+ financing management mechanism between 2017-2018, including establishment and organization of a Vietnam REDD+ Fund and operationalization of payment for REDD+ performance and its monitoring and evaluation arrangement. According to NRAP, MARD is assigned to collaborate with Ministry of Finance, MONRE, MPI, the State Audit Office of Vietnam and donors to develop a (national) REDD+ Fund as a public, not-for-profit trust fund acting as a subordinate unit of the Vietnam Forest Protection and Development Fund (VNFF) to support NRAP implementation. Funding through this REDD+ fund is to be mobilized from different financial sources in terms of granting, donation, international trust funding, revenues collected from carbon credit transactions resulted from REDD+ programs, projects and activities. A functional REDD+ fund like that would be defined by regulations on its organization, operation and financial management from REDD+ result-based payment mechanism. In addition, NRAP also planned to develop regulations on (forest) carbon rights and sharing mechanisms of benefits collected from carbon credit transactions relevant with incentive policies made by GoV in favour of agricultural and forestry development in Vietnam. However, none of these is proccesed into functional policy regulation by date.

At the preparedness period of REDD+ development in Vietnam, within the UNREDD phase II implementation, MARD had promulagted regulations for piloting REDD+ benefit sharing / distribution that was applied in 06 provinces of Lao Cai, Bac Kan, Ha Tinh, Lam Dong, Binh Thuan and Ca Mau (presented by Decision 5399/QD-BNN-TCLN dated December 25th 2015 issued by MARD). This pilot initiative provided a range of principles and regulations to conduct REDD+ benefit sharing about:

- REDD+ activities for which benefits to be shared

- Target groups as REDD+ beneficiaries, both direct and indirect ones

- Forms to share REDD+ benefits (by cash and/or non-cash)

- Setting up benefit-sharing systems

- Operationalization of REDD+ benefit-sharing, includingmaking advance, reimbursement and risk management

- Monitoring, evaluation, reporting, inspection and grievance procedures

The Forestry Law 2017 regulates "sequestration and restoration of forest carbon; reduction of GHG emissions from mitigating deforestation and forest degradation, sustainable forest management and green growth" as one among five forest environmental services (Article 61). Therefore, revenues collected from REDD+ performance and their result-based payment mechanisms, as defined by the Forestry Law 2017, are operationalized according to the following regulations:

- Article 95 defines Forest Protection and Development Fund (VNFF), at national and provincial arrangement, as a non-budget public financing institution, not-for-profit operation, ensured transparency and effectiveness in management and use of PFES finance in the purposes of supporting programs, projects or non-projects relating to forest protection and development which extent to those investment by state budget for that is not made or not sufficiently made in comparision to actual demands. Rules guiding organization and operation of VNFFs are presented at Decision 128/2008/QD-BNN dated December 31st 2008 issued by MARD.

- Articles 62 and 63 regulate principles, beneficiaries, forms and management of PFES revenue, of which involving forest owners (indicated by Article 8 of the Law), those organizations, households, individuals and communities who being contracted with forest owners in forest protection and development as well as communal authorities being legally assigned in forest management that are

the subjects of receiving payment via direct or indirect forms in order to perform their rights and obligations as suppliers of forest environmental services (Article 65)

- Article 63 also regulates those organizations and individuals as large GHG emitters due to their production and business in Vietnam will have to do payment for services of forest carbon sequestration and restoration. And in compliance to to Decree 156/2018/ND-CP, with agreement given by the Government in principle, MARD has proposed to develop pilot models of this payment in Quang Ninh, Thanh Hoa, Thua Thien Hue and Quang Nam provinces in two years, from January 2020 through December 2021. This initiative however has been delayed due to economic downturn amid speading of Covid-19 pandemic in the country, so prospects of making policies based on this pilot is likely uncertain.

A recent study of CIFOR prepared by Thuy T.T et al (2021) reviewing financing management and benefit sharing mechanisms related to result-based payment from emission reduction in 54 countries has highlighted that 58.3% of those countries successfully obtained ERPAs (Emission Reduction Payment Agreement) treating money (or funding) collected from such agreements as a revenue source of state budget, and managed by a nominated ministry. And, in term of transfering payment, a similar rate as 58.3% of those countries that have selected to channel that payment into independent environmental funds in order to manage such REDD+ finance. Beside that, other REDD+ beneficiary countries without ERPAs but bilateral payment agreement with Norway or other donors instead have been chosen to adopt either one among following four models to manage revenue from trading carbon credits: (i) through a national-level environmental trust fund which is domestically or internationally based; (ii) through an intermediate party between market and NGO; (iii) through state-budget channel and ministries; and (iv) through an environmental trust fund at regional or sub-national/provincial scale. This report also concludes five main factors that influence a country in making decisions of managing REDD+ finance and sharing benefits, including (i) up to the amount of that payment (or revenue) that is big or small; (ii) existing regulations of donors; (iii) national legal frameworks for financially managing international funding, (iv) stakeholder capacity in financial management; and (v) opinions and consensus made by stakeholders.

As a beneficiary country from the Forest Carbon Partnership Facility (FCPF), on behaf of Government, in October 2020, MARD was authorized to sign an ERPA[51] with the World Bank for its Emissions Reductions Program in the North Central Region of Vietnam for the period 2019-2024. A Benefits Sharing Plan (BSP)[52] was agreed to ensure that benefits are shared between the various stakeholders of the ER-P according to clear, effective and transparent mechanisms, principles and channels. However, as indicated by this FCPF/ER program, a REDD+ financing mechanism in place for RECAF to ensure its successful implementation must closely link, combine and integrate with different existing government programs and financing sources associated with Government's commitment. That so the funding to an ER program like RECAF might include both domestic and international finance as below:

(a) Domestic financing sources:

- National government financing: mainly sourced from state budget allocated for implementation of NTPs on sustainable forestry development, socio-economic development in ethnic minority and mountainous areas, sustainable reduction of poverty during 2021-2025 and 2026-2030, and other relevant programs/projects

- Provincial / sub-national government financing: mainly sourced from provincial budget contributing to implement NTPs on sustainable forestry development, socio-economic development in ethnic minority and mountainous areas, sustainable reduction of poverty during 2021-2025 and 2026-2030, particularly those budgeting for annual regular and non-

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[51] Source: https://www.forestcarbonpartnership.org/ system/files/documents/FCPF_ERPA_ Tranche%20A-B_Vietnam_Signed.pdf

[52] https://documents1.worldbank.org/curated/en/099084503102316232/pdf/P1626050c673020320adf60bbaaf0f53be4.pdf

business public expenditures to support and maintain operation of forest owners in management and protection of natural forests;

- Payment of Forest environmental services (PFES) which is annually collected mainly from hydropower and water supply companies in compliance of the Decree 156/2018/ND-CP, and being managed for allocation through central and/or provincial VNFFs to finance for management and protection of natural forests in involving basin landscapes.

- Credit/loan from banking/financing institutions like Vietnam Bank for Social Policies (VBSP) and/or Vietnam Agricultural Bank (AgriBank) which have been operating different credit programs at the grassroot to support poverty reduction and livelihood development for the rural poor households and/or forest dependents with common priority given to vulnerable groups of women, ethnic minority, disable farmer, youth.

- Private investment links to state forestry companies and other forestland-based investors for agri-business, agroforestry or tourism development for which their direct investment and/or interventions could make potential contribution to reduced emissions from deforestation and forest degradation or sustainable production.

- Social contribution/donation: could be a potential source that comes from emerging voluntary environmental campaigns led by civil society institutions, including well-known individuals, social groups/networks or NGOs, and social enterprises or business/companies's CSR programs (Corporate Social Responsibility) to jointly implement the Government's Plantation of One Billion Trees Movement or selected reforestation and conservation programs.

(b) International financing sources:

- Result-based payments from forest carbon fund like GCF or FCPF

ODA, including bilateral and multilateral sources, being or to be implemented by different programs and projects particularly in sustainable forest management, protection, development, restoration, biodiversity conservation, poverty reduction and climate change with funding (and loan) from USAID, JICA, KfW, WB, ADB in RECAF and neighbouring provinces.

6.2 REDD+ implementation in project provinces

All Provinces have PRAPs which detail how NRAP objectives relate to the Provincial circumstances, and what the prioritized activities are in each Province. Provincial timelines for updating plans is every 5 years, in line with 5-year development planning timeframes. Districts in each Province have develop DRAPs which detail how REDD+ will be implemented at District levels. These can be updated yearly. Communes have C-RAPs, which can also be updated annually.

6.2.1 Gia Lai

By the end of 2020, the forest cover of Gia Lai province reached 46.7%[53], including the area of rubber and other multiple-use trees and 25,271 ha of new forest planted from 2015 to 2020. For the period 2021-2025, the province has politically committed to increase the forest cover to 47.75%, with 40,000 ha new forest plantation.[54]

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[53] The Political Report of the Provincial Communist Party for the term 2015-2020, No.616-BC/TU, dated 18th September 2020 – link: https://tinhuygialai.org.vn/Uploads/files/Ph20-Bao%20cao%20chinh%20tri%20DHXVI.pdf

[54] Resolution 03-NQ/DH by the Gia Lai Provincial Communist Party Congress for the term 2021-2025 dated 1st October 2020 – link: https://tinhuygialai.org.vn/Uploads/files/Ph20-Nghi%20quyet%20DHXVI.pdf

This determination has been institutionalized by Resolution 06-NQ/TU of January 2022 by the Provincial Communist Party on **Developing provincial forestry toward sustainability, Enhancing livelihoods, Increasing forest cover and adapting to Climate change in Gia Lai for the period 2021-2030**, with a targeted forest cover of at least 49.2% by 2030. To deploy Resolution 06-NQ/TU, the Gia Lai PPC has promulgated **the Action Program on Developing provincial forestry toward sustainability, Enhancing livelihoods, Increasing forest cover and adapting to Climate change in Gia Lai for the period 2021-2030** known as Program 899/Ctr-UBND of May 2022. Tasks can be divided in two groups.

a) Developing sustainable forestry and increasing forest cover:

- demarcating forest boundaries and protecting the entire 645,370.6 ha of existing forest, enhancing connectivity of high conservation value ecosystems and establish concentrated areas of production forests and long-rotation plantations and processing industries.
- Continue the strict logging ban for natural forest until 2030.
- Re-organization of management systems of special use and protection forests.
- Promote regeneration of 24,000 ha of natural forests
- Planting of new forests: i) 40,000 ha by 2025, including at least 10,000 ha new long-rotation (large timber) and15.000 ha long rotation transformed from short-term ones, ii) another 40,000 ha by 2030, of which at least 15,000 ha as long-rotation planted forests, iii) continue the implementation of the One Billion Tree program.

b) Strengthening livelihoods and application of science and technology:

- Facilitating allocation and lease of 219,246 ha of forest and forest land being managed by communal authorities, ensuring that all forest area are authorized by actual owners.
- Enhancing the quality of natural and plantation forests: i) planting highly valuable trees in agroforestry systems, ii) support forest enterprises and management boards with certification, ensuring 30,000ha are certified by 2025 and 80,000 ha by 2030, iii) aim for plantation yields of 150,000 – 300,000 m3/.year.
- Seeking investments in infrastructure for research, monitoring and ecotourism, attracting business to lease forest environments for ecotourism, develop community ecotourism.
- Aim to plant 6,500 ha of medicinal plants under forest canopy by 2025 and 11,300 ha by 2030.
- Adopt incentive policies and mechanism to improve smallholder livelihoods through mixed agroforestry and longer rotation forests with annual crops in initial years and integrated grazing under forest canopy.

The action plan also proposes to strengthen communication and raising public awareness on the importance of timber legality and on the One Billion tree program. Furthermore, it proposes to improving leasing mechanisms and to connect smallholders to businesses to combine small plots for commercial plantations using ICT for managing the commodity chain. Furthermore, to expand PFES based on valuation of forest environmental services used by companies. To continue decentralization and building capacity of local managing institutions, forest enterprises and management boards.

Strengthening capacity in forest inventory and planning is critical for DARD, p-FPD, DONR and DPCs. Increased accuracy over the years already resulted in drastic changes in targeted hectares for different categories of forests, with a reduction of total planned forest land, mainly through a reclassification in 2017 (resolution 100/NQ-HDND) of non-forested land for other use. The program requests stricter management of forests and forest land and speeding up of acquisition of encroached forestland for reforestation and planting medicinal plants under forest canopy.

Other policies related to REDD+ implementation (although REDD+ is not mentioned by these policies):

The Synthesis Report to Update Provincial Action Plan on Responses to Climate Change in Gia Lai in the period 2021-2030, a vision to 2050 (Decision 202/QD-STNMT of December 2020). Approved by DONRE, this report provides different scenarios of climate change in Gia Lai province, particularly increasing temperature and extreme rainfalls, and proposes mitigation and adaptation

measures. The report suggests DARD leading an agricultural sectoral plan on responses to climate change, including priority actions such as: sustainable use of swidden cultivation land; sustainable cassava production; supporting forest protection and development by management boards of protection forest focused on contracted forest protection, forest regeneration and enrichment plantation, caring of planted protection forests and building belts for fire prevention.

Provincial plan 695/KH-UBND to implement Prime Minister Decision 297/QD-TTg (2019) **on Forest protection, restoration and sustainable development in the Central Highlands region in the period 2016-2030.** This plan has covered three main tasks:

- Forest protection: (i) protecting 543,579 ha of existing forests by preventing deforestation, illegal encroachment and exploitation and prevent, early warning and treatment of forest fire, (ii) preventing illegal trade and processing of wildlife and forest products, resistance and obstruction against forest rangers and protectors;
- Forest management: (i) resolving overlapping tenure and conflicts; (ii) promoting community forest management, and sustainable swidden cultivation with agro-forestry practices; (iii) facilitating allocation of forests and land to individuals, households and communities from the area being managed by communal authorities; and (iv) reforming and enhancing operational effectiveness of special use and protection forest management boards and forestry enterprises;
- Forest restoration and development as presented in the table below.

Period	Forest plantation (ha)				Regeneration of forest (ha)	Scattered plantating ('1000 trees)
	Total (ha)	SUF & protection forest	Production forest	Off-set plantation		
2016-2030	**71,153**	**2,661**	**38,462**	**30.030**	**11,341**	**13,350**
2016-2020	22,873	1,161	18,962	2,750	3,168	3,350
2021-2025	35,000	750	11,000	23,250	15,754	5,000
2026-2030	13,280	750	8,500	4,030	15,100	5,000

The plan also identified the following interventions:

- Facilitating high-tech application in monitoring, inventory and fire warning (information); consolidating the command boards of forest fire prevention and treatment at all levels.
- To enable strict compliance to logging ban of natural forests: monitoring of timber legality from local processing stations; strengthening law enforcement and litigation to violations; and accountability among responsible actors, particularly forest owners and local authorities,
- Resolving free migration which involves clearance of forest: reclaim forestry land areas that have been illegal encroached since 27th September 2011 and subsequent reforestation; resolve tenure overlap, conflict and encroachment of forestry land between residing people and forest owners and project owners, not letting them becoming political and social hotspots; facilitating engagement of police and military forces and political-social organizations in advocacy and fighting against illegal logging and forest encroachment.

Prior to this, the Gia Lai PPC had approved a Provincial Plan 1123/KH-UBND of March 2017**on implementation of revoking illegally encroached forestland for pro-forestry plantation and reforestation**. At the time, this plan provided detailed data on the area and location of encroached forestland, specified by each district and forest management board or forestry enterprise, for a total of 178,717.4 ha, based on the forest inventory of 2014. Of this total, 158,740.7 was planned for production forest and 18,635.9 for protection forest. Of the total encroached land, 112,527.6ha was under management of communal authorities and 66,189.8 were mostly under the management of protection forest management boards. The proposed area for reforestation between 2017-2019 was 30,000 ha. Gia Lai province wanted to reclaim illegally encroached forestland and allocate them to local people to replant forests and benefit for that. For this FLA process, the plan provided detailed descriptions of the roles and responsibility of each agency and stakeholder. Senior leader-led steering committees a provincial, district and communal level were established and supported by inspection missions. Regular intensive communication and awareness-raising encouraged local villagers to

declare locations of encroached land and willingly return the land to the governments to benefit from forest plantation and forest contracting. 1,005 community events were organized in which 75,470 villagers participated.

In 2019, a provincial review changed the figures and the province admitted that only 75,904 ha of encroached land was used by local people for agriculture production, of which 75,783 was already in use before the provincial forestry planning declared this area as forest land. However, this area is far smaller than the 203,700.7 ha of unforested forest land acknowledged in August 2021, which ar commonly admitted as encroached areas. It can be concluded that the implementation of the plan 1123/KH-UBND has not been very successful.

6.2.2 Lam Dong

Lam Dong province committed to maintain its forest above the 55% recorded in 2020 (resolution 01-NQ/DH, November 2020). Resolution 10-NQ/TU of February 2022 on "**Strengthening the Party's leadership in forest management, protection and development"** directs forestry policies and management. For the period 2021 – 2025 it targets:

- An annual decrease of 20% in violation cases and in damaged forest area and entire reforestation/regeneration of newly-destructed forest.
- Planting of 50 million trees and restored forests on forest land being agriculturally cultivated
- Development of production forest
- Planting of medicinal and valuable plants under forest canopy
- Application of high-tech in management

Some critical tasks and measures highlighted by the resolution are:

- Awareness raising in support to law compliance; strengthening accountability among local authorities
- Protection of existing forests, with priority of watershed protection of Dong Nai, Serepok and Da Nhim rivers and other critical ecosystems: Collaboration among bordering districts and with bordering provinces; facilitating joint patrolling, inspections and monitoring by forest rangers, owners and police and military forces. Facilitate management and inspection of timber processing and trade in accordance to regulations on timber legality. Forest fire prevention.
- Resolve illegal settling on and encroachment of forest land and conflicts
- Mobilizing resources to invest in forest plantations, mixed planting of multiple-use tree in agriculturally cultivated forest land and in scattered planting of 50 million trees
- Enable and facilitate organizations and individuals, particularly ethnic minorities and poor households in remote forest areas, to participate in and benefit from forest protection, NTFPs and planting medicinal and valuable plants. Integrate PFES in contracting forest allocation and protection.
- Consolidate capacity of forest rangers, forest management boards and specialized forest protection forces of forest enterprises.

This resolution revives targets set by the earlier provincial plan of August 2020 (Decision 1836/QD-UBND), which for example targeted a reduction of 10-15% of cases and 15-20% of damaged forest area and planned to start with restoring forest on 20,000 ha of a total 52,000 ha of agriculturally cultivated forest land. There has not been much progress in implementing this plan due to lack of budget.

Prior to this, in September 2020, the PPC has promulgated the **Provincial Action Plan on Responses to Climate Change** in Lam Dong in the period 2021-2030, a vision to 2050. Specific actions that were introduced by this plan to be implemented in the period 2021-2025 are:

- Strictly implementing forestry policies, restricting the proposed cases of conversion of forest land to other uses.

- Requesting districts and forest owners to develop plans for sustainable use of forests and forest land and adaptation to climate change.
- Support farmers to gradually transform their cropping system on land planned as forest land and to facilitate mixed planting of forest trees on these lands.
- Continue new plantation of protection forests
- Select and breed forest tree varieties adapted to climate change
- Implement forest land allocation policies, forest lease, PFES and improvement of livelihoods of people living in and around forests.

The **Provincial Action Plan on Green Growth** (Decision 68/QD-UBND) issued January 2021 covers agriculture, forestry, tourism, energy, transport and water resource management. The plan target transition towards a low-emission economy with conservation and quality enhancement of ecosystems and ecosystem services and sustainable consumption. The plan targets an emission reduction of 12% by 2025 and 18% by 2030. It also aims at "green procurement and investment"

6.2.3 Ninh Thuan

The province has politically committed to achieve a forest cover of 49% by 2025, up from 45.66% recorded in 2020. (Decision 1558/QD-BNN-TCLN). In between 2017 and 2020 more than 4,496 ha of forest land were converted to agricultural cultivation (4,118ha) and other uses, e.g. for renewable energy projects. In the period 2020 -2025, Ninh Thuan has planned to formally pull almost 7,169 ha from the total of 45,894 ha of unforested forest land out of the forest planning (resolution 34/NQ-HDND of July 2020).

The **Provincial Programming for adaptation to climate change in the period 2021-2030** (Resolution 12-NG/TU of December 2021) aims at mitigating vulnerability and risks through strengthening resilience and adaptation of communities, economic entities and ecosystems to climate change. In the agriculture sector, it targets mitigation of emissions and enhancement of carbon pools and the province prioritizes investments in irrigation infrastructure and expansion of concentrated plantation, grazing and professionalized cultivation and strengthening management and protection of forests. To implement the resolution, in April 2022, the PPC has issued the Plan 1385/KH-UBND. This calls for developing policies to support the transformation from short-term to longer term rotation forest plantations, and expansion of PFES to include carbon sequestration services of forest.

Developing Tourism as a key economic sector has been a priority by Ninh Thuan, as reflected by Resolution 04-NQ/TU by the Provincial Communist Party of August 2021, PPC Decisions 555/QD-UBND and 636/QD-UBND of October 2021.Based on competitive advantage offered by its marine, forest and agriculture ecosystems, Ninh Thuan plans to develop ecotourism and community tourism around Nui Chuo national park in Ninh Hai, Phuoc Binh national park in Thuan Bac. It is expected that developing community-based ecotourism in districts where ethnic Raglay people live around special use and protection forests in will reduce pressure on forests. Measures to implement include building community-based tourism capacity through vocational training, education and engagement of tourism businesses, building facilities and logistics and supporting marketing and promotion.

6.2.4 Dak Lak

Dak Lak province has committed to achieve a forest cover rate of 40-42% by 2025.[55] It is formally required to include this target in a series of provincial plans, including the action plan on responses to climate change, the implementation plan of the Paris Agreement and the action plan on green growth. According to decision 2167/QD-UBND of August 2021, the Dak Lak PPC has proposed action to reduce emissions and enhance carbon sequestration as contribution to the NDC Update of 2020, including:

- Renewing regulations of forest fire prevention and treatment in the context of changing climate and forest resources.

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[55] : https://hoinongdan.daklak.gov.vn/-/nghi-quyet-ai-hoi-ai-bieu-ang-bo-tinh-ak-lak-lan-thu-xvii-2020-2025-

- Conducting a provincial forest inventory to complete and update the database on forest-land area, forest cover, and drivers of change, including forest inventory maps at scales 1:100.000 and 1:10.000.
- Implementing the plan on forest plantation and scattered tree planting (see details below)
- Attempting to complete the provincial land-use database for 184 communes of 15 districts by 2025 and strengthening land-use management.
- Effectively implementing measures of forest protection, restoration and natural regeneration and sustainable forest management (see details below).
- Reviewing and strengthening institutional improvement with extent to management of protected areas, development of new protected areas, protection of biodiversity corridors and natural ecosystems of national importance plus effective restoration of degraded ones; adoption of advancing technology in management of forest protection, etc

Provincial plan on forest plantation and scattered tree planting 2021-2025.

This plan set out by Decision 1237/QD-UBD of May 2021 it to implement the national program on Plantation of One Billion Trees. The table below presents the targets. The province has to rely on private sector, individual and NGO contributions for the commercial and scattered tree planting, while leaving state budget and ODA funding to support planting in special use and protection forests.

Table 1 Dak Lak targets for tree planting 2012-2025

	Forest plantation	Scattered planting
Total planted area (ha) for 2021-2025	9,085	1,000
In protection and special use forests (ha)	365	-
In production forest (ha)	8,720	-
Annually planted area (ha)	1,817	200
In protection and special use forests (ha)	73	-
In production forest (ha)	1,744	-
Total planted trees for 2021-2025	14,362,500	1,000,000
Annually planted trees	2,870,700	200,000
In protection and special use forests (tree)	80,300	-
In production forest (tree)	2,790,400	-
Selected species for plantation		Sao, Dầu, Bằng Lăng
In protection and special use forests (tree)	Teak, Dầu, Sao, Gáo, Cà te	-
In production forest (tree)	Acacia, Teak, Sao	-
Selected districts for plantation		Public spaces s
For protection and special use forest (by forest management boards)	M'Drak, Ea Kar, Lak, Ea H'Leo, Krong Nang,	
For production forest (by SFEs and households)	M'Drak, Krong Bong, Ea Kar, Lak, Ea Sup, Krong Nang	
Total estimation of 5-year costs (VND)	498,404,000,000	77,248,000,000
For protection and special use forests	30,879,000,000	
For production forest	467,525,000,000	

To realise this plan, the province is to adopt some measures with long-term implications:

- to allow local people to use a proportion of unforested forest-land (less than 30% of area managed by companies) for cultivation with planting of NTFP (e.g. rattan, medicinal herbs).
- study how to provide economic incentives for forest restoration and agroforestry development on deforested and encroached land linked to poverty reduction and supporting ethnic minority people to invest in forest plantation
- Use silviculture technique on bare land in protection forests where natural regeneration is not possible to plant a mix of native trees species, multiple-use trees and NTFPs. In production forests adopt intensive plantation to increase timber productivity from native species, combining fast-growing small-timber with longer rotation large timber.

Provincial plan of forest protection, restoration and sustainable development

To implement the regional programme on forest protection, restoration and sustainable development in the Central Highland (PM Decision 297/QD-TTg of 2019), the provincial presented it plan for the period 2016-2030 in the same year (Decision 3419/QD-UBND). Although at the time the targets for forest cover were slightly lower than current targets, its annual targets for scattered tree planting were 4 times higher than current targets.

Politically, this decision is also seen as an instrument to implement the 2017 Directive 13-CT/TW of the Central Communist Party on Strengthening the Party leadership towards managing, protecting and developing forests. In April 2022, the Dak Lak Provincial Communist Party reviewed compliance to Directive 13 and acknowledged various unsolved problems, such as continued illegal logging, increasing encroachment with alarming complexity, limiting access to forest land given to households of land shortage for cultivation and/or free migration. These lasting threats were attributed to several pending tasks:

- not yet developed regulations or guidance for forest restoration and agroforestry development on deforested and encroached forest-land.
- not yet identified locally suitable models for agroforestry, NTFP development, medicinal plants under forest canopy and community-oriented tourism.
- not yet developed provincial policy incentivizing effective community forest management system based on forest allocation to smallholders.
- not yet developed plan for financial support to communal authorities in forest management and protection
- Not yet developed provincial REDD+ action plan

Unlike other provinces, Dak Lak has not yet presented a plan to address the increase in illegally encroached forest land as demanded by Directive 13 (2017) and Decision 297 (2019). By June, Dak Lak had 84,109 ha of encroached forest land, as per table below.

Table 2 Categorisation of encroached forest land in Dak Lak

Categorisation	Specification	Area (ha)
Total		**84,109**
By forestland types	Special use forest (land)	1,729
	Protection forest (land)	2,940
	Production forest (land)	79,440
By forest owners	State forestry enterprises	23,816
	Forest management boards	3,319
	Communal authority (CPCs)	21,261
	Other organizations	35,713
By land users / occupiers	Households	82,709
	Native/residing people	49,131
	Migrating people (1,841 households)	33,578
	Organizations	1,400
By milestone of forestry planning	Used before provincial forestry planning	36,752
	Used after provincial forestry planning	47,357
By crop type	Rubber	7,046
	Coffee	13,541
	Pepper	2,750
	Fruit trees	1,450
	Other crops	59,322

In 2020 the Dak Lak PPC has promulgated a land use plan and some district land use plan to 2030 has already been approved. However, for implementation, DONRE has to be assigned to lead and coordinate with DARD and DPCs and DPCs to establish baselines and a database and to handle disputes. DPCs also have to be assigned the task to develop plans for the use of land acquired from agriculture and forest enterprises, ensuring adequate housing and crop land being given to ethnic minorities, for resettlement of free migrants and for agriculture and renewable investment projects.

Several other plans and projects have been prepared by DARD and approved by the PPC, seeking partners and resources for implementation:

- Application of advanced technologies in management, protection and monitoring of forest: to apply ICT for better forest monitoring systems, planning and for PFES implementation.

- Development of production forests linking with processing industries of forest products

- Strengthening management of land used by agricultural and forest enterprises, forest management boards and households. Implemented by DONRE, this project was expected to complete land-use boundary profiles and detailed mapping. However, the project suffered funding shortage and ended without a clear roadmap on how to handle lasting misuse of forest land. According to DARD (2021), by 2020 he PPC had decided to acquire 154,050 ha from 25 organizations to transfer to local authorities. In addition to 45,398 ha managed by communal authorities (CPC) but illegally encroached, there are a total of 199,447 ha acquired of which 155,834 ha are unforested. DARD has requested that all acquired remaining forest, and especially newly regenerated and newly planted forest be strictly managed and not converted into other use. DARD has also proposed to use unforested acquired forest land for various uses, focusing on a) supporting resettlement of migrants, b) investment in forestry development, plantation as well as agroforestry, c) high-tech agriculture

- Implementation plan on sustainable coffee development (PPC Decisions 2811/QD-UBND and 3540/QD-UBND of 2017). This plan has been implemented with ODA funded projects like the World Bank VnSAT and IDH's ISLA. These plans aimed at 80-90% were certified as compliant with sustainable production standards. However, the plans ignored the reality that among 208,109 ha of coffee, there was over 13,541 ha planted on encroached forest land, and thus could not be certified.

- Development of agri- and ecotourism (PPC Decisions 2939/QD-UBND October 2021and 1053/QD-UBND, May 2022) and community tourism in ethnic minority villages (PPC resolution 08/2021/NQ-HDND).

6.2.5 Dak Nong

Dak Nong province has committed to achieving a forest cover rate of 40% (from 38.06% in 2020), an annual reduction of 50% in forest law violation and area related to deforestation, and an area of 5,000 ha new forest plantation by 2025.

Provincial Action Plan on Responses to Climate Change in Dak Nong in the period 2021-2030, a vision to 2050 has approved by the PPC at Decision 835/QD-UBND dated 15th June 2021. This action plan stresses on mainstreaming adaptation to climate change into strategies and planning, enhancing resilience and capacity of communities, economic sectors and ecosystems towards changing climate. The plan also emphasizes forest management and protection, practicing regeneration, restoration and enrichment measurs and strengthening community engagement in planted forests to improve local livelihoods. The plan assigned DARD to collaborate with DONRE to develop solutions for protecting forests in the context of climate change, for example in order to preserve water resources and prevent erosion of river banks.

Provincial projections for sustainable forestry development in the period 2021-2025.

In August 2021, the Dak Nong Provincial Communist Party has promulgated *Resolution 06-NQ/TU directing management, protection, restoration and sustainable development of forests and increases in forest cover in the period 2021-2025, orientations to 2030*. According this resolution, Dak Nong commits to increase the provincial forest cover to over 40% by 2025 and 42% by 2030, for which it has planned to achieve the following targets:

- Well managed and protected 196,285 ha of natural forests among the total of 247,763 ha of existing forests in the province, limited forest violations to the lowest level;
- Increased at least 13,000 ha of forests by the end of 2025, of which at least 5,000 ha of forestry land without forests to be reforested by measures of natural regeneration, restoration, enrichment, management and strict protection together with development of NTFPs and medicines, plus 8,000 ha as new plantation, combining commodity plantation, agro-forestry based forest development, scattered plantation, transformation of cropping with multiple-use trees and industrial plantation with large canopy trees.
- Increased values of exported forest products 1.5-2 times higher than that recorded in 2020, and gradually accessed markets of commercial carbon credits

To achieve these targets, a long list of tasks and solutions have been identified:

- Continued reviewing and solving disputes and illegal encroachment; strengthening accountability among responsible stakeholders; and collaboration among local authorities (districts, communes), forest owner organizations and line agencies.
- Strengthening prevention and enforcement regarding serious violations, identifying hotspots of illegal logging, invasion and forest fires.
- Ensuring the planning of forests is consistent with land use planning; consolidating the system of forest management boards and state forest enterprises and promoting forest land allocation for organizations, communities and households with granting of land use titles.
- Determined re-planting on those forest areas that were destroyed **after 1st July 2014**
- Harmonized development of timber plantations with incentives to transform short-term to longer-term rotations; call for investments in valuable large timber (i.e. long-term rotation) with enhanced protection functions on unforested forest land
- Support agroforestry with economically viable multi-use tree species on encroached forest land (Sandalwood, *Sưa đỏ, Sao đen, Dầu rái (Dipterocarpus), Muồng đen, Gáo vàng,* Macadamia, *Dổi nếp,..*)
- Effective implementation of the One Billion trees program, including woody fruit trees such as Cashew Macadamia, Avocado, Durian, Grapefruit, Mangosteen and Rambutan.
- For resource mobilization, ensure effective PFES, enabling investors and business sectors to join carbon transaction schemes.

As mentioned by the Resolution, addressing the problem of encroached forest land is critical to achieve targets. As reported by the Central Communist Party's Economic Committee (2020), about 73,430 ha of planned forestry land in Dak Nong has been encroached and is used for agricultural production. The majority is planned for production forests (62,194 ha), and more than 50% has been invaded after July 2014, see the table below.

Table 3 Encroached forest land in Dak Nong

Categorisation	Specification	Area (ha) by 2020
Total		**73,430**
By forestland types	Special use forest (land)	396
	Protection forest (land)	10,840
	Production forest (land)	62,194
By forest owners	State forestry enterprises	15,600
	Forest management boards	16,830
	Communal authority (CPCs)	27,000
	Other organizations	14,000
By land users / occupiers	Households	63,430
	Native/residing people	38,060
	Migrating people	25,370
	Organizations	10,000
By milestone of forestry planning	Used before provincial forestry planning	30,720
	Used after provincial forestry planning	42,710
By types of trees / plants	Rubber	6,030
	Coffee and pepper	19,600
	Fruit trees	3,500
	Other trees / plants	47,450

To address conflict management in forestry land use, in 2018 the Dak Nong PPC has promulgated the **Projection to handle shortcomings in management and protection of forests and forestry land in the province** (as Decision 2159/QD-UBND dated 26th December 2018). According to Dak Nong FPD, this decision aimed at addressing the almost 81,000 ha of forestry land having been invaded by the end of 2018, of which 68,000 ha permanently used by intensive agricultural production that cannot enforce for land acquisition due to threats on political and social security, and demand alternative solutions to harmonize land use management, creating co-benefits for local people and nature. For instance, if transforming encroached forestry land from bare or annual cropping to agro-forestry, it must use 70% the area for (multipurpose) forest trees and maximum 30% for agricultural crops. Guidelines for industrial plantations on encroached land included thinning to plant 200 forest trees per hectare. To implement the Decision, the province assigned responsibilities to respective departments and forest owner organizations and established a Legislative Advisory team and Joint Task Forces at provincial,

district and commune level. Although much has been clarified, the FPD still faces challenges to enforce people to withdraw from encroached land or to transform monocrops into agroforestry.

Aligning with the Decision 2159, the province has also directed **Strengthening management of forestry land being utilized by state forestry enterprises, forest management boards and other organizations, households and individuals in Dak Nong province** (as Decision 728/QD-UBND dated 17th May 2018). This provincial plan was implemented between 2018-2021, which aimed at the management of 246,006 ha of forestry land under the authorized management and uses of (i) 01 national park, 02 nature reserves and 05 forest management boards with 81,299 ha; (ii) 64 forestry companies and other organizations with 73,165 ha; and (iii) local authorities (districts) with 91,542 ha that was already acquired from agricultural and forestry enterprises and then transferred to local authorities. The province proposed GoV providing all budget, but as with Dak lak, only a small amount was granted and most of the plan remained unimplemented.

Provincial implementation plan of the regional program on forest protection, restoration and sustainable development in the Central Highlands for the period 2016-2030 (Decision 297/QD-TTg) Indicated by PPC Decision 984/QD-UBND in July 2019, a wide range of actions were assigned to DARD, other departments and DPCs to step by step prevent and halt deforestation, and to restore and sustainably develop forests in the province. Particularly, in 2019 the Dak Nong PPC has promulgated regulations on reconciliation and resolution of land use disputes and enforcement of compliance to decisions on resolutions of land use disputes[56]. Many planned actions have not yet been implemented, including:

- developing joint-ventures and collaborative mechanisms between smallholders and private sector in forest development
- Implementation of decisions 2159 and 728, as discussed above, especially handling encroachment and conflicts in hotspots with free migrants and/or mass complaints.
- Reviewing and developing district plans of forest protection, restoration and sustainable development in the period 2021-2025.
- Facilitating forest land allocation to local communities and households in areas temporarily managed by communal authorities and strengthening community forest management.
- Developing forest cooperatives.
- Demonstrating agroforestry models and training of local communities by agriculture and forestry extension networks on agroforestry and making nurseries.

Guidance for financial support for investments in planting production forest, scattered trees and agroforestry.

Based on national policies, Dak Nong province has set new cost standards for financial support.

Type of investment	Eligibility	Standard amount
Planting of long-rotation (large timber) trees, multiple-use trees and native trees in production forest areas	Post-investment	VND 2,000,000/ha
Planting of short rotation (small timber) trees	Post-investment	VND 2,000,000/ha
Planting of scattered trees and agroforestry with perennials (large timber), native and rare tree species		VND 5,000/tree
Contract on forest protection and regeneration with enrichment	non-PFES communes of hardship categories II and III	VND100,000/ha/year (in addition to VND300,000/ha/yr from central budget)
Management and protection of natural forest (protection and production forests)	Under authority or management of forest companies or communal authorities, and under management of households or communities (allocated or leased)	VND 200,000 (areas with PFES) VND 300,000 (areas without PFES)

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[56] As Decision 05/2019/QD-UBND issued by the PPC on 11th March 2019

Management and protection of natural forests	a) Management Boards (special use and protection forests)	a) VND 500,000/ha/yr
	b) non-state-owned companies and other organizations (leased protection and production forest)	b) VND 300,000/ha/yr
Operation of communal forestry boards responsible for overseeing from 500 to ovr 15,000 ha	a) hardship and boundary communes	a) VND 1,500,000 – 3,000,000 /month
	b) other	b) 1,000,000 – 2,000,000 /month
Participation in fighting forest fire		As per Decision 14/2021/QD-UBND

One Billion Trees program

Dak Nong has committed to plant 3 million scattered trees, equivalent to 3,000 ha, and 8 million trees on 5,000 ha of concentrated plantations. The province has set detailed annual targets per district and per category of scattered trees for urban and rural areas and for plantations. The province has also selected tree species with priority given to native, multiple-use and woody tres for scattered planting in home gardens, road corridors, river banks and public spaces, industrial zones and scattered bare land. For protection and special use forest species will be according to MARD circulars regulating their afforestation. The province seeks contributions from private sectors, domestic and international donors, and integration with public investment through NTPs, and voluntary engagement of social organizations, individuals, households and communities in planting, caring and protecting planted trees.

In 2021, the PPC has promulgated a **Provincial Framework on Forests Prices in Dak Nong** (Decision 11/2021/QD-UBND). Each type of forest is locally priced as guided by MARD Circular 32/2018/TT-BNNPTNT regulating methodologies for pricing. These prices guide decisions on leasing, on ecotourism, agricultural and forestry economic development, on forest compensation, off-set plantation (when forests converted to other uses) and forest allocation. A wide range of forest types in Dak Nong that are identified and priced by minimum and maximum prices for each district, consisting of:

- Natural forests are priced based on their timber volume per ha. Including: 24 forest statuses of special use forests in 4 districts; 25 forest statuses of protection forests distributed at 7 districts; 21 forest statuses of production forests distributed at 7 districts

- Plantation forests are priced based on species, tree density and age, including acacia, pine, *Dau* (Dipterocapus), *Sao*, *Gao vang*, and mixed acacia and *Dau*.

6.3 Main challenges in REDD+ implementation

6.3.1 Challenges at national level

(a) Implementation of the NRAP in the Central Highlands

Few barriers remain at national level to implement REDD+. The REDD+ National Action Plan (NRAP), first approved in 2012 and then updated in 2017, provides the country's framework for REDD+ implementation up to 2030. Aligned with United Nations Framework Convention on Climate Change's (UNFCCC) decisions, which urge countries to address the direct and underlying drivers of deforestation and forest degradation, REDD+ plays a pivotal role in Viet Nam's National Climate Change Strategy and achieving Viet Nam's Nationally Determined Contribution to the Paris Climate Agreement (2022) LULUCF emission reduction targets. Vietnam received over US$74 million in REDD+ readiness investment, since 2008, to develop its strategies, capacity and technical abilities. As detailed in Section 6.1, Vietnam has significant capacity to implement REDD+ at the national level, and is in Phase 2 and Phase 3 of REDD+.

The World Bank Forest Carbon Partnership Facility (FCPF) has supported Viet Nam to achieve REDD+ objectives and receive results-based payments for the North-Central Coast of the country.

This has brought Vietnam to Phase 3 of REDD+: results-based payments. Vietnam's success in achieving emission reductions in the North-Central Coast is receiving $51.5 million from the World Bank.

However, the Central Highlands of Vietnam have thus far not received large-scale international support for NRAP implementation. Yet, these forests have suffered roughly 1/3 of the deforestation and forest degradation nationally and future prospects indicate that despite the logging ban, challenges remain. Thus, there is a need to implement Phase 2 in the Central Highlands.

The Central Highlands forests, representing 22.3 percent of the national forest cover, are a hotspot for deforestation. Between 2010 and 2018, forest loss was 30% of the national total (362,532 ha) and 34% of national degradation (789,720 ha). The target provinces of the project are home to a significant population of rural poor and ethnic minorities who heavily rely on agriculture and NWFPs for their livelihoods. These communities face limitations and vulnerabilities in terms of their assets and access to resources, including information, technology, and finance (see other sections in Annex 2). Therefore, addressing deforestation and forest degradation in these regions requires a concerted effort to strengthen enforcement capacity, support livelihood improvements, and establish sustainable pathways that allow farmers and forest-dependent individuals and communities to engage in market activities for their betterment.

Three main barriers are required to be overcome:
1) Integrating NRAP into Provincial land use policy and planning frameworks: Cross-sectoral coordination and alignment has not occurred adequately in the last 5-year development plan, and technical and political alignment is required to shift sectoral mandates to align with the NRAP. The 2025-2030 development planning time horizon provides the policy venue for NRAP alignment with provincial socio-economic development plans (SEDPs), in sectors driving land conversation, and this these activities must begin immediately and upon project inception and implementation.
2) Traceability in the commodity supply chains are most non-existant, and these supply chains are structured to a) delink international market connection to producers, and b) make it almost impossible to trace commodities back to the farm plot, due to the role of traders mixing products according to grade (quality). This is most notable with the coffee supply chain. Thus, while achieving deforestation-free commodity production, as mandated by the NRAP and more recently the EUDR, is crucial for meeting these needs, the complexity in delivering on that need is immense. See section below on deforestation-free commodities for more detail on how RECAF seeks to address this.
3) The ability for policy to address direct and underlying drivers has had mixed success historically. Commodity production area overshoots beyond Provincial planning targets occurred dramatically in rubber and coffee production areas historically. These production landscapes are highly influenced by market prices, and that has driven expansion at the cost of forest and ecosystem function. While Prime Minister's Directive 13 and the natural forest moratorium (Notice 191) have achieved notable success, implementation of these occurred at times when commodity prices were at historic lows. Surely government was able to implement these policies, but low commodity prices assisted in that success. With coffee prices now surging, it is likely that some of this success will be eroded. Reversing the trend of strong correlation between commodity prices and unsustainable land use will require concerted effort in the supply chains.

Therefore the project will invest in (ii) support effective community-based forest management and inclusive investment planning and equitable resource distribution; (iii) promote development of deforestation-free agricultural commodities, agroforestry and alternative income generating activities, climate resilient infrastructure, and development of aligned and funded credit products.

The NRAP to 2030 is officially included in the implementation of the National Strategy for Forestry Development in the period 2021-2030, a vision to 2050 (as Decision 523/QD-TTg in 2021) and

National Program for Sustainable Forestry Development in the period 2021-2025 (as Decision 809/QD-TTg in 2022).

In the changing contexts, especially pursuing Viet Nam's commitment to COP 26 on zero emission, it is critical for policy makers, particularly from MARD and MONRE, that how to cope that in shaping new REDD+ roadmap and/or implementation plan to 2030, for which it can perform a reduction of 70% from emissions and an increase of 20% from carbon removals, and at least -95 million tons achieved from both emissions and removals in comparison to the 2014 BAU scenario that are particularly targeted for the forestry and land use sector by the National Strategy for Climate Change to 2050 (as Decision 896/QD-TTg). These concrete targets are not found in the NRAP as in the period 2021-2030, it only focuses on stabilizing the area of natural forests by 2030 a minimum as large as it recorded in 2020 and increasing the national forest cover at 45%[57], expanding effective models of REDD+ and sustainable forest management, integrating REDD+ into sustainable forestry development program, etc. Aligning to implementation of NRAP and new strategies on climate change and green growth, it would require MARD to frame pathways and interventions to achieve 2030 targets of emissions and removals mentioned above.

(b) The country level REDD+ readiness is available but carbon accounting for removals (afforestation) requires additional international assistance

That country-level REDD+ readiness is acknowledged by availability of a National REDD+ Program (or NRAP, Decision 419/QD-TTg in 2017), a National Forest Monitoring System (NFMS), a National Forest Reference Emission Level/Forest Reference Level for the period 1995-2010 (FREL/REL, submitted 2016) and First Safeguards Information Summary/ Safeguard Information Summary (SIS/SoI, submitted 2018) as required by COP 19 (Warsaw, 2013). These are core elements Viet Nam has been developing in early phases of REDD+ development mainly through UN-REDD and FCPF programs, internationally regarding as prerequisite conditions/information for the country seeking to obtain and receive result-based finance for result-based REDD+ actions that are fully measured, reported and verified. Furthermore, aligning with the submission of the Third Biennial Update Report (BUR 3)[58] on 16th April 2021 to UNFCCC to inform the national GHG inventory results for 2016, it has also included a Technical Annex on REDD+ prepared by MARD in 2020 to provide results achieved by Viet Nam from reducing emissions from deforestation and forest degradation and increasing removals from enhancement of forest carbon stocks for the period 2014-2018.

Regarding to emerging contexts such as recent/on-going development and/or enforcement of national, sectoral and provincial planning in according to the Planning Law 2017, Environmental Protection Law 2020, national strategy on climate change to 2050, and country roadmap / action plan to realize commitment on zero emissions to 2050, a number of gaps, uncertainty and inconsistence technically and institutionally being existed that might challenge feasibility, transparency and effectiveness with extent to result-based development, implementation and management of REDD+ initiatives in Viet Nam as follows:

- Current NRAP (2017) does not capture and concretize targets of reduced emissions by 2030 in the forestry and land use sector set by the Viet Nam Updated NDC (2020) and newly-promulgated National Strategy on Climate Change, as well as adaptation targets on the national forest cover (minimum 42-43%) set by national strategies on climate change, green growth and forestry development to 2030;
- It is not clear or uncertain how the targets of reduced emissions by 2030 are integrated in the national forestry planning for the period 2021-2030, for which how they are quantified the levels of reduced emissions over time for each type of forest or eco-agricultural region as well as proposed interventions particularly related to forestry land use planning in order to achieve emission reduction and other objectives set by the national strategy on forestry development by 2030;

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[57] The national strategies on forestry development, green growth and climate change set the national forest cover at 42-43% by 2030, lower than what NRAP has planned
[58] https://unfccc.int/documents/273504

- Definition of forest: for the construction of the FREL/FRL 1995-2010 and calculation of reduced emissions from REDD+ during 2014-2018 and the recent GHG inventory submitted UNFCCC in 2016 and 2021 respectively, Viet Nam used the definition of forest which regulates by Circular 34/2009/TT-BNNPTNT issued by MARD in 2009. But this definition is slightly changed with adoption and enforcement of Decree 156/2018/ND-CP guiding implementation of the Forestry Law 2017 took effect as 1st January 2019 and replaced for the Circular 34. The Decree provides different sets of criteria to define natural forests and planted forests (respective to Article 4 and 5) being consistent with the FAO definition, of which some indicators like the gathering area and average height of trees given to certain types of forests that are differently quantified in comparison to the only one general definition given by the Circular. This situation will challenge in future BUR submissions, including GHG inventories in forestry and land use sector and periodical calculation of ERs in order to make them harmonized and consistent with the results already provided in the FREL/FRL, the updated NDC and REDD+ performance 2014-2018;
- FREL/REL and scope of REDD+ activities: The NRAP (2017) has composed 5 types of REDD+ activities, consisting of (i) emission reductions from deforestation, (ii) emission reductions from forest degradation, (iii) enhancement of forest carbon stocks from reforestation, (iv) enhancement of forest carbon stocks from forest restoration, and (v) conservation of forest carbon stock and sustainable forest management. In the construction of FREL/FRL 1995-2010 and calculation of reduced emissions from REDD+ in the period 2014-2018, Viet Nam only applied REDD+ activities of ERs from deforestation and forest degradation and enhancement of removals from reforestation and forest restoration because sustainable forest management was not defined despite forestry activities that related to sustainable management were accounted for, considering that all forest and land use change activities are captured through the land conversion matrix. Regulated by Article 27 of the Forestry Law, activities of sustainable forest management that are clearly defined by Circular 28/2018/TT-BNNPTNT issued by MARD on 16th November 2018. Therefore, it would challenge for the future REDD+ development that how to assess the results of REDD+ from this activity.
- The 1st SoI/SIS of Viet Nam submitted in 2019 focused a country approach to REDD+ safeguards in according to the Cancun safeguards but does not meet the GCF safeguard requirements for results-based payments as "a SIS to inform how the safeguards are addressed and respected, and a summary of information on how all the Cancun REDD+ safeguards were addressed and respected during the period for which payment for results is being requested"[59]. To demonstrate fulfilment and compliance with a range of safeguards requirement for REDD+ results-based payment and financing for REDD+ actions, for example GCF, LEAF and FCPF, Viet Nam needs to challenge to work out an efficient and effective unified national approach, or a Country Safeguards Framework, then it would be helpful to enable multiple REDD+ financing and payment at the same forest areas. Progressing to this united approach, the 1st SoI/SIS provided a range of actions that Viet Nam is expected to take up, as (i) continuing to roll out the country approach to the Cancun safeguards, including operationalization of SIS; (ii) mapping the safeguard frameworks and requirements of different identified REDD funding and financing sources to identify their common requirements and potential overlaps, and based on that to identify options to broaden the application of a Country Safeguards Framework to address different safeguard requirements; and (iii) securing implementation of selected options. In addition, the 1st SoI/SIS also needs update with assessment of newly-issued policies, laws and regulations that address relevant environmental and social safeguards, such as the amended Environmental Protection Law 2020 and its decrees 06, 08, potential changes in environmental and forestry governance structures in near future, implications of NTPs relating to REDD+ activities, and more important, development of monitoring framework for collecting information and verifying how REDD+ programs, projects, key activities or forestry policies respecting safeguard requirements;
- As Viet Nam project area approaches the later stages of the forest transition curve, prioritizing the "+" aspect of REDD+ becomes important, focusing on forest restoration and emissions reduction from agricultural land. However, there are limitations in Viet Nam, particularly at the provincial, district, and commune levels, to effectively plan and implement activities related to the "+"

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[59] https://redd.unfccc.int/files/4850_1_first_soi_viet_nam__28eng_29.pdf

component. These challenges are further compounded by the observed and anticipated impacts of climate change on key crops like rice, coffee, and cashew. Without proactive interventions to enhance agricultural productivity and value sustainably, these factors will likely intensify pressure on the country's forests.

(c) Lacking of regulatory and technical guidance that are institutionalized for implementation
In the period of REDD+ readiness, Viet Nam has demonstrated the development of different guidance supporting to implementation of policies and measures proposed by NRAP, but could not legalize or formalize for broader application, especially in guiding provinces and REDD+ projects/activities to perform the NRAP, including:

- Lacking a technical guideline on PRAP development, implementation and monitoring, for which it can effectively engage different stakeholders and resources in addressing complexity of threats or drivers to deforestation and forest degradation, and frame pathways to collaboratively perform and achieve provincially-targeted REDD+ outcomes aligning with implementation of national and local forestry policies and priorities, NTPs and other pro-forest development;
- Lacking of definition and regulation for carbon rights supporting for REDD+ results-based payment: at this point the ownership of Res from REDD+ belongs to the state, represented by GoV, who has rights and responsibilities related to transfer of carbon emissions and receipt of results-based payment. This determination refers to the constitution that all natural forests and state-invested planted forests in Viet Nam that are owned by the State. Recently, GoV allows to demonstrate MARD as a ministerial representative with rights of carbon transfer and receipt of payment from via formulating a decree to guide implementation of ERPA/FCPF. With issuance and operation of Decree 06/2022/ND-CP under the Environmental Protection Law and amendment-to-be Decree 156/2018/ND-CP under the Forestry Law, some dimensions of carbon rights might be legalized to secure potential transactions of carbon emissions and removals in the future markets domestically and internationally. Options addressing rights to ERs to be discussed and guided, considering ministries (like MARD, MONRE) and provinces (PPCs) could be acted as representatives for ownership of ERs and payment management. Likely forest owners, including organizations, households, individuals and communities, would not be the subjects of carbon owners with respect to emission reduction and removals generated from the forest area they are authorized by the State. This ignorance would challenge the establishment and operation of fair and transparent distribution schemes of results-based payment.
- Lacking of regulations or guidance on functional FPIC, REDD+ communication, and grievance redness mechanism as well as participatory governance assessment (PGA) to be institutionalized for provincial and local adoption
- Lacking of monitoring frameworks to enable overseeing and collecting information and data that design and apply for REDD+ results-based performance at regional, program, provincial, project and activity levels, and nesting guidelines to enable reporting REDD+ safeguards monitoring from site and provincial levels to national safeguard information system;

(d) Re-arranging REDD+ implementation through synergizing forestry and non-forestry sectors/ interventions
As mentioned above, REDD+/NRAP implementation is regarded as an integrated part of the national program on sustainable forestry development in the period 2021-2025 (as Decision 809/QD-TTg) – an investment phase contributing to operationalize the national strategy on forestry development to 2030. Therefore, effectiveness of REDD+ implementation in general would be much relied on capacity in planning and coordination of the Steering Committees for the Sustainable Forestry Development Program (2021-2025, and 2026-2030) and its standing office executed by MARD where the former Vietnam REDD+ office (VRO) and national focal contact (person) were already merged and enclosed. In this context, REDD+ has been always seen belonging to forestry-single instrument, challenging conventional forestry practice and management. Focusing on REDD+ projects in the past years that has led to less attention given to advancing NRAP and associated policies, therefore resulting to institutional gaps within VNForest to drive NRAP program, for example having few managers or seniors motivated and aware of REDD+ that enabling them to catch up with NRAP implementation.

Glancing at national policies, REDD+ targets for 2030 are already mainstreamed in national strategies on climate change and green growth that are in charged by MONRE and MPI respectively. Therefore, the standing office for the National Steering Committee needs to be strengthened with capacity building and guidelines in integrated planning for REDD+ and inter-ministerial coordination. However, mainstreaming REDD+ would require broader engagement of non-forestry sectors because NRAP's policies and measures to be selected and framed for 2021 – 2030 would have to simultaneously deal with direct drivers of deforestation and forest degradation such as agriculture expansion, infrastructure development, unsustainable logging, over exploitation and forest fire, and indirect drivers such as increasing population and free migration, poverty, weak capacity in forest management, and as often, lacking of funding or investment to finance for forest protection, restoration and development. To challenge this complexity, it requires the Steering Committee and standing office proactively connecting, coordinating and integrating REDD+ planning and coordination with other NTPs (sustainable reduction of poverty, development of new rurals, socio-economic development in ethnic minority and mountainous areas), and other sectoral policies or agendas related to climate change, land use, agricultural sectoral reform, control of free migration, post-covid 19 livelihood support, private sector engagement and investment in smart climate agriculture, etc.

6.3.2 Challenges in project provinces

- Land use planning, tenure and management of forestland encroachment, conversion and conflict; implications for forest regeneration

- Effectiveness of forest protection (issues of budget, weak enforcement, institutional reform and demands of collaborative management)

- Community and ethnic minority rights to land, trees and carbon: FLA, legality and benefit sharing

- Stakeholder engagement (participatory decision making, gender equity, role of private sector)

- Provincial operationalization of REDD+ safeguards

- Challenges in integration of vulnerability assessment (both landscape/watershed and community) adaptation planning with land use and forest planning at local level

Recommendations for improving the enabling environment and capacity of REDD+ implementation

- Understanding political economic drivers of deforestation and forest degradation and translating NRAP 2030 in provincial plans

- Using an adaptive and collaborative management approach and fair benefit sharing for forest restoration

- Operationalizing national guidance for provincial implementation and monitoring of REDD+ safeguards (FPIC, gender, ethnic minorities, biodiversity)

- Integration of adaptation planning with local REDD+ and forestry planning, including community-based disaster risk management

- Coordinating and mobilizing resources

Chapter 7 - Community-based Forest Management and Payment for Forest Ecosystem Services (PFES)

7.1 Community-based Forest Management

7.1.1 History, legal framework and typologies of community-based forest management in Viet Nam

History of CFM in Viet Nam

Community-based forest management has a long tradition in Viet Nam. Various studies indicate the existence of traditional practices in forest management by rural communities in the forest areas in different parts of the country. For hundreds of years, traditional forms of forest management based on village regulations were commonly practiced in the forest environment.

Forest resources in Viet Nam were nationalized in 1976. State forest agencies were given the responsibility of forest management. A system of State Forest Enterprises (SFE) was set up with the responsibility of forest exploitation and plantation at field level. Traditional tenure rights of local communities were not recognized, and their natural resource management practices were restricted.

In early 1990s, government in Viet Nam realized the need to get local communities involved in the management of forest resources. The Forest Protection and Development Law, passed in 1991, provided a legal framework for allocating forest resources to local people for management, protection and commercial use. In 1993, Land Law was passed, allowing land users to have long term renewable land use titles, known as Red Book Certificates (RBC). The two laws laid out the fundamental framework for forest and land tenure rights to local people – an important pre-condition for development of community-based forest management. In the rest of 1990s, Viet Nam experienced a period of piloting forest land allocation (FLA) and introduced forms of CFM in various parts of the country.

In early 2000s, Viet Nam formally recognized forest management under communities. The revised Land Law passed in 2003 provided legal recognition to community land tenure. The new Forest Protection and Development Law passed in December 2004 endorsed community forest tenure and defined the conditions under which villages could receive forestland collectively. Accordingly, local communities became legal users of land and forests – yet, they were not recognized as legal owner of forest. In the rest of 2000s and early 2010s, CFM momentum continued with significant efforts be given to experiment different community forestry modalities in the field, and to develop the legal framework to guide the development of CFM at the national level. Approaches for forest management planning, alternatives for local livelihoods improvement, and mechanisms for benefit distribution were tested under different projects and programs. The most notable initiative during this period was the Community Forestry Pilot Project, which was implemented by Viet Nam Administration of Forestry (VNFOREST) between 2006-2009 (Phase I) and 2012-2013 (Phase II), covering 10 provinces in Phase I and 9 provinces in Phase II.

Nevertheless, the second phase of the CFM Pilot Project ended in 2013 but no legal framework to guide the development of CFM nationally was issued. At the same time, the Land Law (Law number 45/2013/QH13) passed in November 2013 does not recognize allocation of natural and production forests to local people (including both village communities and individual households). As a consequence, CFM lost the momentum in mid 2010s.

In November 2017, the Forestry Law (Law number 16/2017/QH14) was approved. The new law provides further legal basis for CFM by recognizing local communities, defined as "groups living in the same village and having the same customs and traditions", as legal owner of forest and giving priority in forest allocation to ethnic minority peoples and communities who have customs, traditions, culture, beliefs and customary rules associated with forest uses. Approval of Forestry Law 2017 along with the emphasis on sustainable forest management and social safeguards for implementation of international commitments, CFM began to regain the attention in recent years.

Current policy framework on community-based forest management.

The following legal documents, which are currently in effect, provide the legal framework for community-based forest management:

☐	Land law 2013 (Law 45/2013/QH13), approved by the National Assembly on 29/11/2013

☐	Forestry Law (Law number 16/2017/QH14), approved by National Assembly in November 2017.

National strategies and plans:

☐	National Forestry sector Development Strategy (NFDS) for the period of 2021-2030 and vision to 2050, approved in April 2021 following Decision 523/QD-TTg.

☐	National REDD+ Action Program (NRAP) until 2030, approved on 5th April 2017 following Decision 419/QD-TTg.

Bylaw documents:

☐	Decision 01/QD-TCLN-VP of VNFOREST dated 6th January 2016 assigning the Forest Protection Department (FPD) as the national focal point of CFM.

☐	Decree 156/2018/NĐ-CP dated 16th November 2018 guiding the implementation of 2017 Forestry Law.

Main typologies of community-based forest management.

It is important to note that there is no legal definition of community-based forest management in Viet Nam at the moment. Attempt has been made to legally define CFM by the CFM Pilot Program (Decision No 106/2006/QD-BNN of MARD Minister dated 27th November 2006). Accordingly, community forest refers to forest allocated by the State to village communities for stable and long-term use. CFM is a form of forest management whereby the village communities, in their capacity as forest managers, participate in forest allocation, elaboration of forest management plans and organization of the implementation of those plans. Nevertheless, Decision 106 was only valid for the CFM Pilot Program and no further action has been made after the completion of the Program in 2012 to legalize the definition of CFM.

In Viet Nam, CFM has been manifested in various forms, which have emerged from different contexts. The common forms are briefly discussed below. However, it is important to note that the differences among these forms are very fluid and highly contested. In many contexts, some forms are used interchangeably.

☐	Social forestry: the term 'social forestry' (SF) is commonly used interchangeably with CFM yet there are specific 'social forestry' programs and projects that have been implemented in Viet Nam with support from German and Swiss governments in 1990s, including the Social Forestry Development Project in the Song Da watershed (Northwest Viet Nam) funded by German government.

☐	Community forestry: Community forestry (CF) is also widely used interchangeably with CBF. At the same time, there are specific cases of CBM that are termed 'CF'. This refers to a village community collectively managing a forest area formally allocated to them, which is widely found in Viet Nam (Gilmour 2016; Sikor et al. 2013).

☐	Forest contracting: Forest contracting is being practiced all over the country (Lê Bá Toàn 2012; Lê Thị Diên et al. 2013a; Nguyễn Thành Khâm 2018). It can be classified as joint forest management (JFM), which refers to a partnership between a state forest agency and local community(ies) in forest management. Under forest contracting, local communities are required to organize forest protection and to set up necessary bodies. In return for their services, they are entitled to receive a cash payment and to benefit from non-timber forest products in the forests.

☐	Co-management of forest: Co-management of forest (or forest co-management) refers to sharing of responsibilities between local communities and the state, represented by a particular institution for management of protected areas. Co-management of forest has been piloted in a number of protected areas in Viet Nam, including Tram Chim National Park (Lai & Vij 2012; Oh 2010).

☐ Village forestry: Practice of village forestry has also been common after the recognition of Viet Nam Forest Protection and Development Law of 2004 (Lê Thị Diên et al. 2013b; Nguyen 2018; Nguyen, Nguyen, & Tran 2007; Sikor & Nguyen 2011).

☐ Smallholder forestry: smallholder forestry refers to forestry practiced by smallholders on forest land that is privately owned. It is relatively common in Viet Nam following the process of FLA to households since 1990s (Gilmour 2016; Nguyen 2005; Nguyen, Nguyen, & Tran 2008; Sikor & Nguyen 2011). At the moment, over two third of the forestry land area claimed to be under CFM in Viet Nam are smallholder forests.

☐ Traditional CFM: Various traditional forms of CFM still thrive despite of the dominance of state forest management for decades. Although there is still no legal recognition, traditional CFM has been accepted by many (include government officers) as a sustainable way of managing the forest resources. VNFOREST estimated that at least 247,000 ha, or 1.5% of total forest land area is under some forms of traditional CFM.

☐ Others: There are various other forms of CFM that are being practiced, including partnership between community and private sector (bilateral partnership between community and a private sector for management of specific forests), and (adaptive) collaborative forest management.

7.1.2 Institutional structure for community-based forest management

There are various actors involved in CFM in Viet Nam. They can be grouped into three main groups: 1) system of state management of forestry, 2) communities, and 3) other actors. The discussion that follows briefly elaborates on the role of each key actor.

Government agencies

In line with the general forest management institutional structure, the FPD at national level and sub-FPD under DARD at provincial level, are responsible for CFM policy, strategy and monitoring of CFM. Through decisions on land tenure and allocation of funds, the PPCs also have a large influence on CFM development. District Forest Protection Unit (FPU) are in charge of supporting local communities in forest management. CPCs temporary in charge of non-allocated forests can decide on whether or not to involve local communities in the forest management.

The local communities

Local communities constitute the largest group of actors in CFM in Viet Nam. It is estimated that there are around 25 million people living in over 18 thousand communities in or around forest areas in Viet Nam, whose life and livelihoods depend on local forest in one way or another (Luong & Nguyen 2016). Among them, around 10 thousand communities have legal rights to around 4.36 million ha of forests (3.19 million ha by individual households and 1.17 million ha by village communities) at over 30% of total forest area in the whole country. In addition, many communities are also managing local forests without legal recognition from the government, through customary practices.

Local communities have the strongest interest (of all concerned actors) in CFM. However, they have limited influence on CFM development as they do not have (strong) decision-making power, nor do they have a strong national CFM federation, which can help them increase their leverage on CFM.

For a formal CFM, the management structure at the village level consists of village forest management board (VFMB) being the highest body (see Figure 1). Under the VFMB are forest protection teams (FPT). Depending on the size of the village, there may also be forest protection groups or sub-teams under an FPT.

Figure 1: Forest governance structure of introduced CFM by village communities
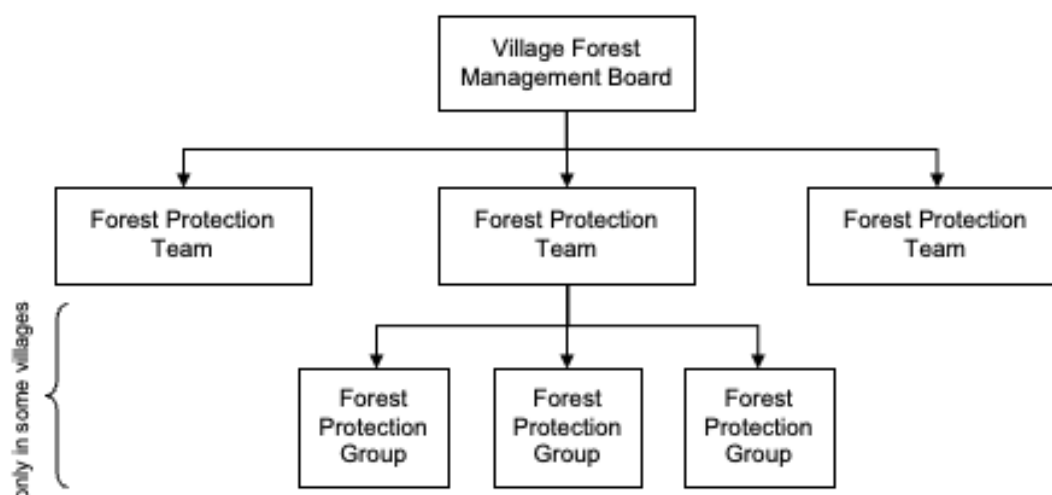
The state elected village head[60] is an important figure in the management structure of formal CFM villages, even when s/he is not a member of VFMB. It is legally required that application for extraction/ utilization of forest resources by local people, particularly for extraction of timber for domestic use, must be endorsed by the village head before it is submitted to the relevant authorities for consideration.

Other actors

(State and private) forest companies and management boards: this sub-group consists of state and private forest companies and management boards for protection and special use forests. They manage around 6.9 million ha of forests (47.3% of total forest area). They can be considered the competitors to communities over forest resources. They are often reluctant to involve local communities in managing their forests unless they are legally required to do so.

Vietnamese NGO and Civil society organizations (CSO): This sub-group includes the Center for Sustainable Development of Mountainous Areas (CSDM), Center for Rural Development in the Central of Viet Nam (CRD), People and Nature Reconciliation (Pan Nature), Center for Indigenous Research and Development (CIRD).

Universities and research institutes: This sub-group is broadly supportive of CFM. They can voice their support to CFM through presentation of their research work to influential policy makers. Staff from universities and research institutes can be very influential in CFM development when they shift to system of state forest management, such as VNFOREST at national level or DARD at provincial level.

International community: international community interested in CFM in Viet Nam includes those who have provided technical and financial supports as well as policy advice to the development of CFM in the last decades. They work with both local communities and system of state forest management agencies. Key agencies area:

- multilateral agencies, such as the Food and Agriculture Organization of the United Nations (FAO), the World Bank (WB)
- bilateral agencies, such as German International Cooperation Agency (GIZ), German Bank for Reconstruction (KfW), Swedish International Development Agency (SIDA), Swiss Development Cooperation (SDC), and Japanese International Cooperation Agency (JICA)
- international non-government organizations (NGO): such as the Center for People and Forests (RECOFTC), International Center for Research in Agroforestry (ICRAF), Center for

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[60] This position is elected by the local people, and represents the state in the village and has direct reporting line to the communal authority.

International Forestry Research (CIFOR), World Wide Fund for Nature (WWF), Tropenbos International (TBI) and Helvetas.

7.1.3 Community-based forest management in four provinces

Evolution of community-based forest management in four provinces

Dak Lak: Dak Lak is one of the provinces championing with CFM in Viet Nam. Dak Lak started its CFM pilots in 1998 in the districts of Lak, Ea H'leo, Ea Kar, and Dak R'lap (the last one became part of Dak Nong after the separation from Dak Lak in 2004) with forest management arrangement by individual households and household groups.

In 2000, CFM in Dak Lak expanded to Krong Bong district. The province also explored the new form of forest management by village communities. In 2004, Dak Lak established two CF village pilots in Ea H'Leo district with procedures developed by a GIZ funded project in the Northwest.

In 2005, Dak Lak province initiated a process to review and accomplish provincial CFM policies, including technical and administrative guidelines for timber harvesting and benefit sharing in CFM. Options for benefit sharing mechanisms were formulated and agreed upon.

In 2006, the first example of village level benefit sharing of commercial timber took place in Ea H'Leo district. The CFM pilot village generated a net income of 283 million VND (around USD 17,000 at then exchange rate) from 370m³ of timber.

In 2008, Dak Lak expanded the benefit sharing pilot in CFM villages to Krong Bong district. After more than a decade of rigorous development, the momentum in CFM in Dak Lak went down and no major benchmark was observed in the whole 2010s.

The evolution of CFM in Dak Lak was well connected with technical support from international projects, particularly the German International Cooperation Agency (GIZ), which was then known as GTZ, through two projects, namely the Sustainable Management of Resources in the Lower Mekong Basin Project (SMRP) and Rural Development Project in Dak Lak (RDDL). Other actors in the province were involved through the provincial working group on Forest Land Allocation & Joint Forest Management (WG-FLA/JFM), which was established in 1999 and actively supported CFM development process in Dak Lak in 2000s. The WG has been dormant with the loss of momentum in CFM in 2010s.

Along with the development of formal CFM regimes, traditional CFM also thrives in Dak Lak, particularly among the local ethnic minorities of the Central Highlands, such as Ede, Jarai and M'nong (Nguyen 2005; Tran 2005). Through years, they have developed their internal rules and regulations to govern the use of the common resources and distribution of forest benefits, to deal with conflicts and to conserve the forests. Such practices have been acknowledged by many local government officers as an effective way to manage forests. Nevertheless, there is no legal recognition of the rights to forest resources of the local communities by state government, and there has been limited if any technical and financial support to them. No data is available on the extent of traditional CFM in the province.

Dak Nong: CFM pilots in Dak Nong started in 1998 in Dak R'lap district when it was still part of the former Dak Lak province. In the first few years, CFM pilot in Dak Nong focused on forest management arrangement by individual households and household groups.

In early 2000s, Dak Nong also piloted forest management arrangement by village communities. In 2002, the first commercial timber logging in CFM forests (household groups) in Dak R'Lap occurred, with a total harvest volume of over 500m³.

After the foundation of Dak Nong province in 2004 (from the former Dak Lak), Dak Nong started with its own CFM pilot in 2005. Village forest management plans were developed in CFM villages and approved by district authorities. In 2007, three CFM pilot villages in Dak Nong had their commercial timber harvest.

Between 2006-2009, Dak Nong was part of the National CFM Pilot Project. Nevertheless, the project only covered 1,900ha in two communes in Krong No district. The project continued with Phase 2 in 2012-2013 but Dak Nong withdrew from the project.

Similar to Dak Lak, after a decade of rigorous development, the momentum in CFM in Dak Nong also went down with the end of CFM supported projects. In the whole 2010s, forest was allocated to two communities in Dak Glong district but no major benchmark in CFM was observed.

The evolution of CFM in Dak Nong was connected with technical support from international projects, including the GIZ funded SMRP (before the separation of Dak Lak and Dak Nong), the Swiss funded Extension and Training Support Project (ETSP), and the Trust Fund for Forestry (TFF) funded National CFM Pilot Project.

Traditional CFM is also commonly practiced in Dak Nong, particularly among the local ethnic minorities (Bảo Huy 2007; Nguyen 2005; Tran 2005). There is however no legal recognition of the traditional CFM, and there has been limited if any technical and financial support to them.

Lam Dong: CFM in Lam Dong has been characterized by the participation of local people in forest management through forest contracting under Payment for Forest Environmental Services (PFES). Lam Dong started with PFES pilot in 2008, under which local communities were involved in forest management and received PFES payment through contractual arrangement with state forest owners/holders. The PFES pilot successfully concluded in 2010 and PFES program was extended to the whole province following the conclusion of the pilot (see more discussion on PFES in Lam Dong in Chapter **Error! Reference source not found.**).

Lam Dong also has formal CFM where local communities have been allocated with forest land. In 2010, Lam Dong started to allocate forests to 10 communities in Lac Duong, Duc Trong, Dam Rong, Di Linh and Bao Lam districts. Yet, there was lack of support to local people to make CFM plan and to undertake CFM after allocation. In 2012, two communities in Lac Duong and Bao Lam had to return the forest to the state as they were unable to manage the forest as expected.

Between 2014-2018, UN-REDD Programme Phase II was implemented in Lam Ha and Di Linh districts of Lam Dong province. As part of the Programme, support was provided to CFM Ka La Tongu village in Di Linh district.

In 2019, Lam Dong undertook the review of CFM in the province. The review concluded that of the eight CFM models in the province, only in three models in Duc Trong, Dam Rong and Di Linh districts that local communities had been able to conserve the forests and thus would be able to continue to keep their forests. In the remaining five CFM models, significant forest loss had occurred and the local communities would have to return the forests to the state, to be reallocated to state agencies for management. As a result, there are only three form CFM communities in Lam Dong province.

There are various cases of traditional CFM among the local ethnic minorities in Lam Dong (Nguyễn Quang Tân et al. 2014). Similar to Dak Lak and Dak Nong such practices have not been legally recognized and there has been limited if any technical and financial support to traditional CFM.

Gia Lai: CFM in Gia Lai province also started in 2002 when the province piloted CF in two communities. As part of the pilot, community-based forest management plans were developed and LUC issued for two communities.

In 2004, Gia Lai was part of the ADB funded Forestry Sector Support Project (FSP) pilot of CF planning procedures at the community level.

Between 2006 – 2007, Gia Lai undertook its own FLA and CFM program. Around 4,274 ha of forest were allocated to 185 households.

Between 2006-2009 and 2012-2013, Gia Lai was part of the National CFM Pilot Project Phase 1 and II, respectively. Six villages were covered under the Pilot Project, with 1,375 ha of poor and degraded forest allocated to local communities.

In recent years, CFM has also been implemented in Gia Lai under the KfW funded project on "Protection and Sustainable Management of Forest Ecosystems" (KfW 10). Altogether 8,236.7 ha of forest land has been allocated to 28 communities in five districts.

In 2021, 11,291.16 ha of forest land was allocated to 25 communities and 70 individual households under a provincial program.

The evolution of CFM in Gia Lai was connected with technical support from international projects, including the ETSP, ADB-FSP, TFF funded National CFM Pilot Project, and KfW10. Nevertheless, it is important to note that Gia Lai is a champion in the five provinces in moving forward with its own FLA and CFM program.

Similar to other provinces, traditional CFM also exist among the local ethnic minorities in Gia Lai (Tran & Nguyen 2000). Such practices have not been legally recognized and there has been limited if any technical and financial support to traditional CFM.

Ninh Thuan: Compared to the other provinces, CFM in Ninh Thuan has been much less developed. There is no official CFM model currently in the province. The province attempted to allocate forests for local people to manage in mid 2010s but the allocation could not take place as there was no interest from the communities due to poor forest conditions. Local communities in Ninh Thuan only involve in forest management through forest contracting under PFES and national forest contracting policy.

Recognizing the importance of mangroves in mitigating the effects of coastal storms and sea level rise, the provinces and donors have promoted mangrove protection and rehabilitation efforts, including a community-based management program under which local communities collectively run nurseries, select and source seeds and plant trees to regrow and repair mangroves. Ninh Thuan province has been working with communities to promote co-management of mangrove forests (Hai et al. 2021).[61] While successful, long-term survival rates continues to be a challenge due to weak incentives for long-term engagement of communities, among other factors.

Key typologies of community-based forest management and their extent

Of the eight main typologies of CFM in Viet Nam discussed in **Error! Reference source not found.**, the following key typologies are observed in the four project provinces:

Community forestry: the formal form of community forestry (CF) (i.e. forest management on forest land formally allocated to village communities with the duration of 50 years) is practiced in three provinces, except for Ninh Thuan – see *Table*2 in chapter 5**.** As of December 2020:

- o the area of forest land under village community management in Dak Lak is 49,526526 ha, or 6.7% of the total forest areas in the province, distributing in various districts including Krong Bong and Lak.
- o the area of forest land under village community management in Dak Nong is 3,628 ha, or 1.1% of the total forest areas in the province, distributing in various districts, including Tuy Duc and Dak Glong.
- o around 8,012 ha of forest land under village community management by 28 communities in Gia Lai province, accounting for 1.11% of the total forest area in the province, distributing in five provinces.
- o the area of forest land under village community management in Lam Dong is 2,443 ha, or 0.39% of the total forest areas in the province, distributing in three districts including Di Linh.

Forest contracting: Forest contracting, a form of JFM where local communities (usually individual households) enter into contractual arrangement with a state forest agency (usually a forest management board or a forest company) for protection and management of forest, is common in the project provinces. Such contractual arrangement is often for one year and the forest contract is renewed at the beginning of each year. In 2020:

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[61] Hai, N.T., B. Dell, V.T. Phuong, R.J. Harper. 2021. Towards a more robust approach for the restoration of mangroves in Vietnam. Annals of Forest Science, Springer Nature (since 2011)/EDP Science (until 2010), 2020, 77 (1), pp.18. ff10.1007/s13595-020-0921-0ff. ffhal-03141074f

- o around 4,484 households have forest contracts for PFES payment with local government agencies in Dak Lak provinces – see discussion on PFES in Chapter **Error! Reference source not found.**. No data on area of forest under forest contract for PFES or other type(s) of forest contract is available.
- o around 5,474 households have been contracted for forest protection, with the an average of 28,190.59 hectares per annual in Dak Nong. Of whom 52 household groups and 1,021 individual households have been contracted for forest management under PFES payment.
- o Around 147,875 ha of forests in Gia Lai province have been contracted for protection under various schemes, including PFES (no disaggregated data available)
- o around 13,660 household groups and 15,980 individual households in Lam Dong are involved in sone forms of contractual arrangement for forest management under PFES payment. Yet, data on area of forest under forest contract for PFES and other type(s) of forest contract is not available.
- o around 45,000 ha of forest are contracted to local people annually between 2016-2020 in Ninh Thuan, yet the specific data on area of forests and number of households under contract are not available.

Traditional CFM: Various traditional forms of CFM still thrive despite of the dominance of state forest management for decades. Although there is still no legal recognition, traditional CFM has been accepted by many (include government officers) as a sustainable way of managing the forest resources. VNFOREST estimated that at least 247,000 ha, or 1.5% of total forest land area is under some forms of traditional CFM.

NTFPs remain important for CFM communities, particularly the poor ethnic people.

Beside making an important contribution to increasing local biodiversity, NTFPs are an essential part life for people living in and near forest areas. NTFPs have been associated with the daily life and culture of the (ethnic minority) communities living in and near the forest. In a CFM forest site in Dak Lak, Pham Cong Tri identifies 251 different NTFP commonly used by local people, particularly for four main purposes: (i) human food, (ii) medicine, (iii) animal feed, and (iv) construction and household instruments (Pham 2003). Nguyen et al. (2020) find similar conclusion, that NTFP for medicinal use, fiber and food are most important for local communities.

The levels of dependence on NTFP vary across households. While all households living near and in forest appear to use at certain levels of NTFPs, poorer ethnic minority households tend to be more dependent on these products (Le & Nguyen 2020). This can be explained that poor ethnic minority people often have limited opportunities for other livelihood, resulting from their low educational levels and imposed fundamental changes to their traditional livelihoods (Duong et al. 2021), and thus have to rely on NTFPs for home consumption and also cash income.

NTFPs are also important benefits from CFM forests for local communities because they are the key (if not only) material benefits that they can take from the forests in the short and medium terms. As discussed in Issue 3, most CFM forests are poor and degraded; thus can only provide NTFPs for the local people. It will take years before timber benefits can be collected.

More importantly, NTFPs have cultural connection with local communities. For generations, local communities have been living together with the forest. They have developed high skills for collection, processing, usage and management of forest products. For local people, forest is not only about timber. Their whole life is connected to non-timber forest products, from the food they eat, the medicine they rely on to treat all kinds of health problems, the houses they live under, the working instruments they use, and many more to name. NTFPs become the identity of many ethnic minority groups, particularly when it comes to medicinal uses. It is estimated that of over 3,500 different NTFPs in the Central Highlands, around 3,100 species have medicinal use[62]. This is an important opportunity for CFM to both enrich the local biodiversity and boost the forest-related culture of the local communities. Development of NTFP, particularly medicinal plants, under forest canopy is also part of the plan in the project provinces.

7.1.4 Key challenges for CFM

Lack of recognition of traditional CFM

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[62] Source: http://web.cema.gov.vn/modules.php?name=Content&op=details&mid=11346

Forests are significantly important to local ethnic groups in the Central Highlands. For many of them, forest has been an important part of their life for generations. It has provided them with food, wildlife, farming land, and even shelter. Over years, they have developed diverse traditions of forest management, including various kinds of forms based on households, groups and village collectives (Sikor & Nguyen 2011).

Nevertheless, the area of forest recognized as formal CFM is limited and many forestry officials from the four provinces claim that no traditional CFM is being practiced in their provinces. This is a reflection of the lack of recognition of the existence and role of traditional CFM in local forest management. Literature on CFM indicates that formal recognition of traditional CFM would provide communities the legal security needed to develop sound forest management on the foundations of their customary practices. It would strengthen community members' incentives to protect forests and their capacities to stop outsiders from encroachment. Lack of recognition, in contrast, may lead to detrimental outcomes for both villagers and forests (Sikor & Nguyen 2011; Sikor & To 2011).

Limited area of forest under community management

The extent to which local forests are under management by local communities in project provinces has been very limited compared to national average. In all provinces, most forests are under State Forest Companies and Management Boards of Protection Forests (MB-PFs) or Special-use Forests (MB-SUF). These three actors manage 98.5% of forest land in Ninh Thuan, 91.8% in Lam Dong, 72.7% in Dak Nong, and 65.5% in Dak Lak (versus 47.2% nationally). In addition, there are significant areas of forest in Dak Lak and Dak Nong (98,674 ha or 13.36% of provincial forest land, and 69,514 ha or 21.09% total forest land, respectively) currently under Communal People's Committees, which are under open access in reality, as CPCs are not classified as legal owner of forest (Article 8 of 2017 Forestry Law) and often do not have the capacity to assume their legal responsibilities in forest management, as indicated in current literature (Bảo Huy, Hồ Đình Bảo, & Đàm Việt Bắc 2019; Hoàng Liên Sơn et al. 2016; Sikor & Nguyen 2011) as also observed during the field visit.

All provinces claim that local people have been involved in forest management through forest contracting (joint forest management as presented in **Error! Reference source not found.** and also earlier in this section). It is still unclear how much of total forest area in each province is being contracted to local communities per year. It should be noted that under this arrangement local communities are not real managers of forest. They are only 'paid laborers' for State forest agencies, and receive payments for the labor work. The focus on forest contracting instead of devolution of rights to forests to local communities results in the situation where local people feel they are protecting the forest for the state (Nguyễn Quang Tân et al. 2014; Sikor & Nguyen 2011).

Forest contracting is in the lower extent in terms of devolution of rights of a wide range of spectrum of CFM regimes in Viet Nam – see Figure 2. The key issue with it is, as discussed by (Gilmour 2016), its emphasis on the responsibilities of local communities for protection of the forest rather than on their power to manage it. The real power to manage the forest is still maintained by state forest agencies. It is important to note that without real devolution of power, it is difficult to achieve the objective of CFM (Gilmour 2016).

Figure 2: Spectrum of community-based forest management in Viet Nam

Source: Adapted from (Gilmour 2016:1)

Poor quality of forest under community management

Overall, the forest areas under CFM are of poor quality and in many cases non-forested. The CFM sites visited by the mission in Gia Lai province are just open land with scattered trees. In other provinces, CFM sites visited by the mission are also just poor and degraded forests.

Statistics from the CFM Pilot project (which only covered in Dak Nong and Gia Lai) showed that 96% of the CFM area under the project in Gia Lai was poor and degraded forest and the remaining 4% was just bare land. Likewise, 30% of the CFM area under the project in Dak Nong was poor forest, 9% bare land and the rest mixed timber-bamboo forest.

This is not only the case in the project sites but a general fact in the whole country. Of the 16,863 ha of forest land allocated to 60 communities for CFM in 10 provinces from the North to the South under CFM Pilot Project, over three quarters (76%) are bare land (14%) and poor forests (62%) – see (Enters & Nguyen 2009). A similar situation elsewhere in Viet Nam is also discussed by (Đỗ Anh Tuân 2012; Hoàng Liên Sơn et al. 2016; IUCN & RECOFTC 2011; Nguyen, Tran, & Hoang 2009; Wode & Bảo Huy 2009)

Figure 3: Forest land types under CFM Pilot Project in Dak Nong and Gia Lai
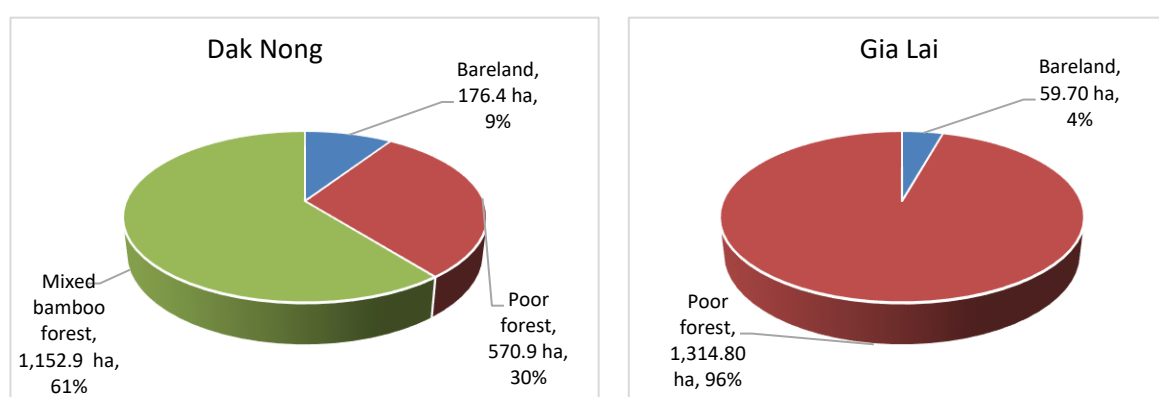
Source: (Enters & Nguyen 2009)

Lack of integration of CFM in provincial policy framework

Overall, local communities are referred to rather often in provincial policies under review (see section 4.3.2). Nevertheless, local communities are considered the target of support, capacity building and awareness raising rather than the agent(s) of change in provincial policies.

Dak Lak and Dak Nong appear to be more catalytic among five provinces in mainstreaming CFM in provincial policies, with inclusion of forest land allocation in their provincial climate response and forest development policies whereas this is generally missing in Lam Dong and Ninh Thuan. Nevertheless, a general fact in all provinces is that there is a lack of guiding documents for the implementation of CFM in the field. There have been CFM guidelines developed by different CFM projects, such as National CFM Pilot Project and the GIZ funded SMRP. However, such guidelines were only valid in the locations and during the time of the respective projects.

Although national policies have established the framework for CFM in the whole country (see discussion in **Error! Reference source not found.**) and the National forestry development strategy for the period 2006-2020, and also the new strategy for the period of 2021-2030 have emphasized on the CFM as one of the important tasks to sustainably manage the forests, conserve forest ecosystems, and improve local livelihoods, there has been a general absence of CFM in provincial policies in all the provinces.

Even in the case of Dak Lak and Dak Nong where CFM has gained better attention in provincial policy, what has been integrated in current policy framework is mostly about FLA and there is a lack of attention to support CFM after devolution of rights. In Lam Dong and Ninh Thuan provinces, there is a clear lack

of political support to fully devolved CFM, fearing that local people cannot manage forest sustainably. There is a strong belief in Lam Dong that forests will be best when they are in the hand of (large) forest business companies, state or private.

Current CFM structure at the community level does not reflect traditional forest governance and representation of women and poor groups

- Traditional leader(s) played a very important role in traditional CFM models, yet their presence in the management structure of official CFM is often.

- The presence of women in forest management structure at the village level is rather poor. The whole structure if often dominated by male.

- Weak representation of the poor in village in CFM management structure: poverty is not just about material goods, it is also about voice and representation. In many instances poor households in the village are not proactively selected to participate in the (forest) management structure of the village as they are thought to have other priorities. As a consequence, they often have low voice in CFM decision making and implementation.

Absence of (regular) support system to support CFM villages after devolution of rights, there is a risk that local communities lose their interest in protecting CFM forest.

External support plays a very important role in the management of community forests. Local people tend to engage more in forest management and benefit more from CFM when support service is available at need. Conversely, local communities are likely to fail in meeting the objectives of forest protection and livelihood improvement if no (adequate) support is provided, particularly at the beginning of the CFM process to strengthen the local capabilities and to enforce the newly endowed rights and duties. Key supports are:

- *Institutional support*: In most cases, there are existing capacities within the village to do good forest management. Institutional support is needed to facilitate the process of self-organization and development of necessary rules and management plan.

- *Legal support*: Legal support is needed by local communities with formal CFM in the realization of their forest rights and duties. For villages with traditional CFM, legal rights to forest are needed in order to protect themselves in case of conflicts, such as forest encroachment.

- *Technical support*: In the implementation of CFM plan, various technical supports are needed for local communities, such as sivilcultural techniques or forest products development, harvesting and processing.

- *Financial support*: Financial support is needed to boost the investment in the forest. Financial support can also be in terms of seed money to kick start village development fund.

So far, the key supports for CFM in the four provinces have mostly been provided through projects with CFM component. Examples are GIZ funded projects SMRP and RDDL, or Swiss funded ETSP project. Nevertheless, such projects are only temporary and supports come to an end at the project conclusion. Local FPD has been considered the key support system to CFM in institutional, legal and technical domains. Nevertheless, there is no specific legal mandate for FPD at the local level to be the support provider for CFM, their supports mainly focus on legal education (i.e. organization of legal training for local people). Other supports are often limited.

In other cases, state forest agencies, such as SFE or Management Boards, also provide institutional, legal and technical support to CFM. Their supports are often limited to the communities living in or near their forest estates.

To provide legal support to local communities, particularly ethnic minorities, there exist legal support centers established by Legal Department and located in the district center with the mandate to provide free-of-charge support on legal matters to local people. Yet, the existence of such center is not commonly known to local people. As a practice, local people turn to the village head and the village police if they have any question on legal issues. They would go to the local FPD staff for technical advice. Community members rarely go beyond the commune to seek support for their matters.

Financial support to CFM so far mainly comes from projects. There are banks that provide loan to local people but no specific lending program for CFM. As forest title is not good enough for loans, local people would need a registered organization acting as soft collateral to borrow money.

Supports outside of such projects' site or after the project end are limited. The key reasons are lack of resources and insufficient capacity of local FPD system to support CFM implementation, particularly the capacity to facilitate meaningful participation of local communities.

At the same time, there is a weak participation of national Non-Government Organizations (NGO) in supporting CFM. There is no legal provision on the roles of NGOs / CSOs and limited involvement of NGOs /CSOs in supporting CFM development in reality.

As a results, local communities are mostly left by themselves to find their own way to protect the forests and benefits from it. In a number of cases, absence of support system resulted in the loss of interest of the community in managing local forest – as in Phu Loi village of Dak Nong province (see **Box 1**). Similarly, seven formal CFM cases in Lam Dong, as discussed in 0, also illustrate the loss of interest in forest management as without regular support system the responsibility to protect (or restore) the forest outran the benefits they could receive from the forest – see also **Error! Reference source not found.**.

> **Box 1: Loss of motivation in forest management in Phu Loi.**
>
> Phu Loi village in Dak Nong province has 240 households of M'Nong ethnic group. The village was allocated with 1,500.5 ha of natural forest in 2008 (137.9 ha bare land, 567.4 ha poor restored forest and 795.2 ha mixed timber-bamboo forest).
>
> In order to plant trees on the 137.9 ha of bare land, local people needed to have financial resource. Yet, their rights to forest did not include the rights to lease, mortgage or contribute business capital. In other words, the forest land use title did not allow them to borrow money from the bank, nor to join a joint-venture in tree planting. They could not lease the land either.
>
> As the villagers had no way to find financial resource for tree planting, they gradually lost their motivation and decided to return their forests to local government in 2015, after 7 years of labor investment in management the whole area of allocated forests.
>
> Source: (Luong & Nguyen 2016)

Insufficient immediate economic benefits from CFM to local communities, particularly for the poor

CFM communities are enjoying the following benefits:

- Payment from PFES or forest protection fund. This ranges widely, from VND 10,000 to VND 44,711,312 per year – see detailed discussion in 0.

- Non-timber forest products (NTFP): While PFES money is an important cash income from CFM, NTFPs are the most important in-kind benefits for local communities. Forest provides all kind of products to meet daily needs of a local households, from food to medicines to treat common health problems and materials for construction or production. During the visit to CFM forest in Bon Brut in Dak Nong, it was amazed to see local people could find a diversity of plants of certain use for them in every square meter of the forest, which was a true reflection of the importance of the forest for the life of local community.

- Land for cultivation: for many local farmers, an important benefit from CFM is farming in the forest area. This is particularly true for farmers who have farmed in or near the CFM forest for years and have established beautiful systems of tree crops (e.g. coffee agroforestry with fruit and timber trees). In recent years, many of the tree planting activities in the agricultural crop in forest land (ACFL) in Dak Lak, Dak Nong and Lam Dong have been undertaken at the request

of local authorities (with prescribed species) in an effort to restore tree cover in the ACFL areas. This potentially can diversify and enhance the income for local people.

- Other benefits: for local ethnic groups living in the four provinces, surrounding forests have close connection to their culture as such forests have been part of their life. For them, the benefits from forests are not just about what can be taken home but are everything in the forests together.

In general, there is generally a lack of immediate benefits from CFM forests as they are often of poor quality and small size and it will take a long time before such forest can yield any (major) economic harvest. At the same time, there is little value addition to forest products. Most products are often sold fresh or after simple processing (e.g. sun drying). On the other hand, it takes too long to negotiate CFM regulations, for too few returns, over too long a time period. Yet improving participation in CFM development to a point where communities are capable of exercising their rights will increase transaction costs for local people.

In cases where benefits can be generated from CFM forests, there are instances of elite capture or disproportionate distribution of economic benefits from forests, contributing to conflicts between high social capital (village leaders) and low social capital (economically poor) households.

Last but not least, benefits from CFM have not been properly quantified and communities have not been sufficiently awarded for the production of valuable ecosystem services from their forests. Although PFES payment is received by local communities, there are many more ecosystem services that CFM have produced, such as carbon sequestration – note that researchers have identified nearly 100 different ecosystem services that forests can produce (Aznar-Sánchez et al. 2018), but those services have not been properly identified, quantified and valuated. Lam Dong has been the champion among the four provinces with REDD+ but there has been no village receiving payment for their carbon sequestration services.

Lack of attention to the connection with surrounding landscape

CFM pilots have so far mainly focused on forestry sector. Review of current CFM literature and discussion with various stakeholders during the field mission reveal a general perception in Viet Nam that CFM benefits must come from the CFM forest area. This necessarily implies a lack of holistic view-point and approach to CFM development.

It is important to note that CFM forest is part of local landscape, which include various other systems that come together to produce to multiple socio-economic, ecological and also cultural benefits; such as food and fiber production, climate change mitigation, biodiversity and ecosystem services (Scherr, Shames, & Friedman 2013). Thus, effort to treat CFM in isolation with other productive systems is not likely to lead to sustainable development of not only forests but other systems alike. CFM development will therefore need to be part of the integrated landscape management approach.

Lack of quality support to develop agroforestry on encroached forest land

The initiative to introduce trees (timber and fruit tree species) in ACFL can help achieve both ecological and economic targets. Nevertheless, there are risks perceived with this process that may affect the future benefit stream to local communities.

First of all, the suitability of the prescribed tree species to the local biophysical (such as soil, climatic) conditions that the local communities are asked to plan is still questionable. In Lam Dong, for example, tree species to be planted across the province are Sao đen (*Hopea odorata*), Giổi xanh (*Michelia mediocris Dandy*) macadamia, and avocado, and durian. On the one hand, it is unclear how the province came up with this list. On the other hand, this short list of species gives very few choices for local people. With the variation of local conditions and of the existing crops in the field, it is unlikely that the species provided are suitable to the local conditions and complementary with existing crop systems across the province.

Secondly, the quality of the planting materials is questionable. Farmers are provided with the seedlings to be planted on the field with no control of the source of supply, the specific variety of the species or the quality of the seedlings provided.

Last but not least, there is an absence of technical guidance on how to incorporate the provided tree species on the existing crop systems, and tending of new trees and existing crops/ trees afterward. With

significant knowledge gaps (of both farmers and also local government technical staff) on complementarity and competition between new trees and existing crop systems, this also poses another uncertainty to the harvest of expected economic benefits.

Lack of capacity of concerned stakeholders

Local communities are capable of managing the forest. They have been living with the forest for generations and possess rich knowledge about a wide variety of trees, plants, animals, and soil in the local forest. Over years, they have developed necessary rules to manage forest resources sustainably. Many community members have advanced knowledge about trees and forests; and they do not need to have the capacity on tree growing and management according to the scientific silviculture as professional foresters (Fisher 2014; Gilmour & Doan 2008).

However, In the context of formal CFM development, local communities clearly lack capacities such as forest management planning, monitoring and evaluation, group organization, accounting, market and value chain development, and business planning and development (Bao Huy, Ho, & Dam 2022; Bảo Huy et al. 2019; Enters & Nguyen 2009; Fisher 2014; Gilmour & Doan 2008; Nguyen et al. 2009). In addition, community members also need good understanding of their legal rights and duties as well as rights and duties of the other relevant actors relating to forest governance, forest uses and management (Nguyễn Quang Tân et al. 2014).

For the CFM support system, government staff have been trained in technical matters, such as agronomy or silviculture. Nevertheless, they do not have the knowledge and skills to make CFM really by community and for community. CFM is still treated as an extended arm of state forestry (Nguyễn Quang Tân et al. 2020). Government staff to make a "paradigm shift" in the way forestry is practiced. FPD staff often lack the capacity for effective CFM development, particularly a more experimental, adaptive and participatory approach to forest management (Fisher 2014). Furthermore, FPD staff lack knowledge and skill to train community members in modified (simplified) forms of silviculture with simple procedures for producing a variety of forest products based on the need of local communities (Fisher 2014)..At the same time, the presence of national NGOs in support CFM in Viet Nam in general and in the project sites in specific is limited.

7.1.5 Good CFM practices for climate change adaptation and mitigation

Till date, the impacts of CFM to climate change mitigation and adaptation in the five provinces are mixed. There are examples in literatures on successful CFM contributing to slow down the process of deforestation and forest degradation (Bảo Huy et al. 2019; Nguyễn Quang Tân et al. 2020). In the case of FFI project in Kon Tum (not in the proposed project province, though), 11 villages have successfully managed their CFM forests for REDD+ (Đặng Thanh Liêm 2016) – see also 0.

(Bao Huy et al. 2022; Bảo Huy et al. 2019), for example, show that while the deforestation rate is Dak Lak over the last two decades have been at around 1.9% per annual, two CFM villages in Dak Lak have been able to keep their CFM forest since 2000 till date at the deforestation rate of 1.7% per year, despite of lack of support for CFM.

Experiences from the project sites and Viet Nam as well as around the world show that CFM only achieves partial success if different conditions do not come together. For CFM to achieve successfully generate social, economic and ecological benefits, the following conditions must come together:

- Supporting legal framework that provide legal recognition of the (traditional) tenure rights to forest of the community
- The appropriate forest resources
- The local community has the strong governance, including effective rules and necessary capacities
- Effective support system available at need
- Adequate technology and market information
- Sustainable benefit stream to community

The below two cases illustrate good practices in community-based forest management.

Community forest management in Bon Brut village in Dak Nong province

Bon Brut village is located in Dak Glong district of Dak Nong province. The village was allocated with 335 ha of degraded natural forest in 2013 under the Forest Carbon Partnership Facility (FCPF)

supported project. In 2016, the forest land use title (known as red book certificate or RBC) was issued to Bon Brut community. The forest provided shelter for the Bon Brut villagers in the past and has been the area where local people cultivated and still rely on as source of supplies for their daily needs.

After the allocation, villagers set up forest management structure, with support from FCPF project, consisting of 15 member forest protection team (FPT). Village forest management regulations were also established to govern the use and management of CFM forest. Forest protection is done on rotational basis by the FPT who patrols the forest in sub-team of 3 members. The patrollers are backed up not only by the FPT, but also the whole community if needed when a violation case is detected.

After seven years, CFM forest has shown clear evidence of restoration. Although no timber logging has been done till date, local people have been collecting a wide variety of NTFPs for different purposes – for food, making household instruments (such as baskets), and most importantly for treatment of various kinds of health problems. The picture below shows that after several years of conservation, sâm đất (*Talinum paniculatum*), which once were rare due to overexploitation, have started to become abundant again in the forest.

Picture: sâm đất (*Talinum paniculatum*) – a material to make popular healthy drink of local community

Community Forest Management for Reducing Deforestation and Forest Degradation in the Central Highlands

Under the Community Carbon Fund Raising Project implemented by the Fauna and Flora International (FFI) since 2011 (still on-going), 11 villages of M'Nam ethnic minority group in Kon Tum province have demonstrated that community forest management can contribute to the successful reducing deforestation and forest degradation in the project area.

Based on the experience from local community in self-organization, the FFI project has supported the local people to establish appropriate institutions for community forest management, such as the CFM management committee, community fund and forest patrol teams.

More importantly, local communities have developed their own (internal) regulations related to management of forest products. For instance, only community members have the right to cultivate within the community forest land areas; no trespassing in sacred forest or watershed forests is allowed. Community regulations also clearly states how reclamation, logging, or collection of non-timber forest products can be done. This is a crucial foundation upon which the FFI project, together with the local people, developed land use planning; sustainable forest management plans; internal regulations such as forest protection and development conventions; forest benefit-sharing mechanisms and REDD+ revenues, or external financing; and complaints mechanism.

The results of forest resource monitoring between 2012 (the start of the project) and 2014 (after the forest management activities were enhanced) indicate that rate of deforestation and forest degradation in these 11 villages was lower than the average rate of the whole district. This means an emission reduction thanks to forest management activities implemented by the communities, for which REDD+ carbon emission reduction credits (CER) could be granted.

In addition, local communities have also improved their capacities. Local people have been trained on the job and thus effectively participated in 1) survey on forest carbon measurement, 2) multi-purpose patrolling (including prevention and handling of violations, collecting data and providing forest carbon and biodiversity for monitoring) and 3) monitoring of household logging using controlled logging procedures. Data recording and regular reporting is not just about collecting data or evidence of forest law violations. It also reflects the responsibility of local law enforcement and implementation agencies to coordinate with each other in handling violations of CFM rule, which is useful for improving local forest governance.

7.1.6 Recommendations for RECAF on community forest management

Community forest management as part of the landscape development

The design principles for common pool resources (CPRs) identified by Ostrom (Ostrom 1990, 1995) provide excellent indicators of what makes common property management work at the local level. Over the last decades, various literature has reviewed the successes of CFM over the world in relations to local livelihood improvement, forest governance, capacity development, improved forest conditions, tenure rights, institutional strengthening, climate resilience, green infrastructure development, biodiversity conservation, and REDD+ (Arnold 2001; Beukeboom et al. 2010; Fisher 2014; Gilmour 2016; Pagdee, Kim, & Daugherty 2006; Pelletier, Gélinas, & Skutsch 2016; Sikor et al. 2013; Sikor & Nguyen 2011). Based on the literature review, the following principles appear to be important for CFM development in the contexts of four RECAF provinces:

1. Security of tenure rights to forest
2. Effective institutions
3. Benefits and incentives for local communities
4. Effective support system
5. Appropriate features of the forest
6. Conditions of the community
7. Level of community engagement
8. Community empowerment
9. Technology and market influence.

Priority will be given to individuals and groups, particularly to ethnic minorities, lacking access to productive land. The participation of local communities will be voluntary. Lessons will be applied from the successful application of this approach in other provinces such as GIZ project in Dak Nong province, the Centre of Research and Development in Upland Areas supported project in Thai Nguyen province etc.

The following main activities are recommended: (i) develop fully devolved CFM pilots (i) support agroforestry on ACFL as part of the landuse management plan (iii) capacity building of village CFM structures (iv) strengthen CFM support structure

(i) Support fully devolved CFM pilots

Objective: The objective of this sub-activity is to demonstrate that with the appropriate conditions and supports, local communities can organize themselves to make collective decisions for effective management of local forest for sustainable economic, ecological and social benefits and to contribute directly to REDD+ and climate resilient landscape.

Key arguments:.

With the appropriate conditions and supports, local communities can organize themselves to make collective decisions for effective management of local forest for sustainable economic, ecological and social benefits and to contribute directly to REDD+ and climate resilient landscape.

Among critical issues that need to be addressed in order for CFM to materialize its potential contributions is the inappropriate approach to CFM that have been adopted by many of the pilot projects so far, making CFM an extended arm of state forestry in which state still plays an important role in decision-making rather than a platform for community to participate in making and implementing decisions with regard to forest (Nguyen, Nguyen, Tran, et al. 2008; Sikor & Nguyen 2011). For example, project implementing agencies have made CF too technically demanding for local communities to adopt (such as the technical CFM plans that focused on timber harvesting were unintelligible to ethnic minority

communities (Enters & Nguyen 2009; IUCN & RECOFTC 2011)). In addition, the methodology for development of village's community forest regulation and management plan is too demanding/ not appropriate for local people, making the village forest management plan and regulation more a product of the project implementers than the one owned by local communities (ibid.) Most importantly, to achieve an easy success, many community forestry supported projects have chosen to pay local communities to participate in their activities, resulting in a false interest from local people in CFM.

Therefore it is recommended that the RECAF project supports various pilots of CFM where local people receive full bundle of rights to forests as regulated by law. An FLA process should therefore be conducted at the initial stage. The decision to join CFM pilot is made based on the FPIC process. Through the CFM pilots, local communities will contribute to restore the degraded local forest land by means of tree planting with native species and agroforestry systems, which will link up with innovative PES schemes. To support them to do so, necessary capacities of local community members will be built through various training, awareness raising and learning network. To sustain the CFM development, support system for CFM will also be strengthened in order to continue support CFM after the end of the project.

(ii) Support agroforestry development for economic and ecological benefits

Objective: This sub-activity aims to promote context-specific agroforestry development for improvement of local livelihoods, enhancement of ecological connectivity and contribution to climate resilient sustainable landscape development.

Key arguments:

As mentioned in **Error! Reference source not found.**under 4..4.4 the recent initiative to introduce trees (timber and fruit tree species) in ACFL can help achieve both ecological and economic targets. Nevertheless, there are issues in this process that may affect the future benefit stream to local communities. Key issues are about the suitablity of the prescribed tree species to the local biophysical (such as soil, climatic) conditions, the quality of the planting materials, and lack of technical guidance on how to incorporate the provided tree species on the existing crop systems, and tending of new trees and existing crops/ trees afterward.

At the same time, there are large areas of ACFL in all provinces and the provinces are planning to promote development of agroforestry in these areas. This proposed sub-activity is therefore expected to demonstrate how agroforestry in the project communes can be integrated in CFM and provide guidance for expansion of agroforestry in the whole provinces.

(iii) Enhance capacities of local communities for effective development of CFM

Objective: To develop the necessary capacities, not only technical but also business and management, that local communities need for effective CFM development.

Key arguments:

Capacity development is at the heart of CFM development as only through stronger capacity of the local community that CFM can be sustainable (Fisher 2014; Gilmour 2016). Capacity development for local community does not only cover forest management but also business and management / administrative (Fisher 2014). Although in management of existing natural forests, capacity development in silviculture may appear to be necessary. Yet, it is very clear that many community members have advanced knowledge about trees and forests; and they do not need to have the capacity on tree growing and management according to the scientific silviculture as expected by professional foresters (Fisher 2014; Gilmour & Doan 2008). Therefore give higher priority should be given to developing formal forest management plans monitoring and evaluation and legal rights. CFM groups should also be involved in the specialty product development activities of the project. Field based and experiential learning methodologies should be incorporated in all capacity development activities, together with follow-up coaching.

(iv)Strengthen CFM support system

Objective: this sub-activity aims to develop the necessary capacities for key government and non government agencies to facilitate and support effective CFM development in the project sites.

Key arguments:

Support system for CFM in Viet Nam include government agencies, especially FPD and extension systems, and NGOs. Capacity development is needed for a "paradigm shift" in the way forestry is practiced and in the thinking of government officials, particularly professional foresters (Fisher 2014; Gilmour 2016; Gilmour, Hurahura, & Agaru 2013). For FPD system, it is essential that staff need to have the knowledge and skills to change from forest law enforcers to CFM facilitators and technical service/advice providers. In such light, the priority for RECAF is not to strengthen the technical forestry knowledge of FPD staff but capacity for effective CFM development, particularly a more experimental, adaptive and participatory approach to forest management (Fisher 2014).

It is important to note that it is unrealistic to expect FPD staff, who have been trained and practised as professional foresters for years, to develop high level of social science skills through one or two training events (Fisher 2014). Continuous mentoring and coaching in the field during the course of the project will be necessary.

As presented in Sub-activities 2.4.2.3, community members will not need to high level of silviculture knoweldge as professional foresters. It is therefore necessary that FPD staff be trained in modified (simplified) forms of silviculture with simple procedures for producing a variety of forest products, depending on the need of local communities (Fisher 2014).

Last but not least, national NGOs can provide important support for community members. National NGOs may not always possess the strongest technical knowledge about forest management, yet they often hold a comparative advantage over governmental agencies through their organizational flexibility and ability to respond to local communities' requirements and aspirations. They can also assume an important role in representing communities' needs and wants with governmental organizations at local and national levels. Building their capacity to support community members will be essential for local communities (Gilmour 2016; Sikor & Nguyen 2011).

(v) Knowledge sharing and policy dialogue under component 1.

7.2 Payment for forest environmental services

7.2.1　Evolution of payment for forest environmental services in Viet Nam

In 2007, Viet Nam National Forestry Development Strategy (NFDS) for period 2006 - 2020 was approved. The NFDS set piloting payment mechanisms for forest environmental services to reinvest for forest protection and management as one of development priorities of the forestry sector (see Figure 4).

In 2008, the first Payment for Forest Environmental Services (PFES) scheme was piloted in Lam Dong and Son La provinces, following Decision n 380/QD-TTg dated of 10/4/2008. This scheme received significant support from USAID funded project "Dong Nai River Basin Conservation" (implemented by Winrock International) for Lam Dong province and from the GIZ (for Son La province). Also in 2008, to manage the PFES fund flows, Viet Nam established Forest Protection and Development Funds (FPDFs) from central to provincial levels following the Government's Decree 05/2008/ND-CP. To differentiate central from provincial FPDFs, the central one is called Viet Nam Forest Protection and Development Fund (VNFF) (see paragraph 6.1.4 and 7.2.2)

During the pilot phase, basis for formulation of a legal framework on the PFES policy applicable nationwide was prepared. By the end of PFES pilot in 2010, the GOV issued Decree 99/ 2010/ND-CP (hereinafter referred to as the Decree 99), which outlined a nation-wide implementation of PFES.

Decree 99 provided important regulations that created a payment mechanism between forest environmental service users and suppliers. Accordingly, the PFES was defined as the provision and payment relationship in which users of forest environment services pay to providers of these services. The Decree 99 listed four environmental services eligible for PFES: (1) watershed protection, including soil protection, reduction of erosion and sedimentation of reservoirs, rivers and streams, and regulation and maintenance of water sources for production and living activities of the society; (2) protection of the natural landscape and conservation of biodiversity of forest ecosystems for tourism; (3) forest carbon sequestration and retention, reduction of emissions of greenhouse gases through measures for preventing forest degradation and loss, and for forest sustainable development; and (4) provision of spawning grounds, sources of feeds and natural seeds, and use of water from forest for aquaculture.

Designated users (buyers) with fixed payment rates for (1) and (2) were hydropower companies, clean water supply companies, and tourism facilities.

Figure 4: Key milestones of PFES policy development in Viet Nam
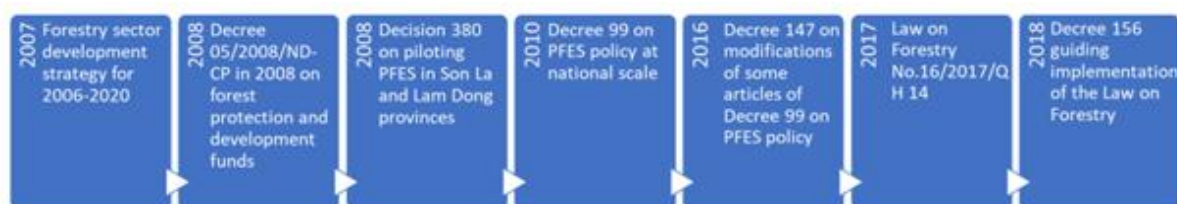
In 2016, after five years of PFES implementation, the Government issued Decree 147/2016/ND-CP amending service charges regulated by Decree 99/2010/ND-CP. The 2017 Law on Forestry and Decree 156 guiding implementation of the 2017 Law on Forestry further adjusted payment rates for different services and added industrial production facilities as designated payers for water source regulation and maintenance service. GOV regards PFES as one of its ten greatest achievements in the forestry sector over the period from 2010 to 2020. By 2020, this scheme contributed to over 26% of total forestry sector investment and is implemented in 45 provinces in the country. Table 1 provides an overview of FES types and payment rates according to main PFES policy documents.

Table 1: Environmental services and payment levels

| Environmental Service Type	Users	Decree 99 2010	Decree 147 2016	Decree 156 2018
Soil protection, reduction of erosion and sedimentation in reservoirs, rivers and streams	Hydropower companies	20 VND/kwh	36 VND/kwh	36 VND/kwh
Water source regulation and maintenance	Clean water suppliers	40 VND/m3	52 VND/m3	52 VND/m3
Water source regulation and maintenance	Industrial facilities	NA	NA	50 VND/m3
Natural landscape protection and biodiversity conservation of forest ecosystems for tourism services	Tourist companies	1-2% of revenue	1-2% of revenue	1% of revenue (at least)
Provision of spawning grounds, sources of feed and natural seeds& use of water from forests for aquaculture	Aquaculture facilities	NA	NA	1% of revenue (at least)
Carbon sequestration	Carbon emitting facilities	NA	NA	NA

7.2.2 Institutional structure for PFES implementation.

According to the Decree 99, the FPDFs collect PFES money from FES users through the entrusted contracts of PFES and pay for the forest owners according to their forest area providing these services. VNFF in the role of the central fund is in charge of collecting, coordinating and monitoring payment to FES users which locates from two or more provinces and supports the operations of the provincial FPDFs – see Figure 5.

More specifically, the central Fund (VNFF) receives payment from hydropower operators and water providers if the watersheds cross provincial boundaries (multi-province watersheds); if they do not, provincial Funds (PFPDFs) are in charge of collecting the payments. VNFF distributes the collected revenues among the PFPDFs according to their forest cover area of the multi-province watersheds, after keeping 0.5% of user fees to cover administrative costs. The provincial FPDFs receive money either from VNFF or directly from the service users (payers) within their boundaries, and distribute money among forest owners/ managers, after keeping 10% to cover managerial costs and 5% to cover contingencies.

As of December 2020, PFPDFs have been established in 45 provinces, of which 39 are operational. In terms of administration, 12 PFPDFs are administered by PPC and 33 PFPDFs are under DARD. Depend on the scale of each fund, the structure of provincial FPDF management unit may be divided into different functional divisions.

Figure 5: Institutional structure of PFES
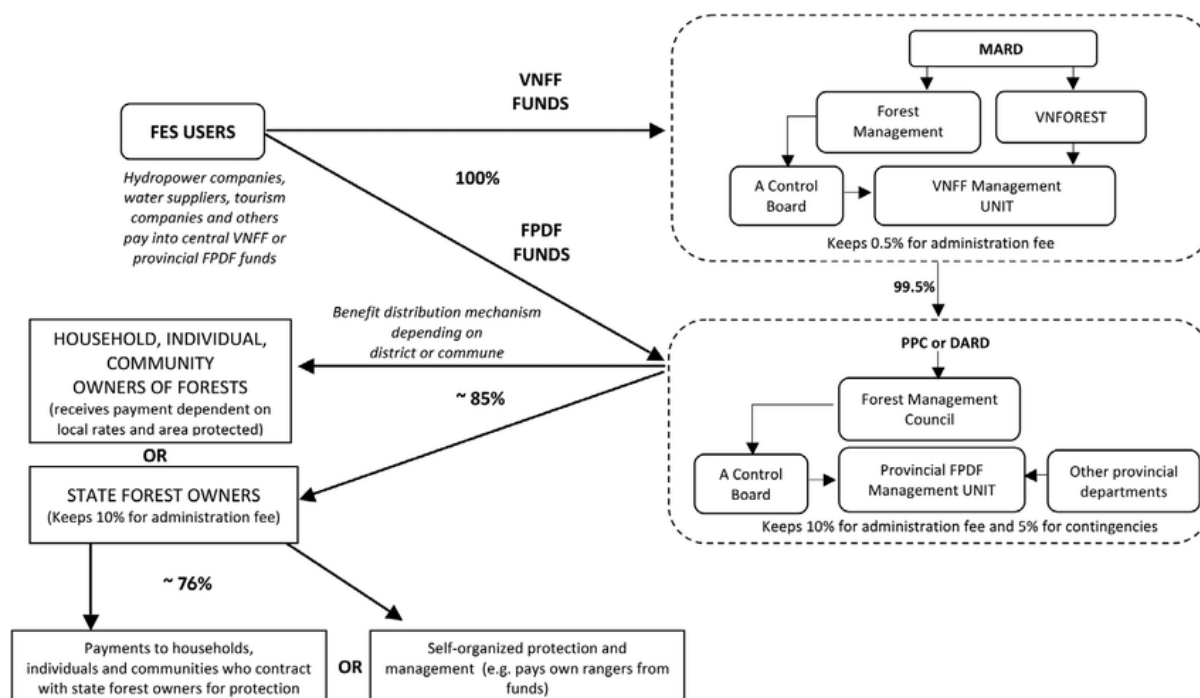
Source: McElwee et al., 2019.

PFES operations encompasses four main mechanisms below:

1) FES users - VNFF/PFPDF (entrusting mechanism): hydropower, clean water supply, industrial facilities consuming groundwater, and ecotourism companies entrust VNFF/FPDF to pay FES suppliers. This relationship is presented by contracts co-signed by the entrusting party and the entrusted party.

2) PFPDF – legal forest holders/direct FES suppliers (payment mechanism): province PFPDF transfers money to the forest holders as organizations, HHs, HH groups, communities, etc. While the K coefficients[63] for PFES payments (an attempt to make PFES more conditional) are stipulated in PFES policy documents, no provinces apply the K coefficients as participating communities prefer an equal distribution of payment, and the K coefficients are perceived as a source of potential social discontent.

3) Legal forest holders – subcontractors (forest protection contract): forest holders as organizations (e.g. SUF-MBs, PF-MBs, and SFEs) may, depending on their needs or based on requests by local authorities, contract local households/ individuals/ communities for forest protection. This relationship is presented by a PFES contract between forest holders as organization and HHs, in attachment with the HHs' commitment on protecting forest.

4) FES users - end users: this relationship is somewhat less explicit to non-PFES and even to many PFES stakeholders. In most cases, hydropower plants, water supply companies and tourism operators, although called FES users, only simply act as fee collectors — intermediaries that pass the fees from one party to the next (their customers who consume electricity, water and tourism services). Yet, most end users are not aware of the PFES payment portion in their electricity and water bills,.

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[63] Please explain in tis footnote what "K" stands for.

7.2.3 Payment for forest environmental services in the five provinces

The operation of PFES in each province heavily relies on the PFPDF, which is the (only) body that receives money from business sectors and re-distributes that money to forest holders. It is important to note that PFPDFs in the five provinces do not only collect and manage PFES revenue but also take care of the "compensation payment for replantation" and other relevant sources in the provinces.

Of the five provinces, only PFPDF in Gia Lai is directly under PPC while it is administered by DARD in other four provinces – see 2. In Dak Nong province, PFPDF is granted autonomy and self-financing status as public service unit. In other three provinces, such legal and self-financing status of PFPDF is yet to be decided. This has an implication on the degree that PFPDF can organize itself and operate (relatively) independently from DARD and provincial administration structures. It is also important to note that the autonomy and self- financing status of the PFPDF is only applicable to the 10% the total PFES revenue retained at PFPDF as regulated by current legal framework

Table 2: Legal and self-financing status of PFDPFs in the five provinces

	PFPFD administration	Public service unit (by PPC's decision)	Autonomy and self-financing status (by PPC's decision)
Dak Lak	DARD	Not yet	Not yet
Dak Nong	DARD	Yes	Yes
Gia Lai	PPC	Yes	Yes
Lam Dong	DARD	Not yet	Not yet
Ninh Thuan	DARD	-	Not yet

General information of PFPDFs in the five provinces is presented in Table 3 below. Ninh Thuan was a special case where most FPDF staff is seconded staff from DARD (likely due to the relatively small PFES revenue and the fact that all PFES revenue of Ninh Thuan come from its domestic territory). Number of staff in the PFPDF appears to correlate better with the revenue it received than with the PFES areas. Dak Nong, Gia Lai and Lam Dong's PFPDFs have an M&E unit while it is not the case for Dak Lak and Ninh Thuan. This may have an implication on how and to what extent PFPDF functions are performed in these five provinces.

Table 3: PFPDF structures in the five provinces in relation to PFES payment

Province	Number of staff	M&E unit	PFES area 2020 (hectare)	Total revenue VND)	PFES (billion	Total receiving payment	HHs PFES
Dak Lak	21	No	219,736	521			
Dak Nong	33	Yes	142,156	688			
Gia Lai	29	Yes	481,439	788			
Lam Dong	33	Yes	382,039	2,066		17,073	
Ninh Thuan	7[*]	No	109,794	38			

Source: Nguyen & Vuong (2016); Winrock International (2020)

Key issue:

PFES Issue 1 – FPDFs as trusted funds that do not need fund-raising

Although at central level VNFF is defined as a "trusted fund" for forestry sector that has a function of mobilizing funding from different sources to finance forest protection and development activities, to date their "income" mainly (if not solely) comes from Government's regulatory policy requiring private sector to "pay for ecosystem services" (The PFES policy) and "compensate for negative environmental

impacts" (compensation planting policy). As a result, both VNFF and PFPDFs are "guaranteed" with a certain fixed (and often desirable) amount of income annually, just as any other Government's agencies if not better. Thus, they become a part of policy enforcement - a province's second "department of finance" but for the forestry sector only. Furthermore, in the project's provinces only PFPDF in Dak Nong (and Gia Lai?) defined as a public-service unit. In the three other provinces PFDPF lacks this status. In Ninh Thuan, PFPDF is even considered just another part of FPD. These FPDFs therefore act like an administration unit under DARD, rather than a "trusted-fund".

Interviews with PDPDFs through questionnaire surveys and during the field trip showed that PFPDFs were reluctant to "innovative ideas" relating to fund raising and payment modality. They expressed willingness to have more funding "cover more forest areas and support more people" through "adding more ecosystem services and requirements" into current PFES policy. They do not object the pilot of innovative ideas at the consultation of draft project design in May. Nevertheless, apparently there is a lack of motivation of PFPDF to act beyond a "policy implementation apparatus", which can be considered one of the major challenges that any innovative PES mechanism proposal will have to address.

Areas under payment for forest environmental services

Current practices:

Of the five provinces, Gia Lai had the largest forest area providing ES to downstream users, followed by Lam Dong, Dak Lak, Dak Nong and Ninh Thuan, respectively (*Figure 5*.A). Lam Dong was also the only province that showed an increasing trend of forest area covered by PFES in the period of 2015-2020 (Note that time series data for Gia Lai and Ninh Thuan were not available)). In the same period, PFES forest area in Dak Lak decreased while that of Dak Nong remained stable (*Figure 5*.B). The reduction of PFES area in Dak Lak seemed to be in line with changes in its forest area over the same period.

*Figure 5: Forest areas covered by PFES in the five provinces*
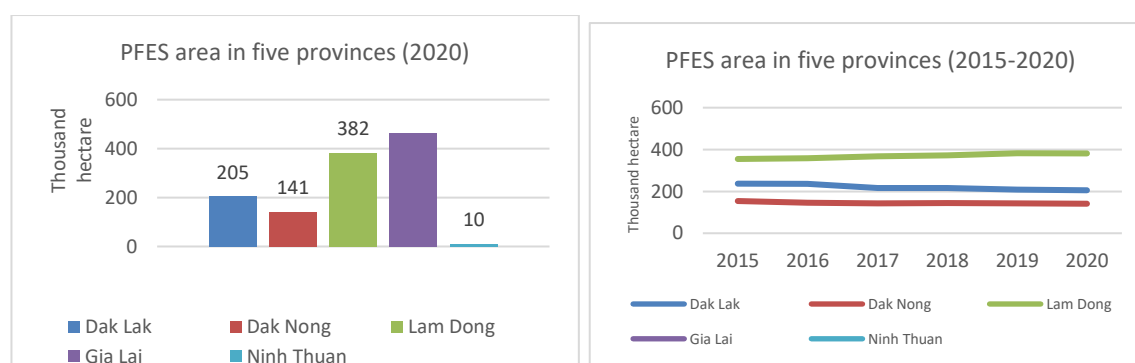
(Source: secondary data collection)

Area under PFES in Ninh Thuan was smallest among the five province, and it also covered the least (8%) forest area compared to other provinces (see *Figure 6*). Gia Lai, Lam Dong and Dak Nong had about two third of their forests covered under PFES (66-72%), and that of Dak Lak only counted for only 40%.

Figure 6: share of PFES area over the total forest area in the four provinces in 2020
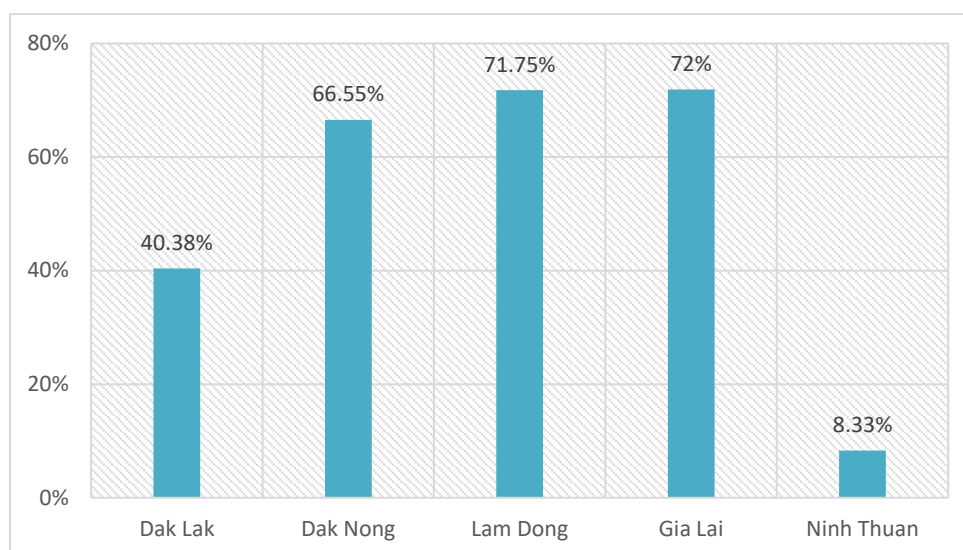
(Source: secondary data collection).

Key issue:

PFES Issue 2 – It is difficult to increase PFES coverage

Most PFES payments are tied to watersheds that have downstream hydropower reservoirs or water supply companies. The policy itself was designed based on the argument that "Downstream users such as hydroelectric power plants and water companies, gain benefits from water regulation and soil conservation, and so arguably should pay upstream providers of these environmental services". If there is no downstream "enterprises" users, there is no payment to upstream forests despite their ecological importance and efforts needed to protect them. Except Lam Dong that had new downstream hydropower plants developed in the study period, other provinces' PFES area either unchanged or decreased. This is the fundamental gap of the policy that provinces cannot address if they choose to stick to this principle. Interviews during our field trip showed that PFPDFs and FPDs in the provinces had no solutions or ideas to "expand" the PFES area. Ecotourism was considered the only option as it does not depend on watersheds, however, the area covered by this activity is often small and payment is more difficult to be enforced.

As a consequence of low PFES coverage, legal forest holders had some difficulties in contracting household for forest protection. It is often that the PFES revenue were spread thinly to increase coverage, because in many cases forest holders uses PFES to lubricate their relationship with local stakeholders. However as the area increased, the payment rate decreased accordingly. The low payment rate then became a concern of stakeholders, of whom one said during our interview "*low payment rate was not sufficient to encourage forest dwellers to engage more actively in forest protection, uneven and unstable payment amount discourage communities to participate in PFES, and low PFES payment amount hardly makes forestry activities attractive as a livelihood to local farmers*"

Providers of forest environmental services

Current practices:

Arrangements for PFES implementation result in two "Tiers" of FES providers: direct FES providers (i.e. legal forest holders who have forest land use right certificates – see *Figure 7*), and sub-contractors (those who are contracted by direct FES providers, usually MBs or SFEs) to protect forest (Table 4).

Proportion of PFES area managed by direct FES provider groups correlated with the proportion of forests managed by them. In all provinces, State-owned organizations such as MBs and SFES accounted for the majority of "direct FES providers" because they were largest legal holders of the forest. In Dak Nong and Dak Lak province, "economic organizations" (mostly SFEs) held significant portion of PFES area. In Dak Lak, Dak Nong and Lam Dong provinces, the proportion of PFES area under direct management of households and communities was very limited, often accounted for less

than 5% of total PFES area (*Figure 7*). In a very extreme situation, it was found in Ninh Thuan during our field visit that there was no single hectare of forest managed by households and communities, and the whole province's forests were managed by 8 State-owned forest holders.

Except for Gia Lai where data on PFES under household and community management are not obtainned, Dak Lak province had the largest shares of households, local communities and communal people's committee (CPC) in PFES areas (around 10%), while the rest was managed by state agencies such as national parks, protection forest management boards and state forest enterprises. Lam Dong had the largest area of household's forest, but that only accounts for 1.7% of total province's PFES forests.

Figure 7: Proportion of PFES area managed by different direct FES providers in 2020
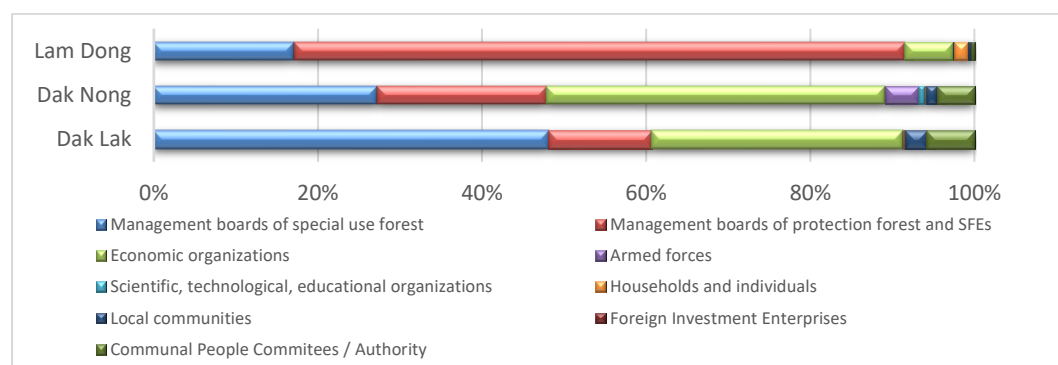
 Source: secondary data collection (Data in Ninh Thuan and Gia Lai were not available

As for sub-contractors, households constituted the largest group in all three provinces. In Dak Lak and Lam Dong, households were even the only type of PFES sub-contractors in 2020. In Dak Nong, household groups and armed forces are also contracted for forest protection under PFES, but at a very limited extent (Table 4). In Ninh Thuan, although data was not obtained for 2020, it was reported that the total number of households receiving PFES payment was only 197 in 2015 (Nguyen & Vuong, 2016). Forest areas contracted to households for protection vary between and within provinces. In Lam Dong, an average household is contracted to protect 20-30 ha of forest annually. Most forest protection contracts in the three provinces are between households and SUF-MBs or PF-MBs.

Table 4: Number of and types of sub-contractors in the five provinces in 2020

	Dak Lak	Dak Nong	Lam Dong	Gia Lai	Ninh Thuan
Household	4,484	1,021	15,980	NA	NA
Household group	0	52	0	NA	NA
Community	0	0	0	NA	NA
Border patrol station (military)	0	2	0	NA	NA

Source: secondary data collection

Key issue:

PFES Issue 3 – Most forest dwellers received payment through labor contracts, implying the risks of exclusion, inequality, and demotivation of active forest protection

As mentioned above, most PFES households in the five provinces received payment for forest patrolling – their participation therefore considered a reward for time spent in forests (Hoang et al., 2021). PFES payments were transferred to legal forest holders and then paid to participated household on a quarterly basis. Households were often arranged in groups that have representative team leader who signed forest protection contracts with legal forest holders. The team leaders were in charge for monitoring plans and organizing members for weekly or monthly forest patrol that was then translated to working days of team members that was the main basis for deciding payment amount.

This PFES arrangement has several implications on inclusion, equality, and communities' perception on intrinsic values of forest. First, it was often that not all households in the villages can participate: interviewed during our field trip in Ninh Thuan showed that only 15% to 40% of households in the visited villages were included in PFES, mainly because the forest holders could not have enough funding to cover all households. Secondly, it is highly likely that only households with strong male members can participate in PFES as women were considered less suitable for forest patrolling. According to McElwee et al. (2021) who investigated household participation in PFES in Lam Dong, Thua Thien-Hue and Son La provinces, participation in PFES has been lower for female-headed households and for women within male-headed households. There was report in the literature even articulated that "*households with young people, who have the ability to work but no land for cultivation…should be encouraged to take part in forest protection to receive more payment*" (Dang Do and Anchana, 2019). Third, the way local people get daily wage for "walking around the forest" could potentially undermine their willingness to protect forests for intrinsic values according to local norms, and also do not encourage more "productive practices" that provide both economic and ecological benefits, such as land management activities. Overall, although households can participate in PFES implementation, they were considered passive spectators with regards to PFES management, and had no role in decision-making (Hoang et al., 2021).

PFES revenue and payment rate

Current practices:

The accumulative PFES revenue between 2011-2020 of five provinces is presented in Table 5. Except for Ninh Thuan that has not received any PFES revenue from VNFF (central fund), the other provinces have received significantly higher revenue from central fund than from within the province. This was largely due to the occurrence of large multi-province watersheds in those provinces, and partly because some provinces have not been able to collect PFES revenue from all possible sources operating within their own territories, such as industrial water users and eco-tourism companies (Winrock International, 2020).

Compared to other provinces, Lam Dong has received much higher PFES revenue. One reason is Lam Dong has a large forest area producing ES to downstream users. Another reason is Lam Dong is located in the upstream of Dong Nai river watershed, in which the second largest hydro-power plant of the country is located.

Table 5: Accumulative PFES revenue for the period of 2011-2020 in five provinces

	Total revenue (billion VND)	From central fund (billion VND)	Domestic revenue (billion VND)
Dak Lak	521	471	49
Dak Nong	688	471	216
Lam Dong	2,066	1,257	809
Gia Lai	788	544	244
Ninh Thuan	38	-	38

Source: Winrock International, 2020

Note: average exchange rate between 2011-2020 is estimated at USD 1 ≈ VND 22,000

In terms of PFES payment rate, a uniform (flat) rate has been applied within each river basin. Since power production and forest area in each river basins vary, the payment rate may differ greatly across river basins (see *Table* 6). The most significant difference between lowest and highest payment rates is found in Ninh Thuan where the highest payment rate was around 68.5 times higher than the lowest. In Lam Dong, the difference was much less significant as the two main river basins (Dong Nai and Serepok) in the province have large forest areas and contain many hydropower plants. The similar situation is also found in Dak Nong province. In all provinces, average payment rate was higher than national average, which was at VND 210,000 or US$ 9 per hectare (Nguyen & Vuong, 2016).

Table 6: PFES payment rate to direct FES providers in the five provinces in 2019

	Highest payment rate (VND/ha)	Lowest payment rate (VND/ha)	Average payment rate (VND/ha)
Dak Lak	600,000	4,902	235,464
Dak Nong	818,107	376,831	597,469
Lam Dong	744,000	558,000	NA
Gia Lai	600,000	82,392	195,176
Ninh Thuan	600,000	8,760	283,656

Source: Winrock International, 2020

Note: rough average exchange rate in 2019: USD 1 ≈ VND 23,200

Households and communities may receive PFES payment through two ways: (i) as owners of the forests (for those who have been formally allocated rights to forests and have forest land use certificate or red book) and (ii) as sub-contractors of the forests (those who have forest protection contracts with organizational forest owners/ holders). Nationwide, of the approximately 500,000 households who have received PFES payment in recent years, only 115,000 have forest land use certificate while the rest participate in PFES through forest contracts (Nguyen and Vuong, 2016). Compared to forest owners, payment rates to sub-contractors depend on more factors, including but not limited to number of contracts, total forest areas being contracted for protection, labor cost in the local market, and amount of money available for contracting. The organizational forest holders have certain level of freedom in deciding how their forests are to be contracted and what payment rate would be applied. The most common method is to pay for "working day" of the household members patrolling the forest. It was estimated that contracted households in M'Drak district, Dak Lak province receive between 187,000 and 237,000 VND per labor day while contracted households in Cat Tien district, Lam Dong province receive between 115,198 VND to 493,000 VND per labor day (Pham et al., 2021a; Pham et al., 2021b). These payment rates, although rather small, were much higher than that of previous forestry programs in the same area that was often varying between 50,000 to 100,000 VND/ha/year. During our field trip, it was found that payment rate in Ninh Thuan province was between 250,000 to 400,000 VND per hectare per year.

Data on PFES income for sub-contractors have only been available for Dak Nong (see *Table 7*). The lowest PFES income has been recorded for Dong Nai river basin in Dak Song district area, and that is strikingly low compared to the highest income obtained in Serepok river watershed in Krong No district area.

Table 7: PFES income for sub-contractors in Dak Nong province in 2020

Subcontractor type	Highest income (VND/year)	Lowest income (VND/year)
Household	11,296,264	57,487
Household group	3,938,829	16,425
Community	158,545,766	27,556,512

Source: secondary data collection

Note: rough average exchange rate of USD vs VND 2020 – USD 1 ≈ VND 23,100

The PFES money may constitute a considerable portion of household revenue in the five provinces (Table 8). The difference between the highest and the lowest PFES income was enormous[64], mainly

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[64] Data in NInh Thuan was not available. However, discussions with province's FPD and PFDPF revealed that the province, through coordination with State-owned forest holders, tried to make PFES payment equal to household despite the rate different among watersheds.

due to different payment rates. This raises a question on fairness of PFES benefit distribution system, and a concern on potential social conflicts.

Table 8: Household PFES income in five provinces in 2019

|	Highest income (VND/year)	Lowest income (VND/year)
Dak Lak	39,070,133	11,000
Dak Nong	44,711,312	10,000
Lam Dong	18,000,000	60,000
Gia Lai	18,900,000	3,300,000
Ninh Thuan	NA	NA

Source: Winrock International, 2020

Users/ buyers of the forest environmental services

Current practices:

As regulated by FPES policy, buyers of FES include hydropower plants, water supply companies, private industrial facilities that use water, and tourist companies. The largest source of PFES revenue in all provinces was hydropower plants (see *Figure 8* - note that it only shows PFES income from companies located in the provinces). Lam Dong alone had 46 hydropower plants (33 operating on Dong Nai river basin and 13 operating on Serepok river basin). This reflects the national figure that hydropower has been the primary source of income, contributing to around 97% of total PFES revenues (Pham et al., 2013, Nguyen & Vuong, 2016). If inter-boundary PFES revenue was also accounted for, the contribution of hydropower would be even higher, especially for Lam Dong province. Industrial facilities (water users), the new PFES "buyers" since 2018, contributed to less than 2% of total PFES revenue in Dak Nong, less than 0.06% PFES revenue in Dak Lak, and no revenue in Lam Dong and Ninh Thuan. This also reflects the national context where industrial facilities only contribute to a total income of 7 billion VND in 2020 (0.25% of the total PFES revenue of the year) (Winrock International, 2020).

Figure 8: Portion of revenue from domestic FES users in the four provinces in 2020
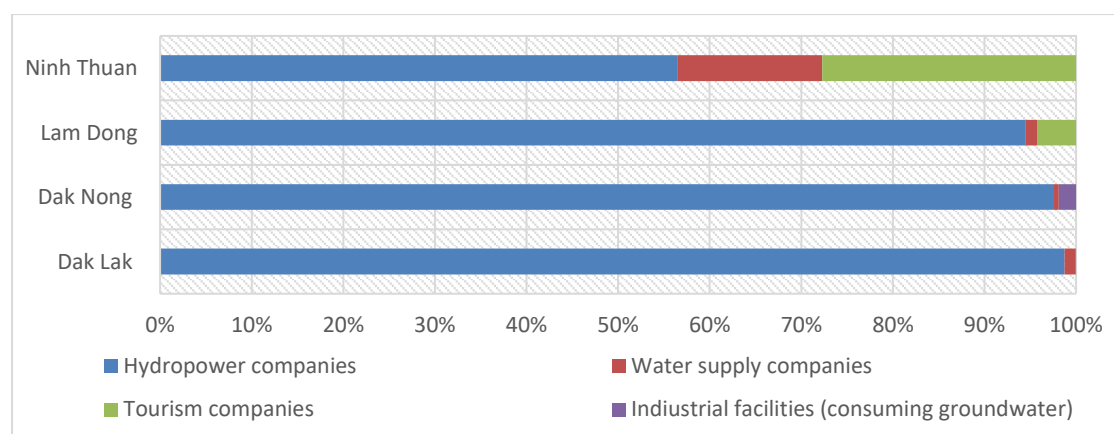
Source: secondary data collection. Note: In 2020 the PFES revenue from tourism sector was very low due to impacts of COVID 19 on tourism sector, and this data does not reflect the general trend in the provinces. For that reason, for tourism sector we used data of 2019 instead of 2020, thus providing a more comprehensive pictures on PFES revenue in the province.

Key issues:

PFES Issue 4 – Difficult to expand the scope of "forest environmental services" through compliant mechanisms

PFES policies enforced till date (Decrees 99, 147 and 156) have focused on the compliant mechanism wherein private sector has no other choices but "paying" to VNFF and its provincial branch with fixed payment rates for forest environmental services. This has been relatively easy for ecosystem services that are either excludable or rivalry (water for hydropower, domestic water supply). For these services, it is fairly simple to identify (or limit the number of) users and suppliers by various technical measures (watershed mapping, park-boundary, etc.). Unfortunately, most ecosystem services are public goods that are non-excludable and non-rival across borders. An example is carbon sequestration service: no individual or group can be prevented (excluded) from consuming or using the atmosphere (including the benefit of "reduced' CO_2 concentration in the atmosphere). This fact has already challenged VNFOREST in getting through with the draft Decree on C-PFES: although the emitters (payers) have been clearly defined, it is not possible to identify the sellers – the exact "forests" that absorbs CO_2 emitted from those payers. Without knowing exactly who the service providers or service users are, any payment scheme will have problems with legitimacy and fairness.

The problem with PFES is that all low-hanging fruits – service flows that can be fairly easily mapped – have already been harvested by Decrees 99, 147 and 156. The lack of clear evidence on service flow is often less stringent in "voluntary" PES because the parties involved often have discussions largely based on "trust" and "good will". Unfortunately, that's not the case of PFES. If provinces continue to wait for national policy to get another group of compliant buyers, it is likely that they will have to wait very long.

PFES performance

Achievements:

At national level, PFES is claimed as a remarkable success policy of the forestry sector as it has contributed greatly to livelihood improvement and poverty reduction of forest dwellers. While it was not possible to confirm the same about PFES in the four provinces, the collected data showed that PFES is likely one of the most important income sources in forestry sector, accounting for over 80% and 64% of total investment of forestry sector in Dak Lak and Dak Nong province in the period of 2016-2020, respectively (*Figure 9*).

*Figure 9: Total forestry sector investment in Dak Lak and Dak Nong, 2016-2020*
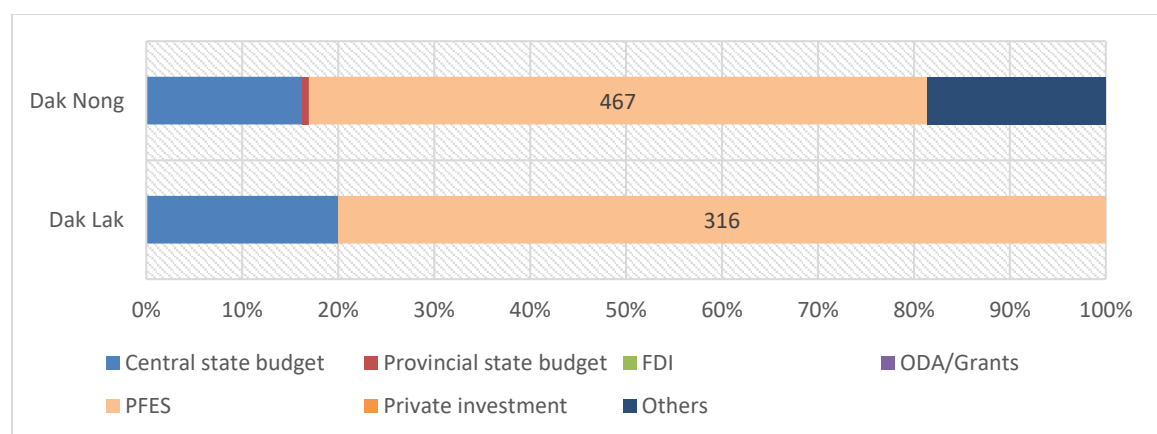
 Source: secondary data collection.

Since forestry investment data for Lam Dong was not available, a report by CIEM (2019) on land use investment in Central Highlands (including Dak Lak, Dak Nong, Gia Lai, Kon Tum and Lam Dong provinces) in 2016-2020 was employed. Accordingly, planned investments in the forest sector in Central Highlands amounted to VND 5.6 trillion for 2016-2020, or VND 1.11 trillion per year. More than 80 % of forestry-related planned investments target natural forest protection and enhancement (VND 4.5 trillion), out of which 75 % (VND 3.36 trillion) come from PFES sources (CIEM, 2019). Lam Dong had the largest amount of planned land-use investments (VND 6.5 trillion, out of a total of VND 12.08 trillion for the region over the same period), doubled that of Dak Nong (VND 3.1 trillion). Given the province's international exposure, ODA loans and grants represented the main source of finance for land-use investments in Lam Dong, followed by PFES and provincial budget with 19.3 and 11.9 % respectively. Because investments in agriculture and research and development took up two thirds of the total

investment on land use (CIEM, 2019), it is safe to say that PFES played the most important role in Lam Dong's forestry sector.

Figure 10: PFES performance in each province
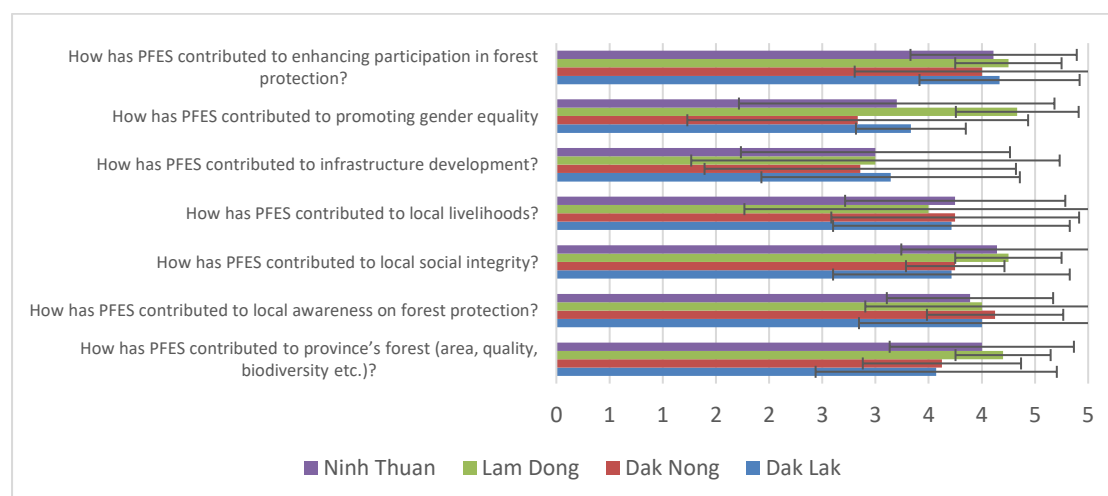
Source: online survey

PFES's contribution has been assessed relatively high for enhancing participation in forest protection, increasing local awareness on forest protection, and enhancing local social integrity. This is in line with findings from literature (Pham et al, 2013, VNFF, 2014; Phan TQH, 2019; Winrock International, 2020), which show that the most significant outcome of PFES is to enhance local people and communities' awareness in forest protection.

Apart from its financial contribution to forestry sector, it is challenging to evaluate PFES performance in the project provinces (and also national level) due to two main factors: (1) no clear environmental or socioeconomic baselines have been established; and (2) lack of a clear and transparent PFES MRV system in place. Consequently, there has been a lack of evidence and data to evaluate the effectiveness of PFES on socio-economic development and environmental protection in the four provinces.

Overall, Lam Dong's performance on PFES has been rated highest of the four provinces, followed by Ninh Thuan, Dak Lak and Dak Nong, respectively. It might be partly explained by the fact that Lam Dong has the longest history of implementing PFES with very high level of donor supports. Researches and studies conducted in Lam Dong on PFES and different aspects of REDD+, CFM, biodiversity conservation, and other social and sustainability issues have also helped stakeholders in Lam Dong increase their understanding to PFES concepts, especially on the social dimensions of PFES.

Key issues:

PFES Issue 5: PFES did not perform equally in various aspects of socio-economic development and environmental protection

Respondents to our online survey were more cautious towards PFES' contribution to *improvement of livelihood, infrastructure development, and gender equality*. This is neither new nor surprising as either PFES payment per individual households was small and not sufficient to cover livelihood activities, or PFES fund had not been designed to support livelihood activities, or both in many cases. This is explained by a survey respondent who said "*promotion of household forest economy is far out of reach with current low PFES payment*". The modest income received from the PFES hardly motivate local households to be active in protecting forests; and while it should be combined with other public and private incentive schemes to promote local household participation in forest protection, provinces tended to avoid "overlapping" payment. It is expected that as PFES payment increases, its impacts on livelihoods will become more tangible. Nevertheless, even if it helps to diversify livelihoods, it is not likely that PFES payment to households would be re-invested in forest related economic activities, but the off-farm jobs such as transportation, small business, and hired labor (Dang Do & Anchana, 2019).

Gender is not a focal aspect of PFES and thus many stakeholders in the province have been unsure in their assessment (and thus give it a low score). The impact of PFES on small, rural infrastructure

development could be more apparent in Northern Vietnam where community and households are forest owners and can decide to invest PFES payment into rural infrastructure development. In the four provinces, most households and communities were sub-contractors and thus found it more difficult to make collective decision on what to do with PFES money.

Finally, there were concerns on households' participation on PFES. Although this has been scored fairly high by stakeholders, the qualitative information they provided indicated that participation may not be voluntary, transparent, and active. To be more specific, the responses to the question about criteria of household selection for PFES contract were mostly "don't know" or vague elaboration on how the households were selected. One response indicated that household selection was based CPC nomination while another showed that the selection is by communities through community meetings and discussion. Current literature also claims that participation to PFES is by default (as it perceived as an obligation than an option), information flow is lacking, full awareness of rights and responsibilities of participation is questionable, and non-participation in decision making process is common (Huang & Upadhyaya, 2013; Lan et al., 2016; Le et al., 2016; Thuy et al., 2016).

PFES Issue 6 – Addressing drivers of deforestation and forest degradation remains a question

When it comes to drivers of deforestation and forest degradation (D&D), stakeholders in all provinces find PFES effective in addressing legal logging and forest land conversion to agriculture (Figure 11). This is somewhat surprising because most PFES literature in Viet Nam find PFES payments too small to cover the opportunity cost of forest conversion, i.e. economic gains of clearing forest for highly profitable activities such as planting maize or coffee, or converting mangrove forests into shrimp farms. It is even more surprising that stakeholders in Dak Lak, the country's power horse in many agricultural productions including coffee and pepper, rate this indicator highest among all four provinces. As it is reported in the literature that the largest driver of deforestation in Central Highlands is commercial agriculture (Kissinger, 2020), we strongly recommend further investigations on this figure in future dialogues to ensure that project activities address the right forest issues. Meanwhile, illegal logging is perceived as the most difficult driver for PFES to deal with, especially in Lam Dong. Representatives of private sector (buyers of FES) are more critical than others, indicating that "*illegal logging continues to happen and PFES could not do anything about it*".

Figure 11: Effectiveness of PFES in addressing drivers of deforestation and forest degradation
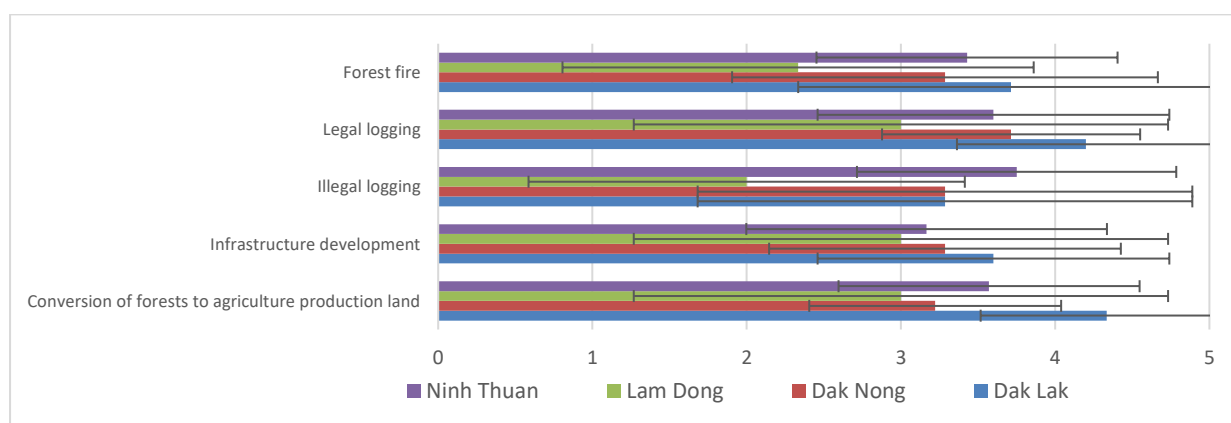
Source: on-line survey

The online survey did not include "underlying" or indirect drivers of D&D as it was too complicated to do so. Thus, it is not possible to make any comment on correlations between the direct drivers and related underlying drivers in the four provinces. On this premise, it is important to note that findings from a study on drivers of D&D in Central Highlands by Kissinger (2020) indicate that many laws and policies lack of provisions related to drivers, and some even supports drivers by "*providing a major source of financial support to driver sectors and activities, yet there were no sustainability or deforestation-free conditions defined as a pre-requisite for accessing finance*".

PFES Issue 7 – Lack of a robust and reliable Measurement, Reporting and Verification (MRV) for PFES.

Currently, PFES "performance" payments rely on reports by individuals, households, communities or organizations of their own success in protecting the forest. FPD staff check forest boundaries for compliance only if there is a dispute. The requirement of checking 10% of the contracted forest area for compliance, as stated in Circular 20, is not being fulfilled consistently (Pham et al., 2013). Forest conversion is the main trigger for non-payment of a contract, although it has occurred only occasionally. No methodology has been established to set criteria for non-payment. Forest patrols by local households, paid for through PFES payments to forest management boards, look for evidence of (unauthorized) timber logging. However, it is unclear how, or whether, their findings are tied to payments. Furthermore, PFES payments were expected to be tied to delivery of environmental services, but are currently linked to forest cover only. Current literature is also critical to PFES's MRV for being poorly designed, untransparent, lack of accountability and participation, and not effective (Pham et al., 2013; VNFF, 2014; McElwee et al., 2019, Trieu et al., 2020).

In our online survey, respondents rated the "lack of a clear and comprehensive MRV system" as the most important challenge facing PFES implementation (Figure 11). In fact, none of the four provinces have been able to provide data on forest violations in PFES areas, saying that this has been lumped into overall forest violation statistics managed by FPD.

FES buyer's motivation and direct payment mechanism

Current practices:

When designing a PFES scheme, it is important to understand what motivates each party. According to respondents in our online survey, motivation of FES buyers participating in PFES was mostly policy compliance, followed by securing FES supply, social responsibility and public relation (*Figure 12*). This finding is in line with results of a study conducted at national level, where top four reasons of paying for PFES were regulatory compliance (69%–100%), securing business sustainability (56%–70%), securing supply of natural resources (40%–90%), and improving the company's 'green or environmental' image (30%–63%) (Do et al., 2018). For these buyers, the PFES is mostly considered a compulsory government tax rather than a payment for environmental services that their business depends on (McElwee et al., 2019). Moreover, it does not seem like buyers expect environmental returns from their payment because, as mentioned above, those companies function simply as fee collectors - intermediaries that pass the fees from one party to the next (end-users). Pham et al. (2013) interviewed FES buyers in Son La provinces and they said they do not have time to be actively engaged in monitoring of forest protection. There is no legal instrument requiring them to share costs to maintain and enhance FES. In a long run, this will hamper the sustainability of PFES and ecosystem services delivery. It is problematic that most end users (the public) in Vietnam are not aware that they are the true buyers under PFES and hence do not play any role in PFES policy.

Figure 12: Motivation for private sector to participate in PFES implementation in across four provinces
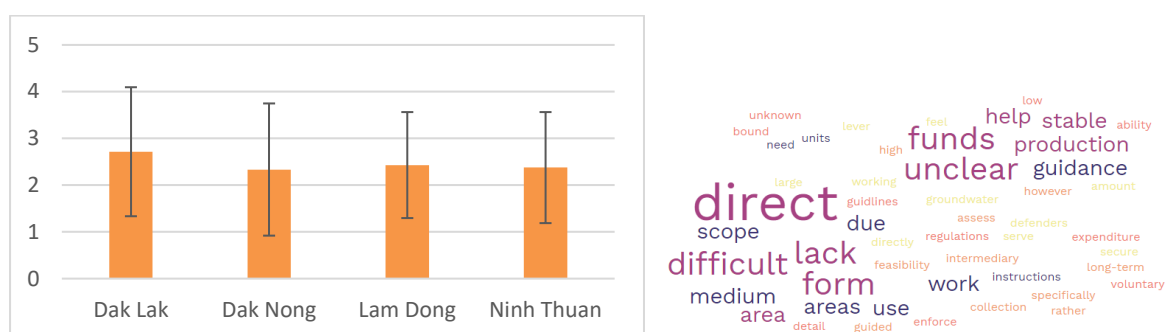

Source: online survey

Key issues:

PFES Issue 8: Low interest in direct PFES payment mechanism

In general, stakeholders in the four provinces estimated the potential of direct PFES mechanism as "low". The result of the on-line survey as shown in *Figure 13* is confirmed through direct interviews with government staff working at FPDF in the four provinces.

Common explanations for their assessments were "unclear regulations", "difficult to do because the lack of detailed instructions", "difficult to identify buyers and forest areas providing services as there are no guidance in Decree 156/2018/ND-CP". Stakeholders in Dak Lak were most optimistic of direct payment mechanism, explaining that the province has many small and medium hydropower plants suitable for this mechanism, and that direct payment will help to enhance transparency and capacity of stakeholders involved. It can be seen that barriers to direct to payment mechanism are mostly lack of a clear legal framework and instructions at national level guiding implementation in the provinces. This could be addressed through intensive research, piloting and continuous technical assistance provided to provincial stakeholders.

Figure 13: Overall potential for direct payment mechanism (left) and stakeholders' explanations for their assessment (right)

Source: online survey

PFES Issue 9: Low level of PFES integration into broader socio-economic development and other sectoral programs

PFES alone cannot protect forest and enhance livelihoods of forest dwellers. Forest resources are inputs to many other sectors, forest lands need to be administered in harmonization with other land uses, agricultural product demands, if not well addressed and managed, would jeopardize forest resources. The system requires inter-dependence between policies, and as such PFES needs to be better integrated with the various sectoral policies and plans in the provinces. Currently there is a very low degree of integration in all four provinces according to our respondents (*Figure 14*). Accordingly, PFES was more integrated into provincial forest protection and development plan and other forestry programs/policies than other policies on agricultural development, poverty alleviation, ethnic minority, education, infrastructure development, etc. This is understandable as forestry sector in Vietnam is often managed and developed in separation with other socio-economic sectors. So far VNFF only provided guidelines on how to integrate PFES into forestry planning (Trieu et al., 2016). Even for forestry sectors' plans and policies, many respondents said they "don't know" whether PFES has been integrated into, indicating that PFES is "isolated" within the forestry sector in the 4 provinces. It was reported in some provinces that due to fairly large amount of PFES income, organizational forest owners did not want to report on their PFES plan and targets, worrying that the State budget allocation to them will be cut.

Figure 14: Level of integration of PFES into various socio-economic development plans and policies

Source: online survey

7.2.4 Recommendations for RECAF on PFES

PFES in the landscape of policy instruments for forest conservation

Although the core aim of PFES is to protect forests, PFES could be paired with complementary conservation and socioeconomic programs to optimize its outcomes. Before going into recommendations for PFES design and implementation, it is necessary to zoom out of PFES specific issues and take a look at the bigger picture of the set of instruments used in governing the forested landscapes in five provinces. Our quick review (9) does not aim to provide a full list of instruments used for forest and ecosystem services management, but rather a snapshot of landscape of forest governance instruments used in the 4 provinces to see what can be further applied to complement PFES implementation, and what could be better harmonized with PFES implementation. According to Table 9, all listed regulatory instruments have been applied to forests and natural resources in the 4 provinces, although may not in full operation (for example, the spatial planning of biodiversity corridors was developed but funding for implementation has been very limited). For economic instruments, payment for ecosystem services has been implemented for water regulation, water supply and landscape beauty services. However, the PFES itself resembles a fee/charge for resource uses rather than a true PES scheme. Biodiversity offsetting is also partly implemented like in the case of offset forest planting for hydropower and mining projects that convert forest to other uses (although level of biodiversity in the newly planted forest is mostly not comparable to the converted forest). The REDD+ payment policy has not been widely implemented due to lack of funding, although the PRAP was developed in some provinces. The information and voluntary instruments have been hardly implemented, except for the case of SFM or some certification schemes in coffee sector (e.g. 4C, UTZ).

Table 9: Policy instruments for forest conservation and sustainable use

Regulatory (command-and-control) approach	Economic instruments	Informational and other voluntary instruments
☑ Restrictions or prohibitions on use CITES implementation "Closing of the natural forest"/logging ban: stopping the utilization of timbers from the natural forest for a certain period of time	☐ Price-based instruments: Taxes (e.g. on groundwater extraction, pesticide and fertiliser use); ☑ Charges/fees (e.g. for natural resource use, access to national parks, and hunting or fishing licence fees); Visiting ticket for national parks Various natural resources taxes/fees ☐ Subsidies to promote biodiversity	☒ Eco-labelling and certification (e.g. organic agriculture labelling schemes and labels for sustainably harvested fish or timber) SFM, certification of coffee production
☑ Access restrictions or prohibitions (e.g. protected areas and legislated buffer zones along waterways) National parks and natural reserves Conservation areas	☐ Reform of environmentally harmful subsidies Missing	☐ Green public procurement (e.g. of sustainably harvested timber) Missing
☑ Permits and quotas (e.g. for logging and fishing) Logging permits and quotas	☒ Payment for ecosystem services *Implementation of national PFES policy. However, the payment is more like a charge/fee for water use* *Provincial REDD+ Action Plan*	☐ Voluntary approaches (i.e. negotiated agreements between businesses and government for nature protection), e.g. voluntary offset schemes Missing
☒ Quality, quantity and design standards (e.g. commercial fishing net mesh-size specifications) Forest management norms	☒ Biodiversity offsets/ bio-banking Offset forest plantation for hydropower and mining projects	☐ Corporate environmental accounting Missing
☒ Spatial planning (e.g. biodiversity corridors) Provincial planning, land use planning, biodiversity planning, and forestry planning	☐ Tradable permits (e.g. individual transferable quotas for fisheries) Missing	
☑ Planning tools and requirements (e.g. environmental impact assessments and strategic environmental assessments) Law on Environmental Protection, Land Law, Forestry Law	☑ Non-compliance fines	

Note: ☑ Fully applied; ☐ Not yet applied; ☒ Partly applied or stalled); Green shade text: specific policy instruments currently in used; Purple shade text: missing (no instruments applied)

Source: Adapted from OECD, 2019

It can be seen from Table 9 that the regulatory instruments have been used at a much higher level than economic and voluntary/informational instruments in forest governance, especially in southern provinces where most forest lands are under management of State-owned entities. It is understandable given the economic-political and historical context in Viet Nam where top-down, command-and-control governance type rooted in. Even PFES is not as neoliberal as the name would suggest. Rather it embraces coherent regulatory elements from previous forestry programs and policies. Consequently, PFES itself is a policy mix rather than a single economic instrument. Moreover, it is combined with regulatory, and to some lesser extent, voluntary instruments to make a policy mixture that "works", at least in the Government's perspectives. In a recent assessment of PFES impacts in Viet Nam, it was found that the success of PFES builds on the incentive but largely based on effective law enforcement, and the PFES program reinforces existing forest management institutions (Duong & De Groot, 2020). Nevertheless, it is important to note that different policies are not always overlapping and synergizing, but often conflicting and fragmented (Barton et al., 2017, Kissinger et al., 2020). With very low level of "mainstreaming" into current policy structure as discussed above, it is important that PFES, with the central role in forestry financing in the provinces, is well positioned and developed to make the whole policy mixture more balanced, where economics and informational instruments can contribute to their full potential.

The PFES scheme is considered one of the key achievements of the forestry sector in the last 10 years, yet it is far from perfect. However, it should be noted that many of the weaknesses are inherited from the national forestry governance system and not specific for PFES only. The PFES policy implementation at national and provincial level has received a significant number of practical, feasible advises to address its weaknesses (Pham et al., 2013; Nguyen & Vuong, 2016; Pham et al., 2018; VNFF, 2019; Winrock International, 2020). In addition, we acknowledge that some regulatory and non-neoliberal parts of PFES (in many cases perceived as weaknesses and shortcomings) are intentionally embedded in design and operation (Suhardiman et al., 2013; Wunder, 2015; McElwee et al., 2019), and may not be fixed in conventional senses (McElwee et al., 2019).

At the same time, Viet Nam has signed a Letter of Intent (LOI) with LEAF/Emergent on the transfers to 5.15 million tons of CO_2 emissions reduction from around 4.26 million ha of forests in the South Central region and Central Highlands in the period of 2022-2026. Emissions Reduction Purchase Agreement (ERPA) is expected to follow soon. With a minimum price of USD 10 per ton of CO_2, a total value of this transfer is estimated at USD 51.5 million. As the specific locations of the forest areas have not been specified, there is an opportunity for RECAF project to connect to this transaction and pilot something 'innovative' in PES in the project sites.

The recommendations approach is to create an enabling environment for PFES implementation in the five provinces to "evolve" itself into a more market-based, voluntary and informational process, which is linked to "international" schemes such as REDD+: (1) Piloting innovative PES (not PFES as the pilot should go beyond forest areas to cover also non-forest landuse) schemes where transactions are negotiated between stakeholders for enhancing voluntary participation, transparency including MRV system, fairness of the benefit distribution system, and information flows between actors; (2) Consolidating PFPDF's central role in PFES not only as a "regulator" but also a "facilitator" and a "information hub" to support stakeholders from within and outside forestry sector in developing payment schemes to secure ecosystem services supply.

(1) Piloting innovative PES

Objective: to pilot innovative, inclusive and voluntary PES scheme with a vision to enhance capacity and responsibilities of local communities in conjunction with external financial opportunity (via the ERPA between GOV and LEAF/ Emergent) to achieve desired economic and environmental goals, in a step-wise manner.

Key arguments: the PFES policy employs the language of COS (Compensation for Opportunity-Skipped) (van Noordwijk et al., 2010). However, the low payment rate that failed to address opportunity costs of unfriendly forest uses, especially forest land conversion for agriculture (Lan et al., 2013; Pham et al., 2013; Nguyen and Vuong, 2016; Pham et al., 2021a) is undermining PFES legitimacy and effectiveness. Even if payment rate increases, the current use of "payment language" would not help to stop forest exploitation for local needs such as timber and NTFPs, simply because people are paid for "not doing harm" (do not cut forest and convert to other land uses) rather than "doing good things" (preserve and enhance the actual ecosystem services). The regulatory nature of PFES also inhibits

participation (especially those who do not have legal tenure rights) and information exchange between stakeholders. It is suggested that the RECAF will pilot a bottom–up, flexible approach that brings stakeholders together to design, develop and implement incentive schemes for environmental services. In order to address the bottleneck surrounding tenure rights and benefit distribution of PFES, an alternative approach to PFES was suggested based on the principles of Co-Investment in landscape Stewardship (CIS) (van Noordwijk et al., 2010). These are: (i) entrust the local resource management; (ii) full trust of management plans & local monitoring with high social capital; and (iii) flexible contracts, broad sanctions. CIS seems to better fit smaller-scale transactions and minimizes the need of strict PES pre-conditions to enhance participation and distribution of benefits (arguments of fairness). Additionally, by involving various stakeholders through its openness, CIS offers opportunities to include different perspectives in managing the forest-agriculture mosaic landscapes for both economic and environmental objectives that have been often neglected by policymakers and PES-buyers who consider ES-benefits from forests only. As such, the "fairness" aspect of PES will be improved.

Under this sub-activity, Innovative PES Fund (IPF) will be established as a sub-fund under PFPDF in all provinces. The project will seek to connect the IPF with the carbon transfer opportunity through the ERPA between GOV and LEAF/ Emergent. The seed fund for IPF is expected to come from this carbon money. The project will pilot providing conditional, performance-oriented payment to communities, household groups and forest/land holders who qualify and commit to deliver/ secure one or multiple ecosystem services in a certain period of time.

(2) Consolidate functions and build capacity of provincial forest protection and development funds and other relevant and PES stakeholders

Objective: this sub-activity aims to (1) consolidate functions of FPDFs as the IPF management in the provinces, and to (2) enhance capacities of PFPDFs to engage in innovative PES fund negotiation and implementation.

Key arguments: Currently government agencies directly involved in the PFES payment process as the "trustee" to regulate the payment process when the stakeholders' capacity to monitor and operate the market is still relatively weak. This is the role that FPDFs (central and provincial levels) and a number of other public service agencies such as the forest ranger are playing in PFES. Shifting the role of public service bodies from direct management to indirect assistance also helps to ensure true market rules, avoiding overlaps in duties as the current roles of forest rangers and FPDF in PFES (Pan Nature 2015). To push forward the transition of PFES towards a more independent, market-based mechanism, it is advisable that RECAF project to support PFPDFs to transform themselves to a "facilitator" of the PES market. In addition, other stakeholders of PES should also be capacitated for PES negotiation and implementation.

Chapter 8 - Deforestation-free value chains and commodity development

8.1 Overview of the agriculture sector

This section starts with an overview of the agricultural sector in the Central Highlands, and then Section 8.2 explores the deforestation-free value chain aspect. Based on the latter, activities are proposed for RECAF interventions.

8.1.1 Land use in the project provinces.

Table 1 below provides an overview of the total acreage per province of forest and cropland. Forestland is land designated for forest, and includes natural forest, plantation forest and non-forested forestland. Planted forest includes mainly acacia and eucalyptus, but also rubber, and small areas of a wide varieties of planted forest trees. Perennial crops are a very important share of the total cropland. Some perennial crops like rubber, macadamia and cashew are counted as forest species, and when planted on forestland land are counted as plantation forest, but this area may also be reported in the crop statistics, and thus counted twice.

Table 1 Overview of forest and crop acreage per province.

in hectares	Ninh Thuan (2020)	Lam Dong (2020)	Dak Nong (2020)	Dak Lak (2020)	Gia Lai (2021)
1. Forestland	**201,071**	**536,164**	**329,668**	**508,564**	**646,992**
Natural forest	146,362	454,868	196,285	437,734	478,791
Planted forest	9,032	81,297	51,477	70,830	153,937
Forestland without forest	45,677	not reported	81,905	not reported	not reported
2 Total crop production area	**67,937**	**386,353**	**303,903**	**661,838**	**536,309**
perennial tree crops*	5,716	264,045	214,379	333,386	222,780
annual crops**	70,281	121,942	89,524	328,452	311,571
medicinal plants	497	366			1,958

*may include cashew and rubber on forestland; may include passion fruit ** includes banana and asparagus. Rice area sums all seasons, so same land is counted twice or three times.

While all provinces and districts within the provinces all have their own characteristics, there are also common features. In all provinces, rice paddies dominate the valleys, where urban centres are also concentrated. In the Central Highlands coffee is the most important crop overall. Natural forests are mainly found on steep slopes and around important water resources, where they are best protected.

Ninh Thuan province has a much dryer climate than the other three provinces, -and the rest of the country. The province has taken advantage of that to grow high-value crops that benefit from this (whether or not with drip irrigation), such as grapes, jujube (honey apple), asparagus, garlic, *aloe vera* and citrus. Ninh Thuan also has a large herd of long-horned cattle. Near the forest, local peoples, including ethnic minorities, cultivate maize and seed bananas on slopes and cashew and fruit trees in the valleys. Maize is sold to feed mills and seed bananas have a good market for medicinal purposes and as an ingredient in traditional liquor.

Lam Dong province is characterized by the highest altitudes, which allows cultivation of Arabica coffee in addition to Robusta coffee. As quality is more important in Arabica coffee markets, and this quality is improved with shade, it is maybe not surprising that the use of macadamia, durian and other shade trees is more common in lam Dong than in other provinces. Lam Dong also has many greenhouses around urban centres with intensive vegetable production. At the same time, Lam Dong also still has large areas of protected natural forests, protecting important water resources and steep slopes.

Dak Nong province has a tropical monsoon climate. Around 58% is hilly terrain with fertile red and basalt-based soil, suitable for perennial crops (coffee, rubber, pepper, fruit trees). In addition, there are alluvial soils, black and grey soils, suitable for annual crops. Like in Lam Dong, also in Dak Nong is coffee by far the most dominant crop. This is followed by pepper, and coffee-pepper intercropping is also common. There are relatively few rice paddies.

Dak Lak: Most of Dak Lak consists of a relatively flat plateau, with coffee again being the most important crop, but the province also cultivates a large acreage of rice. Some districts like M'Drak and Ea Kar have large areas under maize, cassava and sugarcane. Since 2015, the production area of coffee, durian, avocado, longan, lychee, cassava and rice increased, while they are under maize, pepper, rubber, cocoa and banana decreased. Dak Lak had the largest area affected by the 2015-2016 drought (94,760ha of winter-spring crop and 27,065 of summer-autumn crop), almost equal to the total of the other 4 CH provinces combined.

Also most of **Gia Lai** is a relatively flat plateau. There is quite a large area under rubber, whereas cultivation of coffee, although still substantial, is relatively less dominant compared to the other Central Highland provinces. The area under pepper is visibly reducing, with a lot of (semi-)abandoned plots, or plots that have been switched to other crops with support poles still standing without pepper. Chư Prông district has large areas of savannah like landscapes with some extensive grazing. Krông

Pa district is at a much lower altitude and has a quite distinctive climate, more like Ninh Thuan. As a consequence, its cropping system is different, dominated by cassava, cashew and tobacco.

In the forestry sector, acacia is the main cultivated species. Most acacia is short cycle monocrop acacia, supplying the pulp mills that in turn supply the paper and cardboard and … boards. Rubber is considered a forest tree and is cultivate both on forestland and agricultural land, and therefore often counted in both forestry and crop statistics.

In terms of cropping systems, it is striking how important perennial crops are in the selected districts. While coffee is the major crop in the districts in the Central Highlands, there are also substantial areas of pepper, tea, cashew and fruits. The main annual crops are rice, maize, cassava, sweet potatoes, beans, sugarcane and vegetables. As observed in section 4.4.3, NTFPs remain important for poor ethnic communities at CFM sites.

Coffee:

As the dominant crop in the Central Highlands, deforestation-free commodity efforts must start with this crop, given its geographic scope and economic importance to Vietnam.

Production is informal and the level of organisation among farmers is low. Over 95% of Vietnam's coffee comes from about 600,000 smallholder farmers coffee farmers, mostly in the Central Highlands, of which about 90% are growing Robusta, and 10% Arabica (IRC, 2018), with much of the remainder from state-owned farms. Some 90% of growers have less than two hectares and 75% have one hectare or less, sometimes dispersed among several plots. Though Dak Lak Province is the highest producer in the region, with 46.07% of the area (ibid), Lam Dong and Dak Nong Provinces comprise roughly 40% of the country's production of coffee, with 209,000 farmers.

Yields achieved in the Central Highlands are typically higher than in neighbouring countries. Vietnamese coffee farmers typically achieve yields of more than 3.5 tonnes per hectare, while Robusta yields per hectare average 0.8 tonnes in Thailand, 0.5 tonnes in Indonesia, and 0.4 tonnes in Laos. These yields have been maintained through intensive production, utilising heavy application of agrochemical inputs and irrigation. However, in recent years, a combination of aging coffee plant stock, degraded soil, and expansion on to unsuitable land has meant that coffee yields have begun to decline.

Vietnam's coffee farmers act independently, with relatively little bargaining power in the supply chain. In spite of this, logistic efficiencies and good information exchange enables farmers to typically receive in the vicinity of 90% of the free on board, export price (Scherr et al, DATE). IRC (2018) identifies that 80% of the cost of coffee in Vietnam is attributed to the following: cost of fertilizer application (25%), irrigation (21%), weeding (15%), coffee drying (11%), and soil preparation (10%).

Processing among smallholders is limited in Vietnam and the Central Highlands. Typically, farmers will dry their coffee at home on plastic tarps or concrete patios and then use small, locally-manufactured hulling machines to prepare FAQ (quality standard) green coffee. Some farmers own or lease drying machines, but this is not common.

Pre-processing is the step by step process to extract the kernel from the ripe berries, and critical to achieving high quality coffee. The preliminary processing of coffee from farmers and traders, is then sold to a processing company (20% of total production), or to export companies (80%). Agricultural agents buy coffee beans from many coffee growers, classify and sell them to exporters and processors. The price of coffee after processing for sale to the importing company is higher than that sold to domestic processing companies.

According to the ICO Coffee Profile for Vietnam,[65] coffee farmers, producers and traders in the Central Highlands now increasingly use machines to dry cherries. The drying period is about 12 to 16 hours per batch and the humidity drops to 10%-12%. The main raw materials used as fuel for driers are dried coffee husks or coal. Large-scale coffee producers mainly use wet processing technology.

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[65] https://www.ico.org/documents/cy2018-19/icc-124-9e-profile-vietnam.pdf

This is the most advanced processing technology. There are hundreds of mills all over the country with the technology for green bean processing, either by the wet or dry methods. The design capacity of 1.5 million tonnes a year is sufficient to satisfy the demand for green bean processing in the whole country. In Dak Lak province for example,16 plants with wet processing technology have been set up with a total annual capacity of over 64,000 tonnes of product. For intensive processing of coffee products (roasted, ground and soluble coffee) for added value, there are 176 facilities for roasted and ground coffee processing, with a design capacity of about 52,000 tonnes per year; 8 factories for pure soluble coffee processing, with a design capacity of 37,000 tonnes a year; while the design capacity of 11 facilities for mixed instant coffee processing reaches 140,000 tonnes per year. According to MARD, the Vietnamese coffee sector aims by 2020 (was this target reached?) to increase the share of processed coffee to up to 25% of total national coffee output, not only for export, but for domestic consumption also, in order to contribute more value addition to the income of the Vietnamese coffee sector.

In the Vietnamese coffee sector, there are very few purchases direct purchases by processor-exporters from farmers. Circular 08/2013/TT-BCT issued by the Ministry of Industry and Trade, foreign-owned companies are not permitted to source directly from farmers but must instead buy through a registered local company (or cooperative). This has resulted in significant challenges to trace coffee beans to the farm level, and overall traceability in the sector.

Collection of coffee usually occurs between October and January. Collection agents operate at the commune and township level. Formal contract arrangements are not very common in Robusta coffee value chains. Local collectors or aggregators are therefore very important actors in the chain, who collect coffee from farmers. Contract farming and other forms of regularised direct business relations between farmers and processing/exporting companies are rare. As a result, most deals are conducted between farmer and collector agent through mutual trust between parties. Agents are therefore typically local and have transportation facilities and warehouses spread throughout the area. The resultant high flexibility allows traders to purchase and transport agricultural products in remote areas with poor transport infrastructure (Nguyen et al, 2017). Depending on their scale, they may deal in one or a number of commodities. Additionally, agents are often responsible for providing smallholders with agricultural inputs, when and if required (ibid). Collection agents will sell to larger collection agents who in turn sell to international traders.

Coffee factories mainly produce soluble coffee, roasted beans, and filter coffee with a variety of different products for the domestic and export market. There are many large coffee processing enterprises such as Nestlé, Olam, Trung Nguyen, Vinacafe, Ngon Coffee, Intimex, Thu Ha (Gia Lai province) and Dak Ha (Kon Tum province).

Vietnam's roasted coffee sector is not as developed as in other countries in the world. Roasted coffee is mainly for domestic use, while its export only accounts for 10% of the Vietnam's total coffee export volume. Meanwhile, the processing capacity of instant coffee is around 40,000 tons per year and most of it for exports (Nguyen et al, 2017).

The Vietnam Bank of Agriculture and Rural Development (Agribank), which is the main form of credit for coffee farmers, is a government institution and has 1,600 branches in rural areas. Agribank estimates that it has a 75% share of the credit market for coffee growers, and has recently opened up new lines of credit for agroforestry, reaching US$600 million and which may be extended to US$1 billion.[66] It is unclear if this lending is connected to Government of Vietnam commitments such as no clearing of natural forest. This is due diligence RECAF should carry out to see how to create linkages.

Roughly 90% of coffee production is exported. Vietnam's total export turnover has increased by 13% annually, from $ 388 million in 2001 to $ 3.2 billion in 2017. The export value of coffee in 2017 includes 97% coffee beans and 3% decaffeinated products. Though the volume is still small compared to regular coffee, the growth rate of decaffeinated coffee has gone up 53% annually while coffee beans increased 12% annually (IRC, 2018).

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[66] https://www.vietnam.vn/en/5-chuong-trinh-tin-dung-uu-dai-noi-bat-danh-cho-khach-hang-doanh-nghiep-cua-agribank-nam-2023/

The major market segments for Vietnamese coffee are now Germany, USA, Italy, Spain, Japan, Algeria, Russia, Belgium, Poland, France, Thailand, and the United Kingdom, accounting for more than 80% of Vietnam's coffee exports. Decaf green coffee segments are concentrated in the US, Spain, and England, accounting for more than 80% of decaf green coffee exports in 2017 (*ibid*).

Vietnam's total export of ground coffee has increased by 31% annually, from $ 3.2 million in 2001 to $ 296.4 million in 2017. The total export value of this coffee includes roasted coffee and decaffeinated roasted coffee. Similar to coffee beans, the export value of roasted ground coffee in 2017 includes 97% ground roasted coffee and 3% ground roasted coffee decaf. Yearly export growth of these two products is very high. China is currently the dominant coffee segment in 2017 (including Mainland China and Taiwan) (*ibid*).

Vietnam's total instant coffee export turnover has increased by 35% annually, from $ 2 million in 2001 to $ 337 million in 2017. 80% of the value of instant coffee exports, including the Philippines, China, Japan, Russia, Taiwan (China), Israel, USA, Poland and Turkey, United States, and Indonesia (*ibid*).

The export portion of value chain is the most concentrated. In 2009-2010, the ten largest exporters accounted for 70% of all exports. The three largest exporters were all joint-stock companies (JSC) and accounted for 44% of exports. Foreign-linked companies accounted for around 26% of exports. Approximately 150 Vietnamese companies exported some coffee typically in volumes of less than 1000 tonnes/year. In recent years however, many of the JSC faced difficulties leading to the exit of many of the smaller companies from the sector, either due to financial problems or because of their inability to meet a 2012 regulation that stipulated the minimum size and infrastructure capacities for licensed exporters. As a result, multi-national companies now account for the majority of exports.

The international roasters buying coffee in the Central Highlands includes Nestlé, JDE - Jacobs Douwe Egberts (including the brands Tassimo, Jacobs, L'Or, and Gevalia), Tchibo, Smucker (the Folgers and Dunkin Doughnuts brands in the US), Lavazza, Kimbo, UCC, and Starbucks. Major international traders in the Central Highlands include Louis Dreyfus, Acom, Olam, Neumann, VOL & EDFMAN, Touton, Sucafina, Icona, and Marubeni. The major exporters in the country include Intimex Group, Simexco, Tin Nghia (VCC&C, 2018).

The international coffee value chain is characterized by:

- Dealers/brokers – who supply beans to the roasters according to quantity and quality.

- Roasters – are for example, companies such as Nestlé, JDE and Lavazza, who process green coffee beans into products for consumers. Additionally, they also add value through marketing, branding, advertising and packaging;

- Retailers – sell coffee products to the consumer via a range of different outlets which, for example include large supermarkets, hotel and catering organizations, as well as specialized outlets of different scales.

Viet Nam's largest export market is to the European Union. On October 18, 2018, Viet Nam and the EU reconfirmed their commitment to a free-trade agreement.[67] Vietnam's main exports to the EU are telephone sets, electronic products, footwear, textiles and clothing, coffee, rice, seafood, and furniture.

The EU is one of the largest foreign investors in Vietnam. In 2017, EU investors committed €1.6 billion in Foreign Direct Investment, reaching a total investment stock of €19.2 billion (industrial processing and manufacturing the largest sector). Coffee is a key commodity in this agreement, and as a primary element of the agreement is to carry out trade in accordance with special regard for social and environmental protection.

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[67] See: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1928

With recent passage of the European Union Deforestation Regulation (see below) there is a great need to support Vietnamese smallholder coffee farmers to meet these new demand-side requirements. This is further explored below in the Deforestation-Free Commodities section.

8.1.2 Agricultural development strategies and targets

The Government of Viet Nam's goals for agricultural and rural development are articulated through the Agriculture Restructuring Program (ARP), which was approved in 2013 (Decision No.899) and updated in 2017. The ARP aims to maintain the current growth rate and competitiveness of agriculture, promote value chain linkages, ensure food security and food safety, and improve rural peoples' income, while reducing adverse impacts on the environment. This represents a shift in sectoral goals beyond output and trade targets to a broader set of sustainable development indicators. The ARP also aims to shift from central planning to become market-led and consumer-driven, with the government's role changing from being the primary investor and service provider to being facilitator of investments and services provided by others. The ARP calls for equal partnerships among government agencies, the private sector, farmer or community organizations, and the scientific community – the co-called '4 houses'.

An important instrument to implement the ARP is the National Target Program for New Rural Development (NTP-NRD) 2016 – 2020, which aims to modernize rural areas through promoting a model-system of a 'new rural commune'. A commune attains this status when it delivers on 19 economic and social criteria, that target poverty, education, health, transport, water supply, irrigation livelihoods, agricultural production, markets, culture, energy, environmental issues, communication and security. which also includes 'modernized agricultural production systems' and cooperatives. The Program promotes investments designed to support groups of households, small enterprises and cooperatives to raise productivity through on-, and non-farm activities and market linkages. Small investments at the commune level are normally executed through the formation of Commune Implementing Agencies while larger investments (amounting to more than VND 3 billion or about US$131,700) are normally implemented through District Implementing Units (DIUs). The provincial level is mainly involved with planning coordinating and monitoring through the Provincial Office (PO) of the NTP, which is normally established under DARD or DPI. (More details on the NTP-NRD are provided in chapter 4)

In line with the ARP, MARD's most recent (2021) Master Plan targets for 2025 include, among other[68]:

(i) The value added growth rate of the agricultural sector reaches around 2.5%– 3.0%/year. The growth rate of labor productivity in agriculture, forestry and fishery reaches an average of 6%–8%/year; the rate of trained agricultural workers reaches over 55%

(ii) The proportion of value of agricultural, forestry, and fishery products produced in the forms of cooperation and association reaches about 30%; the growth rate of value added in the agricultural product processing industry reaches over 8% per year; the growth rate of export turnover of agricultural, forestry and aquatic products reaches an average of over 5% per year;

(iii) the proportion of value of agricultural products produced under good or equivalent processes reaches about 25%; the area of agricultural land for organic production reaches about 1.5%–2% of the total area of agricultural land; The rate of organic fertilizers in the total fertilizer output reaches over 15%; the proportion of biological plant protection drugs on the list of allowed plant protection drugs increases by over 30%; the proportion of value of agricultural products applying high technology reaches about 20%; and

(iv) ; the rate of forest coverage remains stable at 42%;

In January 2022, the Strategy for Sustainable Agriculture and Rural Development for the period of 2021-2030 with vision to 2050, was approved by the Prime Minister (Decision No. 150/QD – TTg).

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[68] Government of Viet Nam. 2021. Prime Minister's Decision No.255 dated 25 February 2021 approving the Master
Plan for Agricultural Restructuring for 2021–2025. Ha Noi.

The Strategy will encourage the transition from agricultural production thinking to agricultural economic thinking. Specific objectives to 2030 include, among others:

- The GDP growth rate of agriculture, forestry and fishery reaches an average of 2.5-3% per year. The growth rate of labour productivity in these sectors reaches an average of 5.5-6% per year; the ratio of trained agricultural workers reaches over 70%
- The growth rate in export values of agro-forestry-fishery products reaches an average of 5-6% per year.
- The average income of rural residents is 2.5-3 times higher than that in 2020. The percentage of multi-dimensional poverty households in the rural areas decreases on average by 1-1.5% per year.
- At least 90% of communes meet the new rural criteria (see NTP-NRD), of which 50% of the communes meeting the advanced new rural criteria; more than 70% of district-level entities meet new rural criteria, of which 35% of district-level entities meet the advanced new rural criteria.
- Developing green, environmentally-friendly agriculture, which is adaptive to climate change; reducing rural environmental pollution, striving to reduce the greenhouse gas emissions by 10% as compared to 2020. The forest coverage rate is remained around 42%, and the forest area certified for sustainable forest management reaches over 1 million hectares.

The largest GoV expenditure in agriculture is on irrigation services. Other important services are extension services and research and development services under the Viet Nam Academy of Agricultural Sciences. To reach AMP targets, key subsidy instruments are price support subsidies for rice; irrigation service fee exemptions; seed and livestock breeding subsidies; credit schemes, reduction of land taxes and extension services.

Laws and policies for specific agriculture issues and sub-sectors relevant for the project include:

- Research and extension: The Decree 83/2018 on agricultural extension stipulates the types, methods, subjects and policies on extension and technology transfer.;
- Revised Land Law (2013)
- Action Plan on Crop Restructuring (2014, updated 2016), supported by the program on research and development of seed production to serve the restructuring of the agricultural sector in the period of 2021-2030 (Decision 703/2020);
- Organic agriculture: Decree 109/2018, followed by the approval of the Organic agricultural development Plan in the period of 2020-2030 (Decision 885/2020).
- Law on Cooperatives (2012) and Agriculture Cooperatives Innovation and Development Plan (2014).
- Decision 490/2018 and Decision 1048/2019 on the One Commune One Product (OCOP) programme. It is one of the measures of the NTP-NRD. (more details in paragraph 8.1.4)
- Decree 156/2017 promotes private sector investments and land consolidation through smallholder farmer organizations. Decree 57/2017 provides for incentives for private investments in agriculture and Decree 98/2018 promotes agriculture value chain linkages and contract farming. (more details in paragraph 5.3.3).
- Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector for 2008-2020 (issued in 2008).
- The National Strategy on Environment Protection (NSEP) to 2020, with a vision to 2030, encourages sustainable land use, minimizing the use of agro-chemicals and preventing deforestation, forest degradation, land erosion and deterioration. On water management, it proposes solutions for the inefficient use of water and to overcome seasonal water scarcity: integrated river basin planning, better management of water resources, control of water pollution, less water-intensive crop systems, modernization of irrigation systems and payment for forest ecosystem services schemes.

8.1.3 Institutional responsibilities and the extension system

MARD and its departments

In 1995, the 3 ministries of Forestry, Agriculture and Food, and Water Resource were merged into the Ministry of Agriculture and Rural Development (MARD). In 2007 also the Fishery Ministry was included into MARD.

MARD has functional departments such as the Planning Department, and technical departments including:

- Science, Technology and Environment Department
- Department of Cultivation
- Plant Protection Department
- Department of Animal Husbandry
- Veterinary/Animal Health Department
- Agro-forestry Processing and Salt Industry Department
- VNForest, will be split (again) into:
    o Forest Protection Department
    o Forestry Department
- Aqua Exploiting and Protection Department
- Department of Aquaculture
- Water Resource Department
- Works/Construction Department
- Cooperatives and Rural Development Department
- National Agro-Forestry-Fisheries Quality Assurance Department (NAFIQAD) is governing of quality and safety of agricultural, forestry, fishery products and salt nation-wide. NAFIQAD has its own seal.

The extension system

The agriculture extension system was officially established in 1993. The main objectives of the system are:

- Raise producers' awareness through training in production and business knowledge and skills;
- Provision of services to assist farmers in carrying out effective production adapted to ecological, climate and market conditions;
- Contribute to restructuring the agricultural economy towards commodity production, higher productivity and quality as well as food hygiene and safety;
- Accelerate agricultural and rural industrialization, ensuring national food security, socio-economic stability and environmental protection".

The system is organized at five levels:

1. National: National Agricultural Extension Centre (NAEC), within MARD
2. Provincial: extension staff under DARD
3. District,
4. commune,
5. Village: frontline extension agents (in 2012 they were 59% of all extension staff)

In 2012, nationally there were 36,000 extension staff, on average 1 extension worker per 300 farming households. Although several recent projects have introduced participatory approaches, the bulk of the extension services remain top-down, supply-driven and not interactive. They are oriented to rice and high value crops for export and mostly benefit better-off male farmers and farmers who are fluent in Vietnamese. Since 2014, the national extension system has focused on the agricultural sector restructuring plan, including developing rural areas, increasing food safety, and promoting hygiene. In addition, the public extension system is responsible for enhancing the capacity of agricultural extension staff and collaborators, strengthening the application of information technology in agricultural extension, increasing the connection between farmers and enterprises, and formulating policies on agricultural extension in line with requirements and production practices. Public extension enhances the function of consultancy in extension services by encouraging paid consultancy for

extension services. Box 1.3 presents an example of an innovative model used for the extension system in Lam Dong Province.[69]

In addition to the extension system under MARD, also the Communist Party's mass organizations – the farmers Union and the Vietnam Women's Union (VU) also organize training, often combined with microcredit facilities (see section…). For technical topics, they invite DARD extension staff as trainers. The VWU training focusses on small-scale farming models such as home gardens and backyard livestock. Farmers who are members of formal cooperatives tend to have better access to extension services. These cooperatives also provide subsidized inputs.

Government support to poor and marginalized communities is limited, mostly top-down, in-kind support through poverty reduction programs, not technical and market information. The VWU and NGOs also support the establishment of farmer groups and access to credit, but coverage of these projects is limited. Where extension services are limited farmers rely more on self-help groups and informal traders for information – e.g. self-reliant upland ethnic minorities communities.

Subnational level

Ninh Thuan supports value chain linkages by providing training to farmers that are under contract, in a cost-sharing arrangement with the enterprise. The province also provides training to farmers on solutions to cope with climate change. In addition, the province provides training on managerial and soft skills for staff of departments, districts and communes.

The IFAD TNSP project tried to introduce more practical, market oriented extension, including enterprise-led and farmer-led. However, in 2016, towards the end of the project a supervision mission noted that most of these value chain trainings were still conducted by DARD, DPC and CPC staff. Private sector (enterprise-led and farmer-led) extension services were identified as more practical and efficient nature, but their scale was still modest and there was no institutionalization action plan. Especially the emerging FU farmer-trainer network and piloted enterprise-led agricultural trainings have potential for more intensive use and upscaling.

Dak Lak conducted some research on high-yield and quality crops varieties and animal breeds; safe vegetable production in net houses; efficient irrigation methods; high-tech livestock production. Related dissemination activities included introduction of new rice, maize, beans varieties and quality livestock breeds, artificial insemination of cows, hybrid maize and rice intensification and ensuring biosafety in chicken farming. The province established a high-tech agriculture zone of 105.5 ha in Cu M'gar district with VND 495 billion investment capital (approved 2018), and in 2020 approved the investment of VND 360 billion in a 450.7 ha project that includes pig breeding, poultry hatchery, slaughterhouse and fertilizer factory.

In 2016 Lam Dong Provincial People's Committee has promoted an innovative extension strategy in which farmers are seen as customers. The extension content was to follow from the needs of the farmers and is not only production practices but also weather and pest information, the agricultural calendar, and adaptation to climate change and market information, product standards, trade promotions and policies to encourage value chain linkages. It aimed to make greater use of information technology and use participatory approaches and public-private partnership models. Farmers would be able to choose the extension services that offer the best quality. Following this PPP model, the Lam Dong Agriculture Extension Center has facilitated the Utz and 4C certification of 40,000 acres out of the total 150,000 hectares of coffee in Lam Dong in collaboration with coffee companies such as Hai Phuong Nam Company. [70] The Vietnamese Macadamia Company in Hoa Trung commune (Di Linh district, Lam Dong province) has cooperated with the Agriculture Extension Center of to develop a model of organic macadamia farming on an area of 5ha.[71]

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[69] IFPRI. 2018. Agriculture Extension in Viet Nam: An Assessment and Reform Options. IFPRI Discussion Paper 01707
[70] https://helenacoffee.vn/bao-lam/
[71] https://vietnamagriculture.nongnghiep.vn/lam-dong-promotes-organic-macadamia-farming-d313931.html

Climate and pest monitoring and advisory services

The Vietnam Meteorological Hydrological Administration (VMHA)[72] operates 181 surface synoptic stations of which 138 stations have continuous data since 1979 and 33 stations report to the GTS[73]. In addition, the VMHA operates 354 hydrological and 6 temperature, 500-800 automatic rain gauges, 8 weather radars and ground receiving satellite stations for HimawariCast and CMAcast.[74] That means that on average there are three synoptic weather stations per province, insufficient to capture local weather and climate variations, especially in mountainous areas with steep slopes.

Seasonal forecasts are generated by the National Centre for Hydro-Meteorology Forecasting and by the province Department of Natural Resources and Environment (DONRE). A survey conducted between December 2015 and April 2016 in communities in Vietnam found that these forecasts are communicated nationally and regionally via radio and television, and via loudspeakers at the local level. Agricultural recommendations were produced at both the provincial and district levels by the Department of Agriculture and Rural Development (DARD). Seasonal calendars were developed at the district level largely for rice and a limited number of other crops, and included planting time and variety, but without consideration of weather forecast. This information was then distributed before the season to districts and communes. More farmers had access to weather forecasts than agroadvisories. In Dien Bien and Ha Tinh, nearly all of the surveyed farmers accessed weather information through television. In Dien Bien only 30% of non-poor farmers and 13% of poor farmers received weather information from the extension services. Respondents received farming advice from the village leader (83%), extensionists (70%), and community organisations. Village leaders were important information sources for ethnic minority communities. In Ha Tinh, respondents accessed weather forecasts also loud speakers and extensionists. The agricultural advice was accessed mainly via civil society organisations, village leader, and extensionists. The Farmers' Association and Women's Union reached more women, while more men accessed information from extensionists . Dien Bien had a relatively higher accessibility of weather information for women than men. This may reflect the incorporation of Participatory Scenario Planning (PSP) workshops in village savings and loans associations for women. The institutional self-assessment highlighted a lack of communication with end users of forecasts. Farmers know what they want the information for, but they do not necessarily know what meteorological variables they should ask for. Extensionists are rarely trained in using meteorological forecasts for agroadvisories. Most of the interviewed government officers in Vietnam agreed that the communication between the departments could be improved. (Simelton et al. 2018)[75].

RIMES, CGIAR (2015) report that climate and weather information received through television is too general and not downscaled enough to be useful for decision making at the local level. Information on rainfall or drought is not linked to actionable advice on how to mitigate or prevent damage to crops. Information transmitted through the loudspeaker system or from government staff is perceived as not timely, unpredictable, scattered, with limited integration, difficult to understand or interpret, and not reaching sufficient numbers of farmers, particularly the most marginalized i.e. poorer farmers, women and ethnic minorities,. In addition, most information is developed in a top-down manner without much involvement of farmers or without building on farmer learning and experience, resulting in a mismatch between available information and user requirements.[76]

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[72] https://nchmf.gov.vn/KttvsiteE/en-US/2/index.html

[73] The Global Telecommunication System (GTS) is a global network for the transmission of meteorological data from weather stations, satellites and numerical weather prediction centres.

[74] https://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/documents/joint_meeting_program_presentation/CountryReport/Vietnam.pdf

[75] Simelton, E., Coulier, M., Carter, A., Duong, T. M., Le, T. T., Luu, G. T. T. and Madsen, E. J. (2018). Info Note: Actionability of Climate Services in Southeast Asia. CGIAR Research Program on Climate Change, Agriculture and Food Security, Wageningen, The Netherlands. https://cgspace.cgiar.org/bitstream/handle/10568/92120/InfoNote_ACIS_Baseline.pdf

[76] RIMES, CGIAR (2015). State of Climate Information Products and Services for Agriculture and Food Security in Vietnam.

To enable women farmers, ethnic minority farmers, and agricultural planners to better anticipate and respond to risks and opportunities from changes in weather patterns, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) CCAFS SEA implemented the Agro-Climate Information Services for women and ethnic minority farmers in Southeast Asia (ACIS) project. Led by ICRAF and CARE International, the project developed and distributed participatory agro-advisories in villages with improved community weather stations, downscaling of seasonal forecasts and capacity development, particularly for the women and the youth to use the information. The knowledge and experience of women and minority farmers are treated the same way as the experts' knowledge, i.e., the farmers are given an important role in the development of the agro-climate advisories. [77]

Farmers willing to pay for the translation of climate information into actionable advice. In addition to public weather information services, there are also private companies offering weather information against a fee. For example, AgriMedia, active since 2015, provides forecasts and agriculture advisory to farmers and input manufacturers, agricultural enterprises and reservoir operators through a range of platforms (SMS, call centre, web and mobile application) in partnerships with mobile network operators. Agrimedia has already installed 400 weather stations. Its more extensive iGAP service includes the installation of a weather monitoring system with 8 basic parameters: temperature, humidity, radiation, leaf wetness, precipitation, wind direction, wind speed, soil moisture. This is operated at the local level but linked through a server managed in Hanoi. The system provides upcoming weather forecasts, weather-related disaster warnings. A pest model provides pest and disease warnings for over 80 crops based on information on temperature, humidity, leaf wetness, radiation, and rainfall. Through a web and mobile application farmers can keep an electronic farming diary, receive advise on production management and the cropping calendar, and it can also be used for traceability programmes with buyers. AgriMedia currently operates 14 iGAP projects.[78]

8.1.4 Cooperatives, farmer organizations, value chain linkages and OCOP

Farmer organizations and value chain linkages

In general, Vietnam has a good business environment with relative easy access to credit and electricity and good contract enforcement. As described in paragraph 5.3.1 (check para number), there are several policies to incentivize private investment in agriculture. On the one hand, initiatives like high-tech agricultural zones and PPPs are designed to attract large-scale businesses. On the other hand, the OCOP programme is more focussed on community-based and cooperative enterprises.

As a result of the NTP-NRD, and its targets for cooperatives there is a strong incentive for both local government and farmers to form at least one cooperative in each commune. During design, three (more during November mission?) cooperatives were visited which had received matching grants for their facilities and equipment, and of which one was clearly a cooperative in name only.

Until 1986, cooperatives were a mechanism of a centrally planned economy. Since the shift to a socialist-oriented market economy, the number of cooperatives strongly declined. With the 2003 Law on Cooperatives a new types of cooperatives was tested. With the 2012 Law on Cooperatives and the implementation decrees, such as Decree No. 193/2013/ND-CP, Decree No. 107/2017/ND-CP and policies such as Decision No. 2261/QD-TTg issued in 2014 and the cooperative development assistance program for the period of 2015-2020 (Vietnam's Government, 2014) the new type of cooperative was mainstreamed and promoted.[79]

As a result, two types of cooperatives can be recognized: new cooperatives (established after 2003) and reformed cooperatives (established before 2003 and later reformed to adapt to the new model). On average, reformed cooperatives are larger while new cooperative are more business oriented.

[77] Ferrer AJG, Bernardo EBV. 2020. Outcomes of CCAFS Work in Vietnam. Hanoi, Vietnam: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). https://cgspace.cgiar.org/bitstream/handle/10568/106951/Vietnam%20Outcome%20Report.pdf

[78] https://weatherplus.vn/ and https://directory.growasia.org/agrimedia/

[79] Tiep, N. C., Song, N. V., Anh, N. T. Q., Cuong, H. N., Diep, D. T., Huyen, V. T. K., Thuy, N. T., Trang, T. T. T., & Tuan, N. V. (2020). Agricultural Cooperative Development in Thaibinh Province, Vietnam: Situation and Solutions. Modern Economy, 11, 1376-1400. https://doi.org/10.4236/me.2020.117098

However, not all new cooperatives are real member based organizations. To be recognised as a 'new rural commune', the commune needs to have at least one cooperative, and some communes provide incentives to local traders to register with a group of farmers as a cooperative.

Despite the promotion of cooperatives, it is still difficult for them to access finance, For some cooperatives in the project area this is because they still lack capacity in organizational management, administration and operation, and do not yet comply with all the regulations on financial management and accounting and the Cooperatives law. For many cooperative, the biggest barrier is the lack of collective collateral assets. For example, according to the Cooperative Alliance (CA) in Ninh Thuan, only 7 - 8 cooperatives among the total 94 cooperatives in the province are able to get a loan from the bank. Of these, 4 cooperatives participated in a value chain linkage project and the CA was a guarantee. (see more in chapter 9 on rural finance)

Under decrees 57/2017 and 98/2018 private investors and linkage projects may receive tax reductions and subsidised credit for inter alia: (i) hiring consultants; (ii) max 30% of infrastructure costs; (iii) agricultural research, extension, training, breeds, materials, packaging and labelling (iv) support for land consolidation.

Some big companies get loan from banks to invest to provide seed to farmers with credit of 50% without interest charged. Farmers can pay them back by the harvest season by deduct from the selling product or by cash if the farmer didn't sell product to them. For example, in Ninh Thuan, Linh Dan company associates with about 5 cooperatives and 25-30 big farmers to plant 300 ha asparagus. The company provides seed on credit without interest charge and technical support to farmers during planting and harvesting. They buy the product from farmer at market price and deduct the credit, if farmer sells to someone else they have to pay back the credit in cash. In case there is a crop failure due to a natural disaster, the company will share 50% of the investment cost (mainly seed provided by the company).

In Lam Dong, the Women's Union supported its members to establish 9 cooperatives and 46 collective groups (from 2016 – 2021). The WU in Lam Dong proactively collaborates with other departments such as DARD, Industry and Trade department; CA; Science and Technology Department and companies to support their members to participate in value chains. According to them, the difficulties for farmers when participating in the value chains are technical and capital and this can be solved by joining together (cooperative model), mobilize all support resources from government, projects and develop a good connection with big companies. The Farmers Union was as a partner with some project such as: REDD+, MTC2 (develop associate group to develop cooperative); Environment and climate change, DGRV There are some big companies providing seed to farmers on credit.

In Dak Nong there 173 agriculture cooperatives with a total of 9.387 members, on average 47 members per cooperative. Of these, around 155 are active and 29 participate in value chain linkage projects with quality certificates, of which 2 have an international organic certificate (pepper) and the rest are complying with a national standard. By end of Oct, 2021, the outstanding loan via FU system at Dak Nong province is 835,5 billion VND for about 18.000 HHs (410 groups).

In Dak lak, the WU supported the establishment of 5 Women Enterprise Clubs, 24 Cooperatives (225 members) and 49 Collective Groups (403 members). The farmers union has 192.938 members, among them 71.109 ethnic people. See also the case of Dakado group in Box 1.

Box 1 Dakado

Thu Nhon Limited Company has an important part in the production and development of the avocado value chain for farmers in Dak Lak and other Highland provinces. Thu Nhon Limited Company, now the Dakado group, originated with nut fruits growers and was established in 2007 in Buon Me Thuot province. It was a core member of the "Promoting Avocado Value chain in Dak Lak Province" Project which was carried out from 2006-2009 with technical assistance from the Consultancy of Fresh Studio ASIA Innovation, funded by GTZ (Germany) and under the supervision of the Science and Technology Department of Dak Lak Province, which developed the Avocado Brand name "Dakado" since 2006. The ownership of the Brand name was transferred to Thu Nhon Company in 2011. Funded by Agriculture Competitive Project (ACP) in Daklak Province by World Bank, Product partnership for Dakado Avocado was established in 2010, with linkage between the Company and 100 avocado planting households, in which 30% are Ede ethnic groups and small scale production households. In 2015, 300 households joined the Product Partnership. By 2018, 114 ha of avocado planting area from 100 households qualified for Viet Gap standard. Dakado avocados are distributed to and by supermarket chains in Vietnam and exported to Cambodia and has launched in the European market. Since 2007 till now, the company is developing many new products such as macadamia nuts, energy bar, macadamia chocolate, safety pepper and avocado oil, macadamia oil for cosmetic and food industries. Thu Nhon company strategy for 2016- 2020 is to diversify the processing products, as well as developing value chain linkages for other agriculture products such as macadamias, and other agriculture products from the Highland provinces.(see previous Oxfam reference)

One Commune One Product

The One Commune One Product (OCOP) initiative[80], started in 2013 in Quang Ninh province. Nationwide implementation accelerated since 2018. The OCOP programme seeks to develop each commune based on its' natural and cultural resources. OCOP products are divided into six categories: Food; Drinks; Herbal; Fabric and garment; Souvenir / Interior-Decoration; and (community) tourism. Decision 1048/2019 issued a scoring system for evaluating and classifying these products:

- Part A: Criteria on community strength (35 points).

- Part B: Criteria on marketing ability (25 points).

- Part C: Criteria on product quality and uniqueness (40 points).

Based on the score, each product is classified as follows:

- 5-star grade: 90 -100 points. They are national products and can be exported.
- 4-star grade: 70 - 89 points. They are provincial-level products.
- 3-star grade: 50 - 69 points. They are provincial-level products that meet the standards.
- 2-star grade: 30 - 49 points. They have not been standardized.
- 1-star grade: less than 30 points. They are products that initially join the OCOP Program.

To spread the OCOP programme, provincial DARDs have provided the farmers with many training programs. OCOP products are often produced and promoted by cooperatives (see paragraph ##). For example, in Dak Nong 12 cooperatives have a registered OCOP product. The OCOP programme has been successful in promoting non-wood forest products such as herbs and medicinal plants and other typical and special agricultural products from the Central Highlands, such as organic coffee, macadamia nuts and value-added cashew products. A lot of attention is being paid to branding and high quality packaging.

However, its widespread implementation is also becoming its own problem. In 2020 alone, Viet Nam added 3,200 OCOP products, making the OCOP label less special, and products are increasingly competing with each other for consumer attention. http://ocop.gov.vn/?page=home. Annex # provides

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[80] Modelled on the Japanese One Village One Product, which also has elements of Geographic Indication programmes.

a list of OCOP products of project districts per province [to be included, I cannot do it as for Ninh Thuan e.g. only scanned list in Vietnamese].

Although cooperatives get a higher score on "type of organization", it is still difficult for local producer group to join the OCOP programme. For example, according to decree 15/2018, producers of products in the category "herbal" need to have GMP certification.[81] [NB: this is also relevant for developing medicinal plants VCs!!!]

Dak lak: Ea Kar district supported the application of recently approved VietGAP standards for wild boar products, litchees and longans, and the support of VietGAP certification and labelling of citrus fruits. Buon Ho town (… district?) developed a trademark of Buon Ho fruits, supporting cooperatives producing durian and avocado. Other granted trademarks included Cu Kuin pepper, Kroin Ana rice, Ea Tir citronella essential oil in Ea H'leo district and Cu Ebur deer in Buan Ma Thuot City.

8.2 Mitigation and adaptation pathways

RECAF aims to facilitate an economically viable transition to deforestation-free value chains, agroforestry systems/intercropping, sustainable forest management and climate resilient livelihoods and incomes of ethnic and poor local communities. Mitigation pathways include: a) shifting to deforestation-free commodity value chains, so that yield gains no longer come at the expense of forests (avoided deforestation); b) encouraging intercropping trees and perennials into coffee growing areas, which will help diversify farm income and also buffer climate impacts (afforestation and climate adaptation). Boosting livelihood options will also come through sustainable non-wood forest products (NWFPs).

8.2.1 Deforestation-free commodities

The NRAP (2017) prioritized deforestation-free commodity production as a key step to address the largest direct drivers of forest clearing for agriculture production. Thus, in supporting Vietnam's implementation of the NRAP in the Central Highlands, this is of primary importance to address driver pressure. The NRAP (2017) states, "Promoting sustainable and deforestation-free agriculture (NRP PAM 1.2): Focusing on the largest commodities driving forest loss—rubber and coffee—this intervention focuses on the actions necessary to restrict further expansion into forests, thus resulting in maintenance of existing natural forest." RECAF activities in the coffee, rubber, pepper, and cassava value-chains thus should seek to implement this PAM.

The European Union's Deforestation Regulation (EUDR)[82] came into force in June 2023. The goal of EUDR is to prevent deforestation and forest degradation, contributing to environment protection and climate change mitigation. Accordingly, commercial agricultural goods in the EU market will have to meet and demonstrate requirements on deforestation and forest degradation throughout the entire supply chain. EUDR stipulates that 7 commercial sectors in the EU will be controlled including wood and wood products, rubber, coffee, cocoa, beef, oil palm and soybeans. For Vietnam, the three sectors are coffee, rubber, wood and wood products will be significantly affected by EUDR regulations.

The EUDR stipulates that relevant commodities and products placed on the EU market or exported from there must have been produced deforestation-free, thus demonstrate no conversion of forests into agricultural use after 31 Dec 2020. In the case of wood products, it shall be demonstrated that there was no forest degradation after 31 Dec 2020. The main obligations are applicable to operators/companies that place relevant products on the EU market for the first time or export them from the EU market. Due diligence requirements include:

> Information requirements (Art. 9) Amongst others, geolocation must be collected → Strict traceability linking the commodity to the plot of land of production. Using geolocation coordinates is simplest and most cost-effective way of obtaining the necessary geographic information.

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[81] https://ap.fftc.org.tw/article/2844

[82] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2023.150.01.0206.01.ENG&toc=OJ%3AL%3A2023%3A150%3ATOC

Risk assessment (Art. 10) Criteria amongst others: prevalence of deforestation, reasoned claims by indigenous peoples, risk of circumvention, certification, etc.

Risk mitigation (Art. 11) Amongst others, requiring additional information + supporting suppliers, in particular smallholders, through capacity building and investments

Notably, 95% of Vietnam's coffee production and exports, which include 652,000 tonnes of coffee worth US$1.66 billion in 2023, originate from the Central Highlands region. Vietnam ranks as the second-largest coffee supplier to the EU by volume. The scale of effort required to transform these value chains to be deforestation-free is considerable. This transition faces a number constraints, such as (i) policy and institutional gaps for implementing REDD+ at provincial level, e.g. lack of interdepartmental, cross-sectoral and public-private coordination; (ii) inequitable distribution of costs and benefits of forest protection and conservation; (iii) lack of land tenure security; and (iv) lack of incentives for private sector action, including access to long-term financial products for mitigation and adaptation investments. RECAF seeks to help deliver in strategic and targeted areas.

There is already work underway in the Central Highlands to achieve deforestation-free commodities. See "Integrated sustainable landscape management through deforestation-free jurisdiction project in Lam Dong and Dak Nong," implemented by UNDP, UNEP, IDH and CIAT, and the IDH Sustainable Landscapes Initiative mentioned above in the section on baseline activities to implement REDD+ in the project area.

The Minister of MARD issued direction[83] to Provinces on EUDR in August 2023. MARD had directed specialized agencies to prepare an Action Framework in compliance with EUDR, proposing specific tasks/solutions and assigning specialized agencies of the Ministry to implement them. On June 29, 2023, the MARD signed a Memorandum of Understanding with the Departments of Agriculture and Rural Development of five provinces in the Central Highlands (Dak Lak, Dak Nong, Gia Lai, Kon Tum, Lam Dong), industry associations, and related international organizations to cooperate and develop the deforestation and degradation-free production areas, as well as to promote sustainable production in harmonization with natural resources protection and social inclusion at the local areas. In order to meet EUDR requirements by December 2024, MARD proposes that the Provinces conduct the following:

1. Strictly monitor high-risk areas (intercropping with forest areas) for sectors affected by EUDR, especially coffee; strengthen patrols/community monitoring to protect forests.

2. Assign relevant specialized agencies to coordinate with agencies of the Ministry, industry associations, businesses, and international organizations (including the EU Delegation to Vietnam, IDH, The Sustainable Trade Initiative, 4C Organization, etc.) to:

- Develop and approve a national database on natural forests and cultivated areas;
- Review and unify ground maps;
- Share, update, and digitalize cadastral map data of plantations and conduct additional surveys for those not yet on cadastral maps;
- Based on data on forests and cultivated areas, identify areas with high, medium, and low deforestation risks, thereby determining appropriate solutions for monitoring, protecting and restoring forests, establishing traceability systems, supporting sustainable livelihoods, and sustainable production;
- Develop and implement the feedback and information sharing mechanisms with importers into the EU, as required by the EC;
- Disseminate EUDR provisions and technical guidance documents to management agencies at all levels and stakeholders in the value chains of affected sectors;
- Develop and implement supply chain traceability to the area, linked to the location of specific farm for sectors affected by EUDR;
- Scale up landscape approaches to promote sustainable production, natural resources protection and social inclusion; apply sustainable certification to coffee, rubber, and wood sectors.
- Support the transformation and improvement of livelihoods for farmers, especially ethnic minorities in areas with intercropping between forests and crops, to comply with EUDR.

3. Establish or consolidate the provincial-level Public-Private working group; implement public-private partnership activities; carry out activities and share information as well as provincial-level databases for

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[83] https://www.idhsustainabletrade.com/uploaded/2023/08/Implementing-the-Action-Framework-to-comply-with-EU-Deforestation-Regulation.pdf

sectors affected by EUDR; coordinate with the general working groups and sectoral working groups at the national level; develop programs and projects to call for public and private investment and international funding to implement the above mentioned activities.

4. Allocate resources from local budgets to support the value chains of coffee, rubber, wood, and wood products to comply with EUDR.

8.2.1.1 Structural challenges to implementing deforestation-free commodities in the Central Highlands

The structural challenge in implementing a deforestation-free jurisdictional approach in the Central highlands is:

a) In the Vietnamese coffee sector, Circular 08/2013/TT-BCT issued by the Ministry of Industry and Trade, forbids foreign-owned companies from source directly from farmers but must instead buy through a registered local company (or cooperative)—usually a trader/collector. This has created a coffee supply chain that is characterized by mixed coffee beans just past the farmgate, and is nearly impossible to trace and verify whether production has met certain standards. This has resulted in significant challenges to trace coffee beans to the farm level, and overall traceability in the sector. Traceability is a prerequisite to demonstrate commodities are produced 'deforestation-free.'

b) Although Vietnam has well organized forest inventory and annual quantification of change data, the country lacks a spatially-based alert system to prioritize actions on the ground and support the work of local forest rangers for enforcement (real-time monitoring). This impedes the ability to demonstrate to the marketplace that deforestation-free commitments are being upheld.

c) The lack of traceability also relates to systemic challenges in shifting production from a "high-volume, low-price, low-quality" model to one that boosts yields and income for farmers in exchange for commitments (and enforcement of) environmental standards. That is because the current system encourages heavy use of fertilizers, high yields, and high volume of production, with very low margins for producers, as value-addition occurs after it gets sold to the traders/collector. The incentive for farmers is therefore not on quality but on quantity.

There has not yet been a strategy coherently implemented in Vietnam's coffee (and other commodity) supply chain to address the above challenges. See previous section on the coffee supply chain in this Annex. RECAF should take this on, coordinating between other actors and initiatives seeking similar outcomes (IDH, UNDP-led Deforestation-free jurisdictional approach piloting, new EU funding, others).

Monitoring for deforestation-free purposes

To address the limitations of not having a spatially-based alert system for real-time monitoring, there are relatively low-cost technical solutions. This section does not summarize all of the options, just one that was developed by CIAT, supported by UN-REDD Programme and proposed in the UNDP-led Deforestation-free jurisdictional approach.

Terra-i is a near real-time pantropical monitoring system for the detection of natural vegetation loss. It was implemented for the first time in Latin America in 2012 and expended to Asia and Africa in 2016. Since June 2012, Terra-i data has been available for download for free on www.terra-i.org. Currently, there is a map of vegetation loss produced every 16 days between January 2004 and the current date at pantropical level. In the recent year, Terra-i team developed a novel multi-scale multilevel vegetation coverage monitoring system, in which cutting-edge machine learning methodologies and freely available remote sensing data are integrated to generate a robust system with three (3) levels of analysis:

- 1st level: early alerts of changes in coverage: At the national level, the system uses a mixture of optical data (Sentinel 2) and SAR (Sentinel 1) to provide constant monitoring without influence of the cloudiness of the area.

- 2nd level: quantification of the loss of forest cover, from a current non-forest forest map in an area of interest, resulting from a classification of coverages using decision trees, GIS techniques, and high / medium resolution images, Landsat, Sentinel 1 and 2. The anomalies corresponding to forest cover losses are identified.

- 3rd level: identification of causes and drivers of deforestation, precision assessment of early warnings, from validation in the field using GPS based validation methodologies and drone overflights.

Terra-i is currently applied at pantropical scale based on automated calibration. Globally, the results of such calibration are positive, but the outputs of the tool can be greatly improved by including the local expertise and knowledge. For instance, Terra-i was successfully implemented by the Peruvian Ministry of Environment (MINAM). Since Terra-i Peru was officially launched in April 2014, it has been applied as the official early warning system for land cover and land-use change in Peru. The tool is now used by DGOT to monitor the implementation of new conservation and land restoration projects. Previous detections of the tool are used as deforestation baseline and changes in deforestation trends are used as an indicator of success for results-based payment projects.

In Vietnam, the UN-REDD program phase II supported the piloting of theTerra-i system for the monitoring of forest land use changes, especially the forest conversion to coffee plantation in Di Linh district, Lam Dong province. The pilot developed capacity for real-time use of data on a web-platform to identify new areas of deforestation and forest degradation change and act accordingly. Local forest rangers could also be able to report back their finding directly via the web-platform. A team from provincial level DARD/FPD staffs would be trained as trainers who will be able to transfer the knowledge to district and commune levels. Enforcing forest monitoring in these two provinces would support the feasibility and ease the quantification of the impact of "greening" strategies, such as private sector investment in deforestation free areas, and the integration of the Spatial Planning Law (of 2018) to provincial land use master plans. Terra-i is capable of pinpointing landscapes presenting the greatest risks for deforestation and create a protocol to monitor changes. By providing independent and transparent data about on-going deforestation in near real time based on Terra-i, deforestation-free commodity platforms (such as the 4Ps) can facilitate multi-stakeholder dialogue and information sharing to identify interventions and enable alternative agroforestry development pathways.

The Terra-I tool could also be implemented at national scale done by collaborating with MARD to include the tool within the activities of VNFOREST and FIPI by integrating the tool within the Management Information System for Forestry Sector (FORMIS).

Based on the piloting of Terra-I, the following could be pursued:

Pilot development and scaling up: The alerts of change would be produced with the existing Terra-i system developed by CIAT. To ensure a continuous monitoring of forests every two week with a resolution of 10m and thus cope with Vietnam frequent cloud cover and the scale of the changes present in the landscapes, CIAT proposes to include cutting-edge satellite imagery from Sentinel 1 (SAR) and Sentinel 2 (optical). CIAT would continually develop the tool to adapt it to the two provinces context and include end-users feedback. Finally, data will be made available through a web-platform.

Capacity building: CIAT would train the member of the forest monitoring group to the use of the data within their activities. To ensure the sustainability of the tool and data, CIAT would train technician at provincial level to use the tool to generate new data every two weeks and maintain the alert of change up-to-date. To ensure a good adoption at all level, CIAT would train trainers within DARD/FPD at provincial level who will be able to transfer the knowledge at district and commune level.

Linkage between local level and national MRV system: CIAT would facilitate interaction with MARD to review the opportunities for the deployment of Terra-i beyond local level for deforestation monitoring (e.g. impact on national MRV system, access to climate finance) and a strategy will be defined for the implementation of the tool at national scale.

Geographical Indication:

One method that has sought to overcome the traceability challenge is to seek a Geographical Indication for Central Highlands coffee, and to work via a jurisdictional sourcing approach to ensure that there is no forest clearing in that GI area. Other sustainability criteria could be added to it, such as reduced use of pesticides and fertilizers.

Part of the challenge with this approach is that it does need to be piloted (probably at district level), but scale needs to be reached quickly to the Provincial and Central Highlands region level. That is because coffee roaster and buyers require the same standards and minimum thresholds across their sourcing

area, and also to ensure that there is not leakage of deforestation to other areas (thus undercutting the greenhouse gas emission potential of the initiative).

The Vietnam Coffee Coordination Board is already pursuing a Geographical Indication, though it is unclear what progress has been made on this over the past years. This is part of the High-Quality Coffee Programme, which is based on considerable research into improved practices for irrigation, adaptation to climate change, and intercropping for dissemination in extension training and the National Sustainability Curriculum (NSC). RECAF could bring a heightened focus on action to promote these steps, in partnership with key actors in the supply chain and Provinces through the 4P platform, while also bringing the monitoring and verification capacity through improved forest monitoring systems and the area coding supported through Global Coffee Platform. The VCCB efforts on the Geographical Indication did not contain a deforestation-free commitment, so this is an additional level of commitment. Sustainable Coffee Producer Associations in Lam Dong and Dak Lak and VICOFA are already working with VCCB on these activities. A coffee information system (AgroInfo) was developed as part of VNSat to rejuvenate coffee areas, thus can form a key input for farmers to improve practices and to track changes as a result. The GI approach has been developed in other food product areas in Vietnam, with mixed success.[84] However, Vietnamese law permits that the right to register and manage GIs can be delegated to collectives of producers, so this is something RECAF could pursue with cooperatives and collectives of the government-led initiatives do not gain traction.

As 60% of the price premium for certified coffee has been eroded,[85] the interest in certification has decreased among producers and companies. That said, certified products are still being sourced, but with a price differential. Though certification standards (and associated costs) are less desirable to the international coffee buyers than 8-10 years ago, there is still a need to improve coffee production standards by smallholders. As part of a Geographical Indication, area coding of farm plots, and increased traceability in the coffee supply chain as a result, a package of services could be offered to farmers to boost smallholder production practices and coffee bean quality. This will function much like certification. However, certification may not be necessary to achieve the results. Once production practices are improved, it would become easier to apply for certification afterwards, should parties be interested, and should a price premium for certified be identified.

The following activities can be pursued to reduce pressure on forests by formalizing coffee supply chains and providing the necessary technical tools and economic and financial incentives that increase assurance throughout the supply chain and improve livelihoods for smallholder producers:

a) Development of jurisdiction-wide improved cultivation criteria/indicators

Specific cultivation criteria could be developed at the Central Highlands or Provincial levels, in collaboration with key supply chain actors, with refinements made at lower jurisdictional levels by the jurisdictional authority and stakeholders. Specific criteria for cultivation of coffee will be decided upon through a process of advocacy with both a key stakeholders from the public and private sector. Cultivation criteria will be selected build on research and findings from the 'High Quality Coffee Programme', which is based on considerable research into and the National Sustainability Curriculum (NSC). This could include:

- Improved practices for irrigation,

- Improved practices for pesticides, herbicides and fertilizer use

- Zero-net deforestation

- Farm-level diversification, through intercropping and agroforestry, with goal of 70% of coffee areas under shaded/tree systems within 10 years.

- Adaptation and resilience to climate change through the implementation of climate smart agriculture, and ecosystem-based strengthening

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https://agritrop.cirad.fr/584676/1/use_of_geographical_indications_in_vietnam_a_promising_tool_for_socioeconomic_development.pdf

- Provision of Service Delivery Model analysis and implementation to improve services to farmers with sound business cases for related stakeholders

- Improved supply chain efficiency of commodities to increase benefits and also product quality

Criteria to guide management objectives under a Geographical Indication could also be patterned after the pilot that was developed by WASI and which IDH sought to implement with farmers and companies within "mini-landscapes." These have been developed to adjust to local conditions, where companies and farmers define 20-100 ha for a "mini-landscape" with a local set of criteria to guide management objectives. IDH finds this approach has helped farmers figure out plans for each farm.[86] This criteria should be reviewed and updated.

A robust traceability system enables the implementation and tracking of jurisdiction-wide sustainable cultivation criteria. This can be added to the Terra-I monitoring system detailed above. Criteria and can be monitored and supported through technical implementation support.

b) Technical assistance and implementation support to help small holders to add the uptake of jurisdiction-wide improved cultivation criteria for coffee

Technical assistance, and implementation support of cultivation criteria will be required in conjunction with financial support to be determined based on the final suite of cultivation criteria.

Farmers will need access to knowledge and technical advances and in organic biotechnology, improved seedlings, methods to improve soil fertility and biodiversity, and methods of managing pests such as nematodes. Minimizing environmental pollution by optimizing chemical application is crucial. Technical assistance to help adapt to climate change, soil and water conservation, soil erosion in the rainy season, and management of fruit or canopy trees will also be necessary. This effort can contain a large climate adaptation component, serving the growing needs of farmers to adapt practices to adjust to changes in climate.

c) Improved supply chain sustainability achieved through the formalization of supply chains and the development of a 'verified sourcing area'.

Coffee supply chains in the central highlands are characterized by a lack of formality in the contractual arrangements between different supply chain actors; companies have contracts with smallholders, but the enforcement is limited. Local collectors or aggregators are therefore very important actors in the chain, who collect coffee from farmers. Contract farming and other forms of regularized direct business relations between farmers and processing/exporting companies are rare. As a result, most deals are conducted between farmer and collector agent through mutual trust between parties. Agents are therefore typically local and have transportation facilities and warehouses spread throughout the area. The resultant high flexibility allows local aggregators to purchase and transport agricultural products in remote areas with poor transport infrastructure. Depending on their scale, they may deal in one or a number of commodities. Additionally, are often responsible for providing smallholders with agricultural inputs, when and if required.

One of the factors impacting the sustainable production of agricultural commodities in the central highlands is the supply of high quality and reliable agricultural inputs; fertilizers, pesticides, herbicides, etc. Inputs are typically provided by local aggregators, that provide inputs to farmers in a no-cash, informal financing transaction, which will be repaid through the discounted sale of commodities to the trader at harvest. The informality in agricultural supply chains lead to a lack of accountability which extends both up and down the value chain: local aggregators provide low-quality inputs to farmers, resulting in the needed for excessive application and can be damaging to the soil and the environment. As a result, the crop sold up the value chain is of lower quality and therefore lower value, further suppressing margins achieved by supply chain actors and disincentivizing investment.

Formalizing the relationship between international buyers and local aggregators through contracts and offtake agreements between international buyers and local aggregators can enable the use of trade finance tools. Reverse factoring for example would enable local aggregators to secure credit or loans at a lower interest rate. Reverse factoring services would enable local aggregators to use their accounts receivable from large creditworthy international buyers to receive lower cost financing. In traditional factoring, a supplier will sell their accounts receivable to a commercial bank, the factor, in exchange for

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[86] Ibid.

immediate liquidity. However, in the absence of credit information it is challenging for the factor to adequately assess the credit risk of the supplier. In reverse factoring, the process is initiated by the buyer, usually a large creditworthy company, and therefore helps their smaller-scale suppliers to finance their borrowing, based on the creditworthiness of their buyer, at a discount.

The provision of lower-cost finance and the formalized relationship between the agribusiness and the local aggregators can be used to monitor and improve both the quality of inputs supplied down the value chain to farmers and also facilitate investment in sorting and processing processes, which will reduce the processing and sorting costs for international buyers.

Additionally, the provision of higher quality inputs and the investment in improved agricultural practices will drive improvements in the quality of coffee beans produced while also reducing food-safety risks.

Improvements in the quality of the coffee can provide access to niche or higher-value markets, raising the value of coffee and relaxing the margins achieved by international buyers. The implementation of verified sourcing areas will provide traceability and accountability to ensure that the additional value achieved by buyers can be passed down the value chain.

One such area relates to reducing post-harvest loss, in order to ensure the majority of production reaches the market, thus influencing pressures for expansion into forests. The VNSat programme invested in improved post-harvest storage facilities (one VNSat package contained a 50% cost-share facility for post-harvest processing). However, the VNSat programme did not reach all farmers and regions, thus it is recommended that RECAF review and assess lessons learned where the gaps are, what further needs are necessary, what regions require additional assistance, and what strategic role the RECAF can help facilitate to influence scaling (such as a loan-facility with local banks).

d) Assisting the development of a low-cost, jurisdiction-wide traceability system in support of a 'verified sourcing area'.

A verified sourcing area provides assurance to a committed off-taker by providing transparency to the origin of products being purchased. Many international buyers have their own traceability systems in place, this can be complicated and confusing for other supply chain actors to manage. Having a single protocol for traceability in place within a sub-national or national jurisdiction, can harmonize and streamline procedures and also deliver economies of scale for any technological solution, suppressing potential increase in transaction costs. See mention of Terra-I above, which can provide an information platform to achieve these goals and add on/integrate with other components, as needed.

A robust, centralized, traceability system provides assurance to buyers that the commodities they are purchasing have been produced within a defined geographical area and according to a set of standards that can guarantee higher quality product, lower environmental impact and are not linked to deforestation. These standards can be set by buyers in collaboration with the jurisdictional authority and paid for through a guaranteed cost, compensating producers for the additional cost of production. In this way, the incentives to produce a higher-value product can be passed down the value chain to the smallholder, driving sustainability improvements across the whole supply chain.

The Global Coffee Platform is creating a digital tool to track production based on area. The Government of Vietnam already provided a basis for this in Article 72, Chapter IV of the Crop Production Law of 2018, which states the management and issuance of area codes. There was also approval of Decision No. 3417 / QD-BNN-TT[87] for development planning in the Vietnam coffee industry to 2020 and vision to 2030, which provides a policy basis for the intervention.

The main functions of the information system is to develop a system of plantation codes for the Vietnamese coffee sector. The information obtained will allow for evaluation of the application of production practices, improve practices for sustainable production towards adaptation to climate change, enhance the added value and create a sustainable supply of coffee from Viet Nam. The system has two main functions:

- Display information on farm household codes, including: tree map, general household information (name of household head / gender / ethnicity, address, number of people, level education, etc.), characteristics of coffee gardens (area, location, soil properties, water

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[87] https://lawnet.vn/vb/Quyet-dinh-3417-QD-BNN-TT-2014-phe-duyet-De-an-phat-trien-nganh-ca-phe-ben-vung-den-nam-2020-45B50.html

sources), intercropping systems (industrial crops, fruit trees, shade trees) irrigation system (surface watering, underground watering).

- Measure the level of application of good practices based on the set of indicators that are encouraged in the national sustainable coffee production (NSC) such as water, fertilizer and pesticides, plants, techniques of care and post-harvest (*ibid*).

In addition to specific questions for the Vietnamese coffee industry, the information system also includes a number of common questions that assess sustainable coffee production at a global level based on the Sustainable Development Goals in Viet Nam, including a questionnaire on welfare and wellbeing (occupational accidents, food scarcity, etc.), information on intercropped crops in coffee gardens (types of fertilizers used, sources of use, prices , etc.), financial status and debt financing (*ibid*).

The Global Coffee Platform piloted this in five communes of Di Linh district, including Tan Chau, Tan Nghia, Dinh Lac, Di Linh, Gieng. The number of households producing coffee in these communes is estimated at 15,000 households (*ibid*).

More information is needed to see how area coding can relate to the 'OCOP' which is the list of prioritized crops at the district level. Communes can chose their preferred crop, and apply to be registered.

e)   Development and capacity building for farmer organizations for small holders

Presently, in supply chains in the Central Highlands, smallholders sell to local aggregators, who in turn sell to larger aggregators or to international buyers. This leads to a disconnect between smallholders and international buyers, that are incentivized to improve the low-term sustainability of their supply chains. Additionally, it suppresses the bargaining power of smallholders, lowering their margins and disincentivizing investment in cultivation improvements.

Developing and formalizing farmer organizations for smallholders will help to improve economies of scale of production, which will in turn incentivize communal investment in sustainability and production improvement. Additionally, once a farmer organisation reaches a threshold size, it will become feasible for large international buyers to buy directly from the farmer organisation itself. This will provide the smallholders within the famer organisation access to a higher price for their coffee, which will translate directly into livelihood improvements.
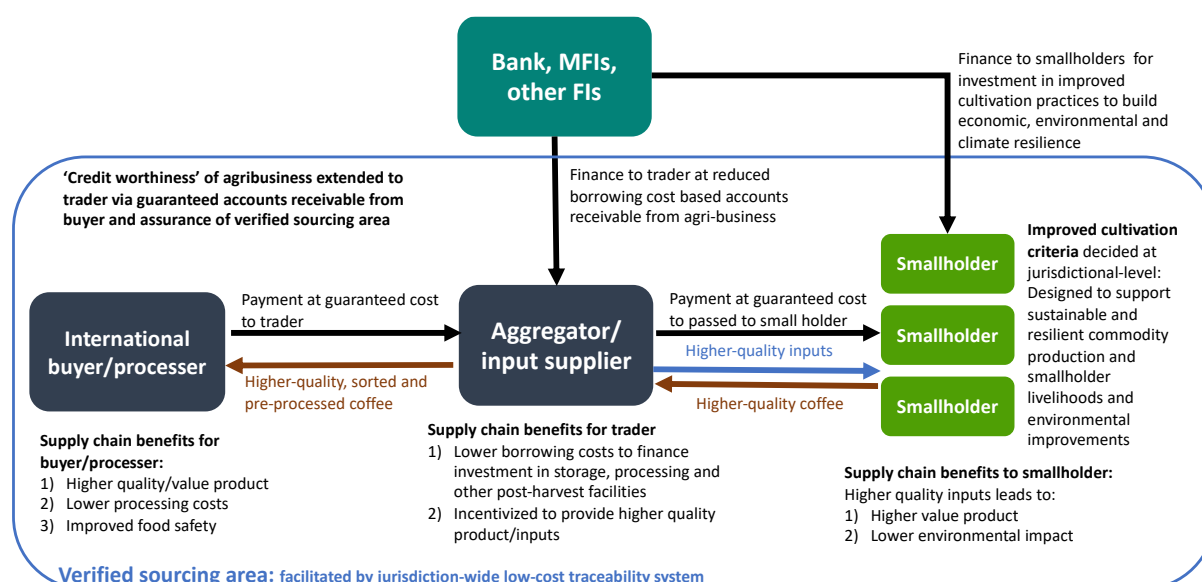

Figure: Sustainable supply chain production model to incentivise and generate value for improved cultivation practices in verified sourcing area, facilitated by low-cost traceability system (Source: UNDP, UNEP, IDH, CIAT Deforestation-free jurisdictional approach)

In addition to a robust traceability system to provide assurance that coffee originates within the verified sourcing area, the legitimacy of the Geographical Indication and deforestation-free sourcing of commodities hinges on strong monitoring, verification of deforestation related criteria.

Multi-stakeholder platforms are anticipated in RECAF, as a means to achieve the 4P platforms. Mekong Research Development Institute[88] completed an assessment of "Gaps in forest-risk commodities production in terms of sustainability and the feasibility of a subnational jurisdictional approach in Vietnam," in 2022. There are many insights that are highly relevant to RECAF, particularly in how to nurture bottom-up approaches to multi-stakeholder platforms, which is identified as a major gap in most activities to date.

8.2.2 Agroforestry to enhancing carbon stock and adapt to climate change.

Vietnam's updated Nationally Determined Contribution (NDC) of 2022 identifies that one of the key activities to reach the LULUCF targets is, "scaleup of agroforestry models to improve carbon stocks and conserve soil; sustainable forest management and forest certification. The measures to reduce emissions applied in the LULUCF sector manifest Viet Nam's determination to implement the Glasgow Leaders' Declaration on Forests and Land Use." Agroforestry is also well known to advance climate adaptation through reducing impacts of changes in rainfall and temperature, protecting slopping lands; effective uses of unforested land and bare hills.

About 25% of Robusta coffee grown is comprised of coffee-shade tree intercropping systems (Duy Nhiem Nguyen et al, 2018). Based on the intercropping business models developed by IPSARD and UNEP Finance, findings show it is economically feasible for farmers to diversify with fruit, nut or multi-purpose trees on their coffee farms, without suffering large impacts in coffee yields, while simultaneously diversifying and increasing their income. Intercropping with fruit trees and Cassia Siamea can yield considerable economic benefits for smallholders with the strongest internal rates of return occurring with coffee-avocado and coffee-durian systems.[89] The priority is to introduce fruit, nut or multi-purpose forest trees to increase and diversify smallholder livelihoods, reduce exposure to commodity price fluctuation, improve farming practices, reduce environmental impact of farming practices, and provide protection from future climate-driven impacts.

A survey conducted by IRC (2018) found that farmers favour the intercropping model to diversify income sources and reduce the risk of volatility, control pests, reduce labour costs, shield coffee from wind, and reduce water requirements. Coffee farmers indicated that the intercropping model had disadvantages, including lowered productivity, changes in crop management required for effective cultivation, and some pest challenges (ibid).

The % of forest cover on farms can be comprised of fruit trees, timber species for commercial purposes, or native forest species. In the context of Vietnam's Central Highlands, the % tree cover could be determined in various ways to find the optimum balance. Milestones for intercropping should be established, so that farmers have realistic goals to meet by 2030.

Research by CIAT and Hans R. Neumann Stiftung Foundation in Dak Lak, found no significant difference in green coffee yields between shaded and unshaded systems, when intercropping densities are on average 85 trees per hectare on coffee farms (Duy Nhiem Nguyen et al, 2018 *forthcoming*). These shaded coffee systems contain a mixture of fruit trees and legumes, and management practices, such as inorganic fertilizer application, irrigation and pruning, were similar across systems. Therefore, this can provide a proxy for an intercropping goal on each coffee farm. Further, these researchers identify an optimal target of 70% coffee growing area under shaded systems within 10 years, from the current roughly 25% (CIAT, Hans R. Neumann Stiftung, Coffee & Climate, 2017). This target was identified through stakeholder consultations, so further research would be helpful to assess what a suitable target should be. The carbon sequestration benefits of intercropping (assuming the above figures) are identified by the researchers as providing an additional 1.2 million Mg CO2e per year (*ibid*). There is already precedent in Vietnamese regulations to mandate a % tree or forest cover. For mangrove forests, Decree 186 of 2006, which issued regulations on forest management for the 3 types of forest, defined a 60% forest cover target in protection forest, while the remaining 40% can be shrimp

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[88] https://euredd.efi.int/wp-content/uploads/2022/06/Gap-analysis-Vietnam.pdf

[89] Research by George Scott and Jonathan Gheyssens, UNEP, for Deforestation-free jurisdictional approach in the Central Highlands.

farming. Efforts in Cà Mau mangrove forests have promoted sustainable shrimp farming business models with local farmers. There has also been discussion to shift the ratio to 7:3 for forest shrimp.

Another way to measure intercropping on coffee farms is to consider the quantity of trees that can be planted without affecting coffee yields. The Lam Dong Agricultural Extension Center and the National Agricultural Extension Center found an optimal density of 185 intercrop trees/ha was identified on coffee farms, but further advise that the optimal proportion of intercropped trees be based on local circumstances. Efforts in Lam Dong show that despite the intercropping of trees in coffee plantations, coffee yields remained high (3.2 tons / ha on average)(Lam Dong DARD, 2018). Thus, intercropped crops, including forest trees, do not affect the productivity of coffee. Results of interviews with households in Lam Dong showed that 98.2% of respondents said that compared with the model of monocrop coffee, the model of intercropping and some other fruit trees in the coffee garden does not significantly affect the coffee yield, and also reduces the amount of water used for coffee, because the forest trees have a shade effect, reducing the intensity of light to the ground. Thus, the soil is more moist and less water is needed. Therefore, irrigation water is also reduced. An optimal proportion of intercropped trees can be determined to find the right balance.

This can be a tangible measure for farmers to understand the desirable amount of intercropping at the farm-level, and help achieve a collective target of 70% coffee growing area under shaded systems within 8-10 years.

Lam Dong DARD (among other Provinces) identified forest land that has been cleared and for which agroforestry offers a means to restore forest)(Lam Dong DARD, 2018). Details include:

- There are various land managers of this forest land, but the majority is 16 forest protection forest management boards (37,600.28 ha). The remaining area is divided between 8 forestry companies (8,591.41 ha); and 175 enterprises renting and leasing forest land (4,448.23 ha).
- Intercropping models can include mulberry, macadamia, cashew, avocado, bamboo and timber species. The planting densities vary by type, but a common a density identified is 185 trees / ha.
- Revenue: The intercropping model with highest revenue was coffee + macadamia with 255.5 million VND / ha, followed by coffee + macadamia + durian + avocado, which reached 231.2 million VND / ha; The remaining models are over 100 million VND / ha. Thus, the revenue potential of the models of intercropping of forest trees on industrial land (coffee) is higher than that of monoculture of coffee trees (average estimated at 80-90 million VND / ha).

Viet Nam's major competitor in the Robusta coffee market, Brazil, already has a similar policy mandate, and farmers have implemented this approach since the passage of the 2012 Brazilian Forest Code.

8.2.3 Sustainable NWFPs management.

Non-wood forest products comprise a broad range of products harvested from the forest or other natural landscapes. There is wide consensus that NWFPs contribute to the local economy and long-term food security and subsistence (food, medicine, shelter, tools, culture). However, the capacity of NWFPs to contribute to forest conservation is still being debated. The theory was that the long-term gains from the sustainable harvesting of NWFPs could exceed the short-term gains of conversion of forest to other uses (Peters et al. 1989; Godoy and Bawa, 1993). However, when NWFP market development is successful, the growing demand leads to their increased harvesting, the NWFP will become scarcer and more expensive to extract. (Homma 1992). It may be domesticated and cultivated outside its natural ecosystem often excluding the initial users of the resource. Evaluations of the commercialization of NWFPs have shown that even if it does have advantages for local communities (Marshall et al., 2003), it is unlikely to guarantee better conservation of biodiversity (Belcher and Schreckenberg, 2007).

In ecological terms, harvesting cannot be considered sustainable for a plant or animal species unless it has no long-term adverse effect on its reproduction and regeneration and the forest ecosystem at large. Long-term effects are not all fully understood. For example, although it may not be immediately damaging, the gathering of fruit and seeds can lead to a reduction in the availability of food for fruit-eating species, affecting their future regeneration (Hall and Bawa, 1993). The financial uncertainty prevents stakeholders on the ground from taking such a length of time into account.

Regularization of harvesting and sales would allow the revenue to contribute to the formal forest sector and could avoid overharvesting. Without the right of ownership, free harvesting is the almost certain guarantee of depletion of the resource (Angelsen and Wunder, 2003). Wild collected medicinal plants are one of the NWFPs for which commercialization brings the risk of overharvesting. Sustainable production systems would be more attractive to rural communities if they had permanent rights over their lands.

Apart from legal mechanisms like CITES, applicable sustainability standards are: Organic, Fairtrade and Fairwild and potential GI development. These standards have certain requirements that should avoid overharvesting, but while that raises awareness among certified collectors, these standards may not be very effective in avoiding overharvesting (as per author's experience with shea butter in West Africa).

The most promising NWFP that would provide incentives for forest conservation are those NWFP that depend on the forest, but can also be managed to increase production without damaging the forest, such as beekeeping. An example of how a NWFP has contributed to both forest conservation and rural livelihoods, is the development of Vietnamese ginseng in Kon Tum and Quang Nam provinces in Viet Nam, see Box 2.

Box 2 The success of Ngoc Linh ginseng

Panax vietnamensis was discovered in 1973 at Mount Ngoc Linh at the border of Quảng Nam and Kon Tum provinces in Central Viet Nam. It is a traditional medicine of the Sedang ethnic group used for the treatment of many serious diseases and to help the body adapt to stress (Nham, 1989). Researchers found high concentrations of active components with anti-stress effect and anti-tumor promoting effect.[1] The Vietnamese Government officially conferred the recognition of ginseng as a national treasure. To prevent the variety's extinction, the government established national restricted zones in Kon Tum and Quang Nam provinces, and it was put on the list of plants with restricted exploitation and trade. Scientists also explored other mountainous regions to grow ginseng. [1]

The National Office of Intellectual Property of Vietnam registered Ngoc Linh ginseng as a geographical indication in August 2016. Since then the Ngoc Ling trade name has been promoted successfully, resulting in an increase of the market price. While there were 32 enterprises interested, the PPC of Quang Nam province only allowed 6 enterprises to experimentally grow some, and for 2 the PPC approved the lease of forest. These businesses have invested in planting and in tissue culture for multiplication and in product development, such as ginseng tea and other drinks and capsules. DARD and DoST of Quang Nam have developed and promoted improved practices, such as the use probiotics to compost forest vegetation to fertilize ginseng. It has shortened the harvest time to 1-2 years.

A project on the conservation and development (from 2016 to 2019) in Nam Tra My district, resulted in the preservation of 100 ha of Ngoc Linh ginseng, and a 400-ha ginseng multiplication area equivalent to 20 million ginseng plants. Up to 1,133.28 ha of forest were provided to people to grow ginseng. Many households have taken loans to invest in growing ginseng. By the end of 2019, 900 households in seven communes were growing ginseng on over 1200 ha. Every hectare of cultivated ginseng can generate VND 30 to 50 billion after 5 years. The district has planned and localized nearly 7,000ha forest to expand ginseng growing.

Through propaganda and participation in the project, Cadong, Xe Dang, Bh'nong and Kinh people's awareness of forest protection has been dramatically changed. There is no indiscriminate deforestation of the old forest system of Ngoc Linh mountain, as is happening in other places. The value of Ngoc Linh ginseng has created a stable life for people in the region, many households rose from the poor to the better off, making the mountainous countryside flourish. [1]

8.2.4 Specialty product development

While the development of cooperative and SME businesses around local specialty products in itself is not directly contributing to mitigation, it is a necessary to provide alternative income to local communities. These businesses complement development of agroforestry and the sustainable harvesting of NWFPs, adding value to the primary products of these systems. Products could include filtered honey in final consumer packaging; dried or conserved fruits; essential oils from medicinal plants etc. Proper branding and that links these products to the local forest environment would provide both access to premium markets and additional incentives to conserve it. For larger commodities in the agroforestry systems like coffee and pepper, specialty certification like organic, fairtrade, rainforest Alliance, "Bird friendly" etc. would provide the same function.

Ecotourism. Definitions: "responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education" (International Ecotourism Society)

"Sustainable, non-invasive form of nature-based tourism that focuses primarily on learning about nature first-hand, and which is ethically managed to be low impact, non-consumptive, and locally oriented (control, benefits and scale). It typically occurs in natural areas and should contribute to the conservation of such areas" (ref 48, p24 in Stronza et al 2019).

As both definitions include the term "conservation", any form that does not at least aim to contribute to conservation is by definition not ecotourism. However, not all ecotourism initiatives succeed. Ecotourism's potential role in conservation is based on an "alternative income hypothesis"[125]: local residents will lessen their reliance on natural resources when they switch to work in ecotourism [Stronza]. From case studies cited by Stronza (2019), it seems the benefits from ecotourism should be enough to cover forgone income due to any related restrictions on forest use. A global assessment in biodiversity hotspots found that ecotourism support conservation when the following criteria are met [123]:

- a specific forest conservation mechanism is in place, such as a protected area, PFES, or other conservation pledge, governing an area with a spatial boundary

- local families receive direct economic benefits

- community-oriented monitoring and enforcement are strong

Strong local institutions are essential to control access to potential users (avoiding too many tourists) and avoid subtraction by tourists that would degrade the forest. Community-based ecotourism operations that help strengthen local institutions have had clearer success in conservation [129, 135, 165].

Brandt et al (2019) compared forest loss in 15 ecotourism hubs with non-ecotourism areas. The results were mixed, suggesting that in a region with high deforestation pressures, ecotourism may be a relatively environmentally friendly form of economic development. However, ecotourism may stimulate forest loss in regions where deforestation rates are low.
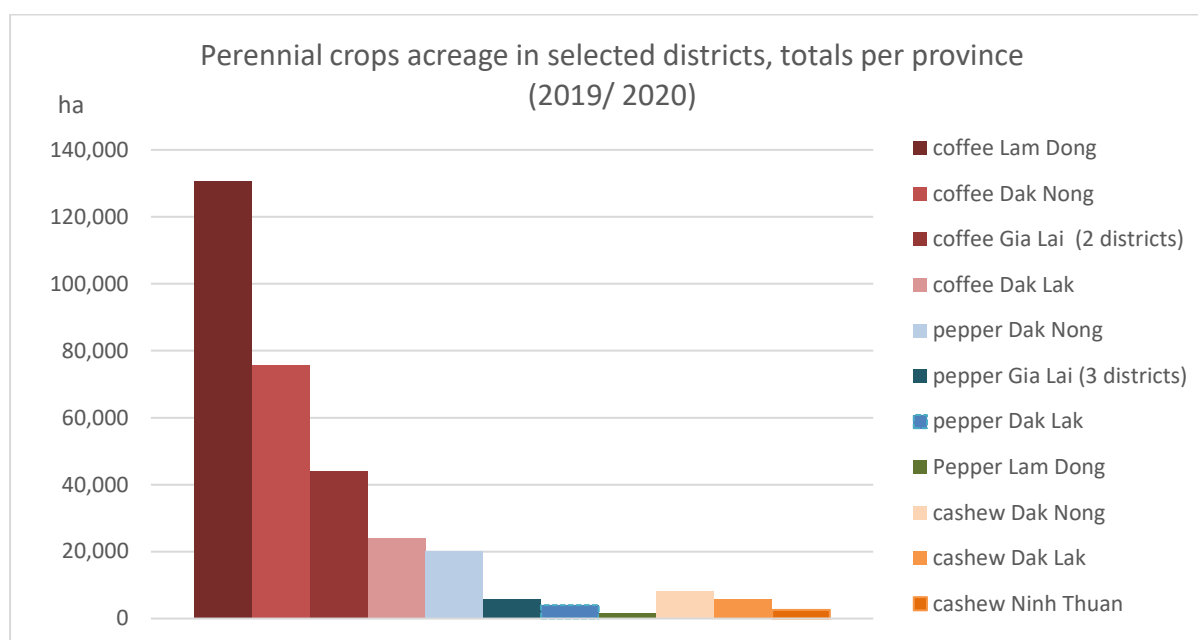
Ecotourism provides also indirect benefits to conservation by influencing the behaviour of ecotourists, which may include donations to conservation efforts or changing consumption patterns.

8.3 Value chain analysis

8.3.1 Central Highlands Perennial cash crops

Coffee is by far the most important perennial cash crop in the project districts, followed by pepper and cashew. Coffee and pepper have been major drivers in deforestation. The combined effects of the logging ban for natural forests since 2014 and the decreasing world market prices are clearly visible in a slow down of expansion after 2016. However, due to increasing commodity prices, expansionary pressure is likely to increase again during the coming years.

Figure 1 Coffee, pepper and cashew acreage per selected district

Perennial crops acreage in selected districts, totals per province (2019/ 2020)

Legend:
- coffee Lam Dong
- coffee Dak Nong
- coffee Gia Lai (2 districts)
- coffee Dak Lak
- pepper Dak Nong
- pepper Gia Lai (3 districts)
- pepper Dak Lak
- Pepper Lam Dong
- cashew Dak Nong
- cashew Dak Lak
- cashew Ninh Thuan

In this section, first coffee will be discussed, followed by tree crops that can be grown in mixed systems with coffee. Subsequently, cashew and other tree crops that are more suitable for drier areas are discussed.

Coffee

Production and trade

Globally, Viet Nam is the second largest exporter of coffee and the largest for the Robusta variety. Coffee acreage continued to grow until about 2017, after which it stabilized (figure 2). Average farm size ranges from 1.4 to 2.4 ha, depending on location (table 2).[90] At 3.5 tonnes per hectare, average Robusta yields in Vietnam are high, compared to 0.5 tonnes/ha in Indonesia, and 0.4 tonnes/ha in Laos.[91]

Table 2 Characteristics of robusta coffee growers in project provinces (2017)

	Gia Lai (N=93)	Lam Dong	Dak Lak	Dak Nong	All provinces
Farm size (ha) Mean	1.5 ± 1.3	2.2 ± 1.6	1.4 ± 1.0	1.8 ± 1.5	1.7 ± 1.4
Tree age (year)	21 ± 4	23 ± 4	24 ± 5	19 ± 4	22 ± 5
Ownership	78% owner	100% owner	61% owner	100% owner	84% owner
	22% tenant	0% tenant	39% tenant	0% tenant	16% tenant

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[90] Byrareddy, V., L. Kouadio, S. Mushtaq, J. Kath, R. Stone. 2021. Coping with drought: Lessons learned from robusta coffee growers in Vietnam, Climate Services, V. 22, https://doi.org/10.1016/j.cliser.2021.100229

[91] Gro-Intelligence, (2017), 'Vietnam's Coffee High Could be in Jeopardy'. https://gro-intelligence.com/insights/vietnamese-coffee-production

However, yields have barely increased over the past decade, due to aging of the tree stock, the spread of coffee planting onto less suitable or unsuitable land, and various episodes of drought (1999, 2005, 2013).[92] Detailed planning of coffee replanting (rejuvenation) for the Central Highlands was issued from national and provincial levels. Dak Lak for example, plans to rejuvenate 12% of coffee acreage from 2021 to 2025, with a subsidy from VNSat and the government of about 10% of a standard cost norm of replanting costs.

Figure 2 Growth of coffee acreage in selected districts of Lam Dong, Dak Nong and Dak Lak
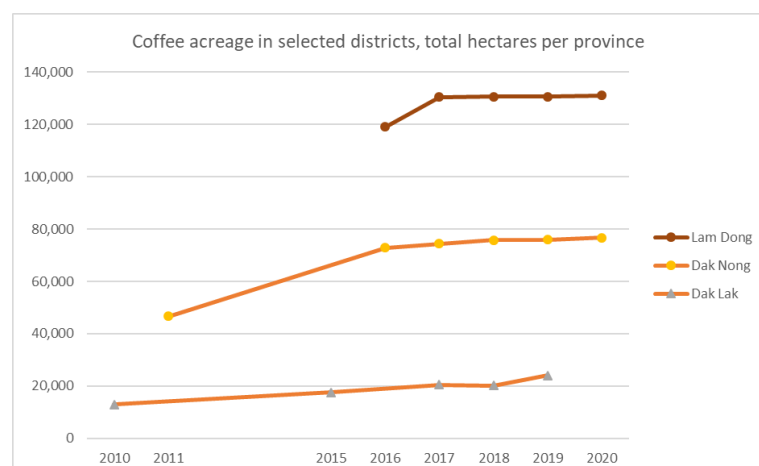
Whereas local robusta prices were relatively high in market year 2016-2017, around 44,000 VND/kg, they have been around 32,000 – 33,000 VND/kg in years 2018 – early 2021 (USDA FAS, 2021). Global trade prices have recently increased sharply, and local prices were also up again to 40,000 VND in September 2021.[93] If higher prices persist, this will be good for coffee farmers, but also increase expansionary pressure into the forest. In the entire Dak Nong province (including non-selected district) out of the total 125,888ha coffee orchards, 60,000 ha, or 48%, is in forest lands (Pham Thanh Van, 2018)[94].

Potential contribution to RECAF objectives

Coffee can be profitably grown in multiple crop systems with pepper and/or with timber trees and/or fruit trees. It is estimated that nationwide of the +/- 660,000 ha coffee, 260,000 ha are already in multiple crop systems. The number of coffee farmers adopting multiple cropping, even without support. Farmers living near roads tend to plant more fruit trees while farmers in less accessible areas prefer timber.[95]

The lowest C storage coffee based agroforestry systems was found in Dak Nong and Gia Lai (9.4 – 9.7 ton/ha), still much higher than monoculture full-sun systems (4.9 – 5.9 ton/ha) (Pham Thanh Van, 2018). Kuit et al, 2019 found that the diversified systems with more than 30% non-coffee trees have

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[92] Sara J. Scherr, Kedar Mankad, Steven Jaffee, and Christine Negra, 'Steps Toward Green: Greening Export Agriculture in East and Southeast Asia'. World Bank, Washington. [Available online at: https://ecoagriculture.org/wp-content/uploads/2015/08/Steps-Toward-Green-Book-File-Final-for-Upload.pdf]

[93] https://www.nasdaq.com/articles/asia-coffee-vietnam-prices-hover-near-4-year-high-harvest-nears-end-in-indonesia-2021-09

[94] However, most of the ACFL has been under coffee for a long time. Some is real encroachment, in other cases, forestry planning in the past has led to overlapping "designated" forestland on long-term agricultural land of the local people and land use conflicts. Some of these areas are now being part of reforms and legally converted from designated forest land to designated agriculture land. (Nguyen The Long. 2018. The value chain of coffee originates from the area of forestland being used for agricultural production, planting industrial crops in Lam Dong province.)

[95] https://www.un-redd.org/news/driver-solution-coffee-agroforestry-viet-nam

higher emissions, but their higher rate of sequestration more than offsets this. Fertilizers are by far the most important contributor to emissions (excluding forest conversion, where this occurs prior to planting). Excessive fertilizer use, together with weak water management practices, has led to a large proportion of fertilizer running off into streams and groundwater, and emissions into the atmosphere as nitrous oxide. Therefore, incorporating nitrogen-fixing tree could further reduce GHG emissions.

Enters and Inoguchi (2019[96]) note the shade trees also act as wind breaks, limiting evaporation and contributing to moisture retention, contribution to adaptation to climate change induced droughts. Also UNEP (2020) concludes that in the coffee intercropping models, increased biodiversity and improved soil structure may further contribute to the economic profitability by reducing the requirement for irrigation or agricultural inputs. Irrigation is presently free for smallholders across the Central Highlands, but the reduced availability of water for irrigation due to climate change and competing water uses could be a severe restriction in the mid-term. UNEP (2020) analysed coffee intercropping with avocado, durian, cassia and cassia & pepper. They found that even in poor market conditions, intercropping will generate economic benefits and help to reduce the impact of periods of low coffee price on a smallholder's livelihood.

Some DARD officers believe only Arabica can be grown under shade, and it would harm robusta yield and profitability. However, this is refuted by a meta-study by Piato et al. (2020), based on 30 peer-reviewed studies on the effect of shade on robusta. They found that shade trees positively impacted growth, yield, physiological, photosynthetic, ecological and microclimatic variables of robusta coffee plants. However, biochemical variables were somehow negatively impacted. Beverage quality and physicochemical properties were unevenly influenced. Significant interactions between shade and location, rainfall level, robusta clones and pollination type were found. Despite being the largest robusta producer, no peer-reviwed study was found from Viet Nam. It is thus necessary to do site-specific research on the effect of shade for robusta clones prevalent in Viet Nam.[97]

Existing Value chain initiatives

Landscape/jurisdictional sourcing initiatives: In Viet Nam, the Initiative for background Sustainable Landscape (ISLA) funded by IDH and coffee roasters JDE and Lavazza in Dak Lak and Lam Dong provinces, joined forces with Olam Viet Nam Ltd and Atlantic Commodities Vietnam Ltd. and the government in a PPP platform to address extreme climate events, particularly recurring drought; deforestation and agrochemical overuse. The initiative supports coffee farmers to become more resilient, cost efficient and to diversify incomes and reduce their carbon footprint, through diversifying, conserving water and soil and reducing water and agrochemical overuse, and for coffee buyers to develop a deforestation-free sourcing area. The aim is to reach 20,000 farmers by 2020. IDH also facilitates source-up PPI compacts, such as in Di Linh, where 94.3% of the land is under Robusta coffee, and the compact involves a number of buyers, including small traders.

Another IDH source-up PPI compact is a more traditional sustainable contract farming initiative in Krong Nang with coffee company Simexco. The area of 5,200 ha is demarcated by the sourcing border of Simexco.

Pepper on cassia live tree support

Production and trade

In the project area, pepper production is particularly important in Đak Song district of Dak Nong. The average farm size is 1 ha per HH's in the Central Highland.

Due to overproduction (mainly by Viet Nam as the world's largest producer), global pepper stocks reached an all-time high at the end of 2019, but have been slowly declining since then (Nedspice, 2020). Vietnam FOB prices have bottomed in 2019 at around USD 2,000 /tonne, at which planting new would be a loss-making investment, and have since increased to about USD 3,500/tonne (Nedspice, 2021), making pepper a profitable crop again. Nevertheless, MARD policy is to stabilize

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[96] https://www.un-redd.org/news/driver-solution-coffee-agroforestry-viet-nam

[97] https://link.springer.com/content/pdf/10.1007/s13593-020-00642-3.pdf

the total pepper acreage at around 106,000 hectares by 2024, down from 148,800 hectares in 2019. This can be easily achieved, by replanting less than the annual average 12% death rate of mature orchards.

Figure 3 Development of pepper acreage in Dak Nong, Dak Lak and Lam Dong.
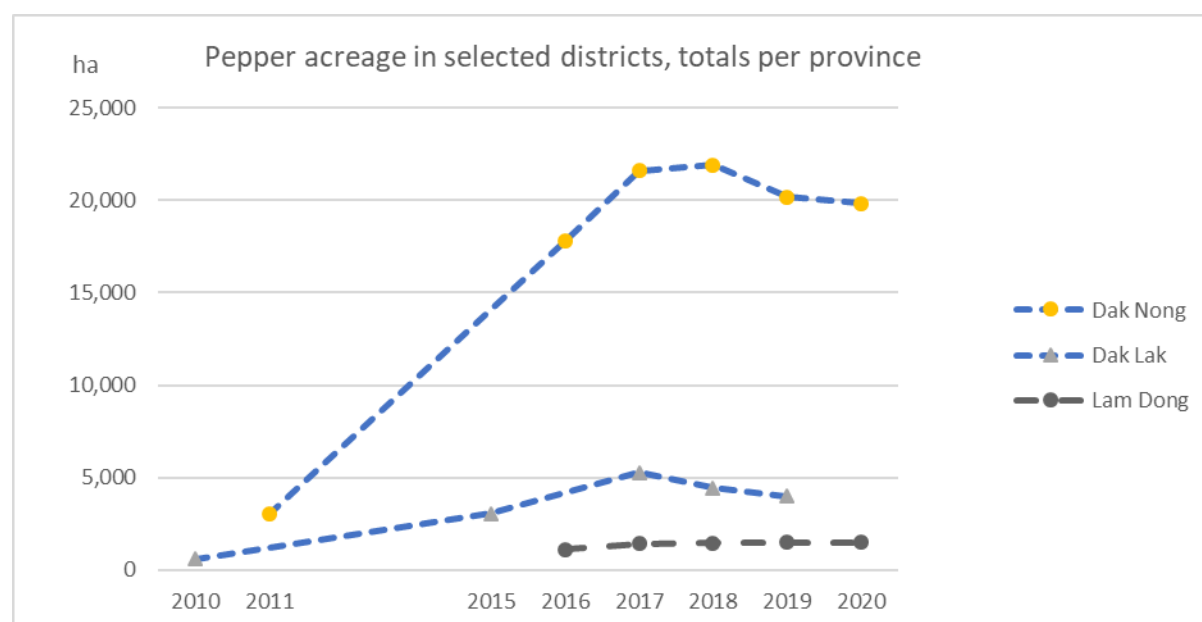
Potential to contribute to RECAF objectives.

Pepper can be best grown with *Cassia siamea* and *Leueucaena sp.* as living pillar. Cassia as a nitrogen fixing tree. Provincial authorities recommend to integrate indigenous timber species as shading trees. (Pham Thanh Van, 2018)

Based on a farmer survey in Dak Lak province in 2017-2018, Thuy et al (2018), found that intercropping of coffee and pepper was more profitable than coffee and pepper monocrops. Replanting monocrop pepper with a coffee-pepper agroforestry system would contribute to stabilizing the pepper acreage at a healthy level that avoids overproduction.

Barriers for further AF adoption (Pham Thanh Van, 2018):

- Access to finance for fruit tree seedlings and increased operational expenditure, especially for poorer households. The financial burden can be reduced by staggering the introduction over a multi-year period, e.g. by gradually replacing older less-productive coffee or pepper plants with other types of trees.
- Absence of technical guideline for AF from MARD. A lot of systems were established without proper spacing, leading to lower coffee yields.

Large exporting companies, such as Nedspice and Olam have supported farmers to implement more sustainable practices. The Nedspice Farmers Partnership Programme started in 2013 in Bin Phuoc and expanded to Dak Nong and Binh Duong provinces. By 2020, 2000 farmers in 45 villages were involved covering 2,500 hectares. By 2021, 915 500 farmers were certified by the Rainforest Alliance, 10 were certified organic and 311 farmers were FSA (Farm Sustainable Assessment, from the SAI platform) certified (Nedspice website). Similarly, Harris Freeman Vietnam Co. Ltd. in collaboration with GIZ supported 255 farmers in Xuyen Moc District, Ba Ria – Vung Tau Province, of which 170 reached RA certification. And in Dak Lak, 341 pepper farmers were certified RA with support from a IDH&SNV

project[98] . Also in other provinces cooperatives have formed producing "clean" pepper or organic pepper.[99] On March 30th 2021, the Department of Plant Protection (MARD), signed a memorandum of understanding with the Sustainable Spices Initiative Forum (SSI), a PPP platform facilitated by IDH to promote sustainable pepper production and trade in Vietnam in the 2021-2025 period.[100]

Nedspice comment at General Meeting and 10-Year Anniversary of the Partnership For Sustainable Agriculture in Viet Nam (PSAV), Hanoi, 02 December 2020
 "*Due to intercropping practices, the Central Highlands is currently facing many sustainability challenges for various commodities (pepper, coffee ...). Different sectors are working towards common goals such as ensuring environmental friendliness, protecting natural resources. Unfortunately, these efforts are implemented separately at the same time, and lack of coordination among projects... Therefore, Nespice is planning to implement sustainable projects in a new direction, building verified sourcing areas not only on a specific crop but for various crops cultivated in the same area. This initiative will have the participation of partners, different industries, working together to solve the sustainability problem of that sourcing area.*"[101]

Fruits

Durian is China's second most valuable fruit import after cherries. Until 2019, only fresh durians from Thailand and frozen durians from Malaysia had market access status for China. However, informal cross-border trade from Viet Nam became very important, until 2019 when China and Viet Nam entered official negotiations for market access and Chinese border patrols cracked down on unofficial exports, after which durian prices in Viet Nam collapsed.

Avocado: According to a value chain study by GTZ (2006) in Dak Lak, avocado was first planted as a shade crop and windbreak to coffee, with fruits used for home consumption and livestock feed, but often replaced by more profitable shade trees. The domestic market started to develop since the early 2000s, mainly for fruitshakes (Sinh To Bo). In response, avocado became popular again as a coffee intercrop and some farmers started to plant small monocrop avocado orchards. In 2005, the value chain was still unorganized, with many small village collectors. Almost all avocados went to HCMC wholesale markets (Tu Duc and Hoc Mon), about 30% of total volume went through BMT wholesale market, the rest from district wholesalers. Transport was mostly in 100kg bamboo baskets by truck or passenger bus. As the market was developing, wholesalers in other cities started to order avocados directly from wholesalers in Dak Lak, bypassing HCMC.

In 2005, the chain was plagued by quality problems. Farmers had for years planted avocado from own seed, so there were no clear varieties. There was no incentive for collectors to ensure careful harvesting and post-harvest handling, as the damage would show only at a later stage. A main quality factor is higher oil content, but this cannot be judged from outside appearance. Another problem was transport and storage at ambient temperatures (at 24 or above), whereas storage should be at 10-14C, and ripening at 16C. Apparently, a market for quality fruit was developing as some district collectors started to work with regular collectors and opened their own store at Tu Duc.[102]

Since 2006, the Eakmat Agro-forestry Consultant, Investment and Development Company – a subsidiary of the Western Agriculture Science Institute (WASI) - and the Dak Lak Center for Science and technology Application started to sell grafted seedlings to farmers. Initially, demand for seedlings outstripped supply. But quality problems persist. According to the Department of Crop Production, the avocados do not meet the standards for the US and EU markets, and Vietnam does not have a market access agreement with China for avocado. Indeed export volumes are negligible (0.01% of production). Nevertheless, the avocado area has increased rapidly and supply may soon outstrip

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[98] https://www.idhsustainabletrade.com/news/a-success-story-from-a-pepper-province-dak-lak-vietnam/

[99] https://customsnews.vn/value-adding-problem-for-pepper-6041.html

[100] http://psav-mard.org.vn/promoting-sustainable-pepper-production-and-trade.html

[101] http://psav-mard.org.vn/upload/T%C3%A0i%20li%E1%BB%87u%20h%E1%BB%99i%20th%E1%BA%A3o/PSAV-General-Meeting-Minutes-20201204-EN.pdf

[102] GTZ 2006 Analysis of the Dak Lak avocado chain.

domestic demand and prices will slump. [103] Dak Nong's avocado production has increased even faster, as its share of total national production has increased (figure 4). See also the case of Dakado, Box 1 in paragraph 8.1.4)

Figure 4
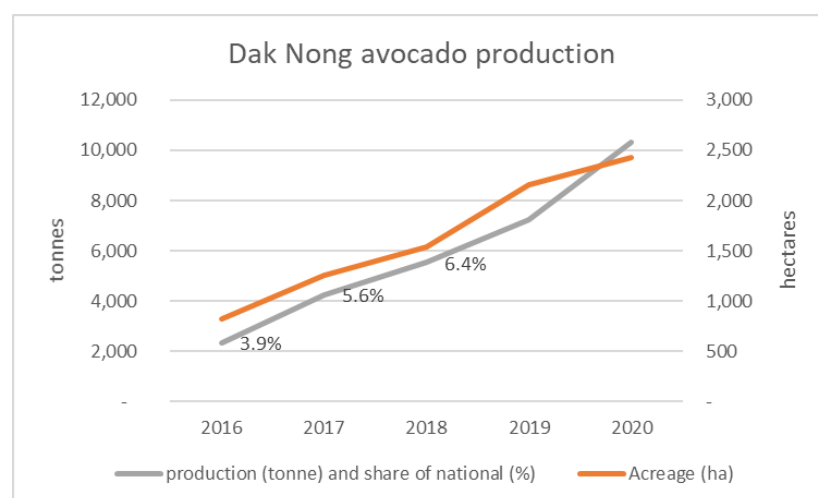
Persimmon: Diospyros kaki (Oriental persimmon) Oriental persimmon is the most commercially important persimmon. It is native to China, Northeast India and northern Indochina.[8][9]

Important fruit buying companies that could be interested to participate in deforestation-free sustainable value chain development:

NaFoods: In 2019, the IFC invested in Nafood's Group, including for the construction of a packing house in the Central Highlands of Vietnam. Central Highlands Agricultural Complex comprises of 10 hectares in Gia Lai Province, including a plant breeding research center and factories for sorting, separating, picking, and preserving fruit for export. NaFoods develops contract farming/linkages following the "fishbone model", in which company plays the backbone, linked sustainably with farmers and satellite cooperatives. Company will support farmers with quality seeds, production process, and digital technology. Nafoods participates in PSAV and hope to engage MARD, the agriculture sector and other relevant organizations in this plan[104]. It also has 3,000 ha of passion fruit in Gia Lai. Nafoods is also a cashew kernel exporter.

Trobico (no information, other than that it produces mango fruit).

Vinut/Nam Viet Foods and Beverage, has its own orchards, for example mango farm in Bencat, Binh Duong Province [105] No information on sourcing from independent farmers or linkage projects.

Macadamia

Production and trade

Because flowering occurs over several months, macadamia nuts mature and drop to the ground over an extended period, so they have to be harvested regularly. For macadamia, Vietnam was starting to repeat the cashew processing success, importing nuts in shell, processing and exporting shelled nuts. Indeed, INC classifies Viet Nam as a processing country. However, also imports of shelled nuts

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[103] https://www.freshplaza.com/article/9262911/vietnamese-avocado-supply-could-become-excessive-due-to-rapid-increase-in-acreage/
[104] http://psav-mard.org.vn/upload/T%C3%A0i%20li%E1%BB%87u%20h%E1%BB%99i%20th%E1%BA%A3o/PSAV-General-Meeting-Minutes-20201204-EN.pdf
[105] https://vinut.com.vn/2021/vinuts-farm/vinut-farm-the-mango-farm/

increased and exceeded exports in 2020, suggesting a growing domestic market and/or processing into further value added products (ready to eat consumer packaging, mixed nuts etc.). National primary production is also growing. Viet Nam entered the top 8 global producers in 2020 with 5,300 tonnes nuts-in-shell (NIS), or 1,590 tonnes on kernel basis. In Dak Nong, the first planting dates from around 2011, but acreage has grown rapidly. As trees take about six to seven years to start bearing fruit in commercially harvestable quantities, production is only now starting in earnest. People see potential in macadamia and there is already a Viet Nam Macadamia Association. A great advantage for forest owners is that it is allowed to plant macadamia in protection forest.[106]

However, if Dak Nong is exemplary for other production zones, current planted acreage is 4 times higher than harvested acreage, and these are all young trees entering into production in the coming years. Therefore, without planting any further tree, production will at least be four to five fold current volumes, which will bring Viet Nam up the level of Kenya, the current fourth largest producer. But other countries have also planted. In 2015, South Africa was planting at a rate of over 600 000 trees per year while China was expected to add two million trees per year and Brazil 120 000 trees over the next four years, while Guatemala planted 200 000 trees in 2014.53 [107] All these trees are entering in production now, probably accelerating production growth that was already around 6% per year since 2015. .

European imports of macadamia nuts have increased in volume by 2% per year in the 2015-2019 period, and EU demand is expected to continue to grow at 3 to 6% per year. Prices of macadamia nuts are expected to decrease in the long term, because production is increasing at a higher rate than demand. [108] While macadamia is still quite a special nut, with growing volumes, it is expected it will also be increasingly used as ingredient for nut spreads, chocolate-nut bars etc. This will sustain growth in demand for some time to come, but at a somewhat lower price level because of competition with other cheaper nuts (almonds, hazelnut etc.).
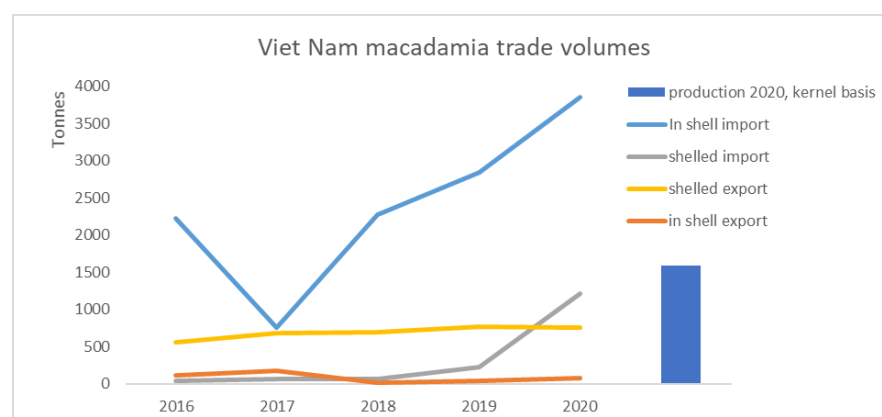
Sources: trade data: UN Comtrade database, production: INC statistical yearbook. *Note: according to INC, shelled imports are much higher, more or less the same as the in-shell imports reported by Comtrade.*

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[106] https://vietnamnews.vn/opinion/907087/macadamia-industry-has-great-potential-to-grow-in-vn.html

[107] https://www.jstor.org/stable/pdf/resrep28391.pdf?refreqid=excelsior%3A24a8e3924656de06ee589be975b2143d

[108] https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/macadamia-nuts/market-potential
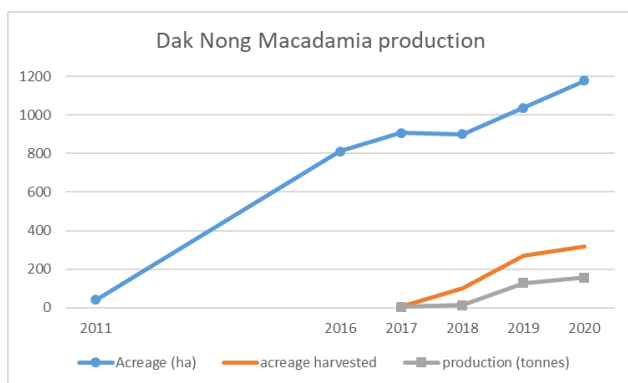
Potential to contribute to RECAF objectives

Macadamia has already proved to be a good intercrop for coffee, and as it is recognised as a forest tree, may be used in reforestation agreements between authorities and communities for encroached forestland. However, some restraint should be performed, given expected fast increase in global production and associated price declines in the coming years. Diversification in multi-species agroforestry systems to reduce marketing risks is essential.

Cooperative business producing specialty products from macadamia with OCOP recognition have already developed as well, such as whole nuts in cracked shell for easy consumption, both in jars (see figure 5) as well as vacuum packed in plastic.

Figure 5 Macadamia nuts with pre-cracked shells

8.3.2 Tree crops for drier climates

Cashew

Production and trade

In the Central Highlands, around 30 years ago cashew planting was promoted as a "maintenance free" crop and cover trees in forest lands with difficult conditions, such as steep slopes. Most were

grown from seeds, resulting in low yields. These trees are ageing, severely reducing yields[109]. Later, monocrop cashew plantations were planted just south of the Central Highlands, Bin Phuoc Province now produces 44% of the Vietnamese cashew crop. In the past decade, the production of raw cashew nuts in Africa, and especially Cote d'Ivoire has increased dramatically. Whereas Vietnam is the largest exporter of cashew kernel, more than 80% of the raw nuts being processed is imported. Processors rate Vietnamese nuts to be of higher quality, with higher kernel outturn rate, and also pay higher prices. Despite this, cashew area has been declining in Vietnam, because the crop was less remunerative compared to other land use options.

So far, sustainability certification in cashew production is negligible. However, cashews do fit in vegetarian diets and appeal to environmentally conscious consumers, and therefore there could be a market for sustainable cashew labelling, including organic, rainforest alliance, UTZ, deforestation-free etc. However, the Vietnamese processors have not been pro-active to cate to this market.

Cashew is sensitive to changes in the weather pattern, especially to precipitation. In Viet Nam the late rainy season in 2016 and unseasonal rains during the flowering stage caused average yields to drop from 1,080 kg/ha in 2016 to 740kg/ha in 2017.
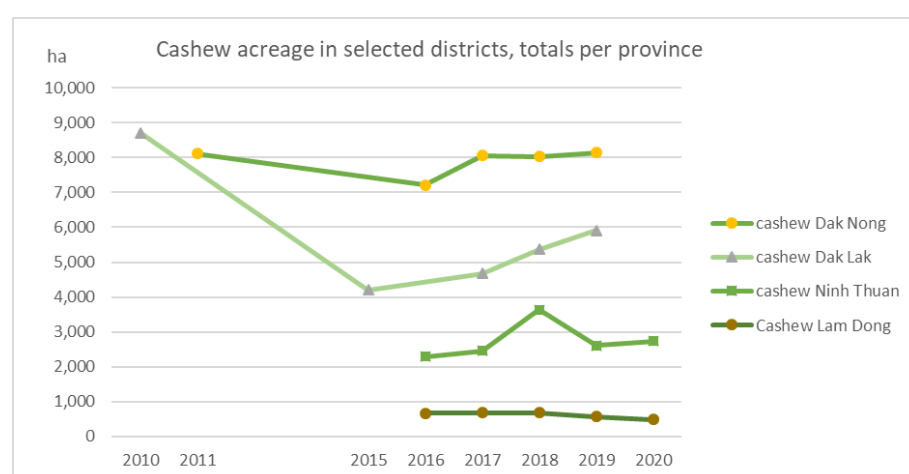
Potential to contribute to RCAF objectives

Avoiding replacement by annual crops through developing value added products and researching intercrops.

Fruits

Mango: In the project districts, there are a lot of mango trees scattered around. These are for the most part tall unpruned trees and a lot of the fruits go unharvested, and some farmers told the mission that the price was too low. Although prices fetched by a commercial orchard with uniform variety and quality and commercially interesting volumes would probably be higher, there are few hectares of established orchards. According to official trade statistics, only about 10% of total mango production is exported fresh, and about an equal quantity of mango imports. The bulk of mango produced in Viet Nam is locally consumed, either fresh or processed into juice, icecream etc..

In Ninh Thuan, the most promising tree crop for agroforestry systems is the **jujube** (Táo). While the centre of cultivation is Ninh Phuoc district (not selected) it is also cultivated in Ninh Hai and Ninh Son districts. Jujube can be intercropped with black beans or other annual crops before the canopy closes, or more permanently if planted at larger spacing. It can be sold fresh or dried and be recognized as a

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[109]   MARD. 2019. Overview of cashew, pepper and fruit. Working report for World Bank project preparation.

One Commune One Product (OCOP) product.[110], [111] To diversify jujube products, the province has support policies for businesses producing syrups, jams, wines, and juices.[112] China makes up over 90% of the world production. Its annual production has increased more than 15 times from 1980 to 2015 to over seven million tonnes. Most of this is consumed domestically. Jujube is also grown in Australia, mostly for domestic market, but with some counter-seasonal exports to South-East Asia.[113]

Citrus: Also pomelo could be grown well in Ninh Thuan provided it is well irrigated. Since 2014, production of pomelos in Viet Nam has increased substantially. Export of pomelos have seen a large fluctuation over the last fifteen years, both in quantities and value as in main destination between Europe and China. Similarly, seedless lime has export opportunities. There may be possibilities to develop intercropping models of citrus with lemon grass (see paragraph 5.4.7).

Jackfruit: As with jujube, jackfruit has no specific trade code, so no statistics are available. However, industry experts say the popularity of jackfruit has increased rapidly in the Chinese market and production is growing in Viet Nam. China also imports jackfruit from Thailand.

8.3.3 Plantation forest: Acacia

Context

Timber products were traditionally harvested by State Forest Enterprises from naturally managed production forest and from timber plantations. Since the 1990s, the government has released a policy of allocating degraded forest land to smallholder households [cit 9 in La et al 2021] and promoting timber plantations. Approximately 50% of plantation areas are managed by individual households.

To combat degradation caused by unsustainable logging practices and subsequent conversion of natural forest to plantations, the government of Viet Nam imposed gradually stricter logging regulations. In 2014 the government imposed a logging ban for natural forest, with the exception of FSC-certified forest, and in 2016 this was extended to even include certified forests in the Central Highlands.

Before that, demand side regulations requiring that all timber product imports must be legal already had prompted the industry to prefer plantation origins. In 2016, 78% of wood and wood product exports were bound for countries with demand side regulations (Quang et al.). The logging ban further accelerated the shift to plantation timber and expansion of monocrop plantations.

Acacia is the main species, followed by eucalyptus. Acacia species flourish on steep terrain and have fast growth rate, are resistant to pests and diseases and tolerant of dry conditions (Boland, 1989). Of the acacia varieties, the Acacia hybrid (Acacia auriculiformis A.Cunn. ex Benth. _ Acacia mangium Willd) hybrid is the most preferred by timber growers (La et al 2021).

Plantation forest policies

Dak Lak aims to develop 100,992 ha of production forests linked with processing industries of forest products, of which 85,000 ha for stabilizing small timber supplies (72,475 ha existing and 12,525 ha to be planted) and 15,992 ha for larger sized longer rotation timber (2,992 ha existing and 13,000 ha new). It targets to have 10,000 ha commercial plantation to be certified against VFCS, FSC or PEFC standards. The plan also calls for the establishment of specialized timber processing facilities to add value. To achieve these targets, it is suggested for continued allocation of forest land to organizations and households and that MARD enables the effective implementation of Vietnam Timber Legality System (VNTLAS) to comply with VPA FLEGT. It also recommends financial support to enable the transformation from short-term to longer rotation plantations and to demonstrate viable long rotation

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[110] https://vietnamnews.vn/society/1032917/quality-jujube-yields-high-profits-for-ninh-thuan-farmers.html
[111] https://en.vietnamplus.vn/ninh-thuan-cooperatives-link-up-with-firms-to-sell-farm-produce/199989.vnp
[112] https://vietnamnews.vn/society/537847/ninh-thuan-expanding-jujube-cultivation-setting-up-value-chain-for-fruit.html
[113] https://www.agric.wa.gov.au/sites/gateway/files/Jujube%20Industry%20prospectus.pdf

systems with cash crops for income generation (cash flow) and adoption of insurance. Furthermore capacity building and access to credit would be needed.

Mitigation potential

Approximately 80% of plantation timber is on short rotation and used as wood chip material and medium-density fibreboard (MDF) (figure 6). The wood processing and furniture sector imports most of the larger diameter round wood and sawn wood. The import value of wood destined for the furniture industry is higher than the export value of the chips, panels and pellets (compare figure 1 and 2). IUCN (2018) notes that in 2017, Viet Nam imported 2.2 million m3 of roundwood from Cameroon, Gabon, Lao PDR and Cambodia and other countries assessed as high risk in terms of illegal logging, which threatens Viet Nam's FLEGT voluntary partnership agreement (VPA) commitment.
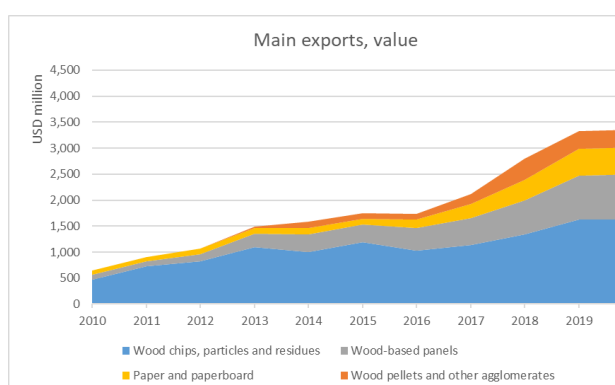
Figure 6   Figure 7
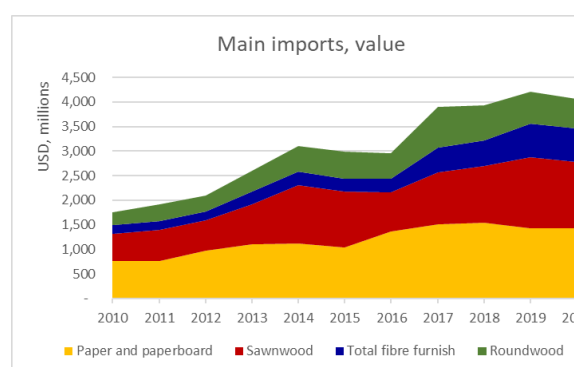
Source: FAOSTAT

Viet Nam's forest sector policy foresees in investing in producing larger diameter wood for its own furniture industry as import substitution. This would require longer duration rotations, which would also increase carbon sequestration (figure 8). In addition to the greater accumulation of carbon stock in the plantation itself, the carbon will also be sequestered for a longer time period when used in furniture as compared to wood chip use in the paper industry.

Alternatively, if companies with FSC certification were allowed to harvest 1% of the total natural forest timber volume within production forests, it would yield more than current roundwood imports. Some advocacy groups like IUCN would prefer such sustainable local logging over imports from high-risk countries.

Figure 8
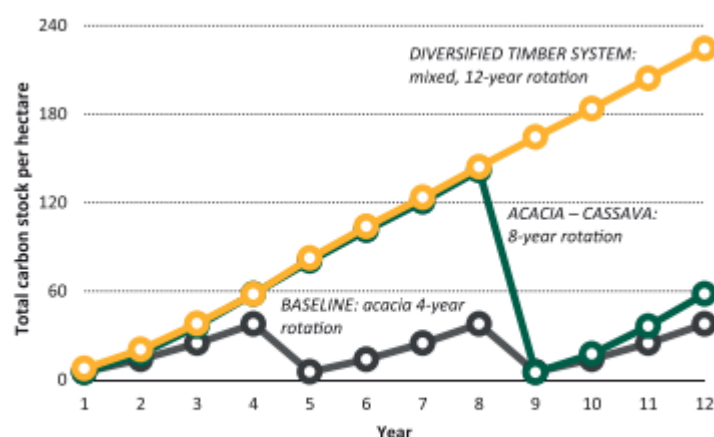
Accumulated carbon stock from three acacia-based systems in Central Viet Nam. Source: Mulia et al 2018

Adaptation potential

The current monoculture acacia plantation cannot supply the variety of high value species the furniture industry demands. Diversification in plantation forests would also reduce the risk of disease outbreaks and increase resilience to climate change.

Livelihoods

There are a few barriers to converting short to long diversified rotation systems:

- IUCN argues longer rotations have a higher NPV. However, annualized income from short duration acacia cycles is still higher than from long duration cycles if opportunity costs for land use (rent) and of maintain standing inventories is taking into account (La et al. 2021). In other words, the price paid by traders/processors to farmers for higher quality larger diameter wood is not enough to incentivize farmers to maintain longer rotations.
- Longer rotations need higher working capital to overcome a longer period without income.
- Longer rotations are riskier, e.g. risk of storm damage and market risk of declining prices.
- Lack of technical capacity to ensure the availability of high quality native seedlings and more sophisticated silvicultural practices beyond plan and cut (IUCN, 2018).

Despite these barriers, production of roundwood is increasing.

Substituting imports from high-risk countries by sustainable local production is also important for the SMEs in so-called "wood villages" that depend mainly on imported timber. Until recently, these SMEs mainly used rosewood from Lao PDR but now depend on a greater mix of species, including hardwoods imported from Africa. Since January 2021 also household business must register if they earn a monthly income per hh member above a locally defined threshold. They will also be subject to the Vietnam Timber Legality Assurance System (VNTLAS) "organisations clarification system (OCS), under the FLEGT VPA (Forest Trends, 2019).

Existing value chain initiatives

There are five acacia processors and traders certified FSC, 3 in Binh Dinh and 2 companies (related to each other) in Can Tho.

Some companies, like those that specialize in processing for the IKEA group have developed contract farming models with plantation households. This so-called "IKEA linkage model" succeeds in increasing benefits for plantation households and providing a steady supply of larger diameter FSC certified wood for the companies (Quang et al. 2017).

8.3.4 Bamboo

Context and recent developments

In 2015, Vietnam's harvesting quantity reached 5.2 million tons of raw bamboo, of which the Central Highlands region provided 1 million tons, (WWF, 2015a)[114]. The total bamboo are of the project districts is 166,070 hectares, of which 19,950 ha pure bamboo, 146,120 ha mixed bamboo-wood. Some of this consists of really small patches and the loss of pure and mixed bamboo forest to non-forest land was 4%, compared to the average 2.8% of total forest land (see hotspot analysis). Overharvesting is probably the main reason. Average harvested quantities vary greatly depending on pure or mixed stands, bamboo specieis and harvesting schedules. For Luong bamboo, Nguyen (2019)[115] reported a harvest of 4.9 tonnes/ha/yr, based on a harvesting schedule of 30% per year.

Demand for bamboo comes from the same sectors as for timber products, namely furniture and paper.

- Premium processing: flooring, laminated furniture
- Medium-value processing: chopsticks, mat board
- Low-value and bulk processing: charcoal, paper, and pulp
- Unprocessed culms: scaffolding and traditional construction

Bamboo processing facilities were established in the late 1990s and have thrived since 2012. Each month, a facility consumes about 300 tons of Dendrocalamus barbatus (clumping giant bamboo, aka *luong* bamboo) and 200 tons of Bambusa.[116]

Mitigation potential

Bamboo harvesting leaves the root system intact for regrowth. Therefore, in theory, bamboo harvesting does not lead to deforestation. Indeed, a life-cycle assessment for bamboo products from North Viet Nam shows negative emissions resulting from planting bamboo on bare land or grass land.[117] Trieu et al. (2020) compared a Luong bamboo plantation with other land use systems. While the Luong bamboo plantation's carbon stock was lower than that in 11 or 12-year old Acacia plantations, over time, at annual selective cutting of 30% the carbon sequestration at the Luong plantation is comparable to the Acacia plantation that is clear cut every 11 or 12 years. However, erosion control was better in natural forest and acacia plantation than in the degraded Luong plantation in Thanh Hoa, after intensive exploitation for almost 50 years without nutrient supplements. With better management, this can be improved. Financially, compared to annual crops, the bamboo plantation provided lower monetary value per unit of land; but higher return on labour.[118]

Adaptation

There are many bamboo species and climate change may change the suitability of an area for a certain species, rather than for bamboo *persé*. Bamboo can also contribute to climate change adaptation by functioning as windbreaks or alternative income sources when crop yields decrease, provided the bamboo stands are managed well without overharvesting.

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[114] WWF, 2015. Bamboo Supply Chain Analysis. Hanoi. Vietnam, cited in Tran Van Hiep. 2021. Key factors affecting small bamboo enterprises upgrading in North Vietnam: Case studies from Chuong My, Hanoi and Thanh Hoa province.

[115] Cited by Trieu et al. 2020

[116] Thanh Van Nguyen, Jie Hua Lv,*, Van Quang Ngo. 2021. Factors determining upland farmers' participation in non-timber forest product value chains for sustainable poverty reduction in Vietnam. *Forest Policy and Economics 126*.

[117] Vu Tan Phuong, Nguyen Viet Xuan. 2020. Life Cycle Assessment for Key Bamboo Products in Viet Nam. INBAR

[118]. Dang Thinh Trieu, Trinh Thang Long, Li Xanxia and Durai Jayaraman. 2020. Assessment of Bamboo Forest Ecosystem Services in Thanh Hoa Province, Viet Nam A Comparison of Bamboo Forestry with Other Land Uses. INBAR.

Livelihoods

Bamboo has traditionally played an important role in many ethnic minority economies. Sustainable harvesting from natural stands and replanting initiatives can be easily integrated in CFM, whereas there are also options for smaller scale backyard plantations.

Value chain initiatives

A few years ago, local *luong* bamboo forests in Nghe An province were at risk of disappearing entirely due to overharvesting. Since 2019, the project 'Forest Landscape Restoration for Improved Livelihoods and Climate Resilience' (FLOURISH) has been helping the local government reverse the trend. FLOURISH trains villagers on bamboo management, harvesting and primary processing techniques and "offset planting" that can aid restoration efforts. The initiative supported smallholders to sign partnership agreements (contracts) with a handicraft company making bamboo lampshades and baskets for export to Europe, which has to adhere to sustainability provisions in the 2019 European Union-Viet Nam Free Trade Agreement. FLOURISH has also supported 241 households obtain their Red Book land use titles, covering a total of more than 1,550 hectares of forest land.[119]

Land use rights are important for long-term sustainability of both forests and livelihoods. The World Bank (2019)[120] notes that Thanh Hoa Province has the largest area of Luong bamboo (Dendrocalamus Barbatus) in Vietnam, with over 80,000 hectares of natural bamboo and 71,000 ha of planted bamboo, largely under household management, in the wake of the province's successful forestland allocation.

In addition, bamboo can also be FSC certified. There are currently 27 FSC certifications that include bamboo products, however, most are chain-of-custody certification (i.e. for traders and processors), whereas only two include forest management, both in Thanh Hoa province.

8.3.5 Medicinal and aromatic plants and herbs

Overview

In Viet Nam a wide variety of medicinal and aromatic plants and other herbs are collected or grown in small quantities in home gardens for home consumption, which is undocumented. There is also considerable domestic trade of fresh, dried and further processed herbs, aromatic and medicinal products, but again, reliable statistics of this market and the small scale commercial production that supplies it do not exists.

Some export statistics do exists, but they are not very detailed for most species. An overview of export data is presented in table 3. In 2020, Viet Nam exported 7,154 tonnes of medicinal and aromatic plants under HS1211 (see table below). In 2019, a tiny part of this category was specified as ginseng (HS 1211.20), but most is not further specified. When liquids are extracted, exports are under HS1302.19. In 2020, Vietnam exported a total of 942 tonnes of extract. In addition, Vietnam exported 236.9 tonnes of essential oils. Export quantities listed under HS 1302 (extracts) and HS 3301 (essential oils) represent a much larger amount of harvested raw material than quantities exported under HS 1211.

Table 3 Vietnam exports of medicinal and aromatic plants, extracts and essential oils, in 2020 (source: UN Comtrade database)

HS Code	Commodity	Weight in kg	Trade Value (USD)
1211	Plants and parts of plants used primarily in perfumery, in pharmacy or for pesticides. Fresh, chilled, frozen or dried; whether or not cut, crushed or powdered	7,153,612	46,862,073

[119] https://www.international-climate-initiative.com/en/iki-media/news/restoring_viet_nams_bamboo_forests/
[120] World Bank. 2019. Country Forestry Note, Vietnam.

1302.19	Vegetable saps and extracts; n.e.s under 1302.1	941,584	46,895,124
3301	Oils; essential; concentrates thereof; extracted oleoresins	236,864	13,611,606
91030	Turmeric	3,566,434	15,608,197
91011	Ginger, neither crushed nor ground	2,675,133	7,127,871
91012	Ginger, crushed or ground	1,300,703	5,404,159

The next sections focus on ginger, turmeric and lemon grass, because they are good candidates for integration in agroforestry systems, but also because they are the species about which research has been done and data are available. There are so many other potential plants that could be grown under forest canopy or sustainably collected and for which local cooperative businesses could be developed with local ethnic minority communities to produce and sell value added specialty products. They are all grouped under the header "other medicinal and aromatic plants", but this does not justice to their potential, and further participatory research based on local knowledge will need to be conducted during project implementation.

Ginger and turmeric

Production and trade

Vietnamese commercial ginger production was has been spreading in small areas of several provinces from North to South of Vietnam, such as Phu Tho, Vinh Phuc, Soc Trang, An Giang, and especially Cao Bang where organic ginger is grown on over 200 hectares.[121] Viet Nam grows large ginger (elephant ginger or buffalo ginger) which has big roots and less fiber and small more pungent ginger ("bird ginger").Commercial production seems to take place mainly as an unshaded mono-crop.[122]

Also turmeric is widely cultivated in many regions in Vietnam, such as Lao Cai, Lang Son, Vinh Phuc, Hung Yen, Nghe An, and the Central Highlands[123]. Globally, India is the largest producer of both ginger and turmeric. In 2018, importing countries reported importing a total of 22,841 tonnes of HS 0910 products (ginger, turmeric etc.) from Viet Nam, with India at 66% being by far the largest importer, followed by Saudi Arabia and Indonesia (5% each) and the USA (4%)[124].

In terms of trade, because of high domestic ginger consumption, India is still sometimes a net importer of ginger. China is responsible for the bulk of world exports. Viet Nam is not a large ginger exporter in terms of quantity, in 2020 reporting to have exported 2,675 tonnes of whole ("fresh") ginger and 1,300 tonnes processed ginger, for a total value of USD 12.5 million. Of the unprocessed ginger 64% is exported to Indonesia, which has high demand for "bird ginger" [125] whereas the processed ginger is mainly going to continental Europe (42%), followed by the USA (28%) and the UK (11%).

For turmeric, aka curcuma, the largest exporter is India. Turmeric can be traded as dried slices, or as powder. It is also the main ingredient of curry powder, and traded as part of this final product. Another value added product is oleoresin extracted from the fresh tubers. India being the largest producer and exporter, also has the largest and most advanced processing sector, which imports relatively cheap dried turmeric from Viet Nam, for processing and re-export as processed product. For 2020, Viet Nam reported exporting turmeric for total of 3,566 tonnes, of which 92% to India. The global supply and

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[121] https://vietnam-tea.com/tea-news/story-of-ginger-cultivating-ginger-in-vietnam.html
[122] https://www.truefruitsco.com/early-harvested-vietnamese-ginger/
[123] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7266028/pdf/jofnem-52-053.pdf
[124] UN Comtrade
[125] http://vnspices.com/why-does-vietnam-ginger-always-the-best-option/

demand has been more or less growing in balance resulting in flat prices, but highly depending on annual yield levels in India. An acceleration of production growth could depress prices.

Apart from exports, there is also a sizeable domestic market. Vietnamese people like to drink ginger tea in the cool season and both ginger and turmeric are known for their medicinal properties. The main ginger supplies for the HCMC market come from the country's western and central highland provinces.[126]

Important companies in Viet Nam involved in ginger and turmeric processing and trade include:

For both ginger and turmeric: Developing Agriculture and Consulting Environment Co., Ltd (DACE), specialized in organic spices in Cao Bang province

For ginger: True Fruits Company Ltd in HCMC (ginger), several tea companies also make ginger infusions,

Potential for RECAF objectives

Ginger grows remarkable well under shade, ginger yields have reported to even increase under partial shade compared to monocrop yields. In China, ginger yields were 34% greater agroforestry systems with *Paulownia elongata* than in the ginger monocultures [127]. Pandey at all. (2018) report optimal yields at 50±5% shade under poplar in India, although with relatively lower essential oil and oleoresin concentrations compared to monoculture in open field.[128] Garima et al. found that ginger yields increased by 10.5–15.6% in the intercropping with bamboo species, with photoactive radiation reduced by 60% under the bamboo canopy. Use of farmyard manure also had better results than chemical fertilzer[129]

Thus, ginger is very suited to grow in organically managed agroforestry systems. Adding ginger to an agroforestry system with high tree density, even if shade levels are higher than the optimal for ginger, may still result in decent enough yields to increase overall plot productivity and profitability.

In terms of market potential, ginger from the Central Highlands would have to compete with the other origins, also on the local market. Even if yields may be lower in monocrop open field conditions, it has the advantage of easy to harvest bulk quantities that have economies of sale in handling, processing and trade. However, ginger from agroforestry systems in the project area could be easily marketed as specialty product, with OCOP, organic or Rainforest Alliance certification and labelling.

Also turmeric is best grown as an under-canopy crop, and like ginger, can be regularly found in home gardens among the fruit trees. Turmeric yields depend greatly on the quality of the planting material. Ali et al (2018) tested three varieties among 5x5m planted 6 year old mango trees, and found that for each variety the intercrop outperformed the open field treatment, but the variety was more important for yield levels.[130] Kona et al. (2020) found that among three varieties, highest yielding variety under open field (as the highest yielding overall combination) performed worst under mango shade, whereas the variety that performed worst in open field performed a bit better under mango shade.[131] Thus, when developing agroforestry systems with turmeric, care should be taken to choose a variety that performs well under shade. Attention should be paid to potential nematode build up in the soil, especially *Rotylenchus reniformis*, as it has already been widely reported in coffee orchards (but

[126] https://www.vietnam-briefing.com/news/rising-ginger-prices-vietnam-excite-farmers-hurt-consumers.html/
[127] Newman SM, Bennett K, Wu Y (1998) Performance of maize, beans and ginger as intercrops in Paulownia plantations in China. Agroforestry Systems 39(1): 23-30.
[128] https://juniperpublishers.com/jojha/JOJHA.MS.ID.555568.php
[129] https://acsess.onlinelibrary.wiley.com/doi/epdf/10.1002/agj2.20684
[130] https://www.scirp.org/pdf/AJPS_2018041915034629.pdf
[131] https://journalaprj.com/index.php/APRJ/article/view/30098

without research into effects on coffee yield) and found significant correlations between *R. reniformis* and yield loss of turmeric in the Central Highlands of Vietnam.[132]

Both ginger and turmeric are widely used as a cooking spice and have positive nutritive and medicinal properties. Ginger is known as a natural medicine that can be used popularly at every time to avoid the cold or flu disease; reducing nausea and even food poisoning or alcohol poisoning; increasing blood pressure. Turmeric has many medicinal properties and many studies have reported the usefulness of turmeric in treating different ailments such as gastrointestinal diseases, diabetic wounds, rheumatism, inflammation, sinusitis and cough.[133]

Ginger and turmeric can be sold as raw material to spice processors and exporters or to pharmaceutical companies, or local cooperatives or SMES can make their own retail products. Entrepreneurial farmers in the Central Highlands have already developed a variety of value added products from ginger and turmeric, of which several were displayed at the OCOP fair organized in Gia Lai, May 2022.

Figure 9 Turmeric starch balls displayed at the Central Highlands OCOP fair

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Lemon grass

Production and trade

Lemongrass (Cymbopogon citratus) is a tall perennial grass, which means it regrows year after year (rtoon crop). The plants can grow up to three feet tall. The common varieties are Cymbopogon citratus, C. flexuosus (aka Cochin Grass) and C. Nardus. C. citratus has a large bulb similar to a scallion used as a spice in cooking. C. nardus is used mostly to produce citronella oil. India produces 80 percent of the world's lemongrass crop. In recent years, the production in Vietnam has increased.[134]

According to Mr Dinh of Thinh An Trading Co, in 2017 Vietnam had the capacity to export an average of 12 to 15 tonnes of lemongrass a year, and already exported to France, Switzerland and the Netherlands. Packed in plastic bags, lemongrass can be kept fresh for about 2 or 3 weeks, making it easy to export.[135]

Potential to contribute to RECAF objectives

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[132] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7266028/pdf/jofnem-52-053.pdf

[133] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7266028/pdf/jofnem-52-053.pdf

[134] https://www.dace.vn/lemonglass/

[135] https://www.freshplaza.com/article/2179455/vietnam-lemongrass-crosses-borders-to-reach-europe/

In M'Đrắk District, ĐẮK LẮK province, many farmers have switched to lemongrass cultivation under monocrop open field conditions. Lemongrass is suitable for poor soil and mountainous terrain and requires low investment. With 5 to 6 harvests a year, it also provides regular cash flow, and higher profits than cassava or sugarcane, helping farmers escape poverty. Farmer cooperatives are producing essential oil or provide linkages to essential oil producers to guarantee sales.[136]

[for Anne Christelle business models: 2020: One tonne of lemongrass leaves can produce 1.8-2 litres of lemongrass essential oil which is sold at a price of VNĐ1 million ($43) per litre, according to producers. Krông Á Commune Farmers Association spent VNĐ200 million ($8,600) to invest in facilities for producing lemongrass essential oil in 2018.]

Lemongrass yields reduce considerably under shade. While it can be temporarily intercropped in new plantations of cashew, rubber and other tree crops, it is not suitable to grow permanently in agroforestry systems with high tree canopy density. However, it was possible to add lemongrass to a pomegranate orchard, without significantly affecting the pomegranate yields. Although lemongrass yield was still significantly lower than pure lemongrass, it would add income compared to pure pomegranate. However, the fertilization regime may need to be adapted, as lemongrass does not seem to tolerate well farmyard manure, but does better on vermicompost.[137] As pomegranate has a similar canopy structure as citrus, it may be worthwhile to test citrus-lemongrass intercropping. Intercropping lemongrass in a cinnamon plantation which is regularly pruned for extraction of bark and leaf oil was also found to be profitable in India. Performance of C. flexuosus lemongrass was also good in eucalyptus plantation.[138]

Lemongrass is a common ingredient in Thai and Vietnamese cooking. Lemongrass is also has nutritional and medicinal qualities. It is assumed to help with digestion and blood circulation. Lemongrass oil is also used topically to treat headaches, stomach aches and muscle pain. Oil contains â-ionone, which is precursor of Vitamin B12 and is used in flavours, cosmetics and perfumes. Citronella oil is used in cough syrup to remove muscle fatigue; it is also used for wound healing. The oil has other uses as bactericide, in antimicrobial skin cream and as insect repellant.[139]

Citronella oil displayed at the OCOP fair in Gia Lai, May 2022

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[136] https://en.vietnamplus.vn/farmers-switch-to-lemongrass-cultivation/170499.vnp

[137] https://www.plantsjournal.com/archives/2021/vol9issue3/PartC/9-3-11-410.pdf

[138] https://www.researchgate.net/publication/305495607_Lemongrass

[139] https://www.researchgate.net/publication/305495607_Lemongrass

Ginseng

There are different ginseng varieties and similar alternatives.

- *Panax ginseng*, also known as Asian ginseng, Chinese ginseng, or Korean ginseng, is the "original" globally known source of ginseng.
- *P. quinquefolius*, American ginseng
- *Panax vietnamensis*, or Vietnamese ginseng, aka Ngoc Linh ginseng, was discovered in 1973 at Mount Ngoc Linh at the border of Quảng Nam and Kon Tum provinces in Central Vietnam, and regarded as a new species of panax spp.[140]
- Radix Codonopsis is the root of *Codonopsis pilosula* and *C. tangshen*, is also known as *dang shen*, and it is used as a replacement of ginseng.

Production and trade

Asian and American ginseng: After the 2009 Codex Alimentarius Commission published grade standards, these have gradually been adopted worldwide in trade. China and South Korea are the largest producers and markets. Also the US and Canada have substantial production (of American ginseng) and Canada was the largest exporter in 2009. In South Korea, ginseng is consumed in four forms: fresh, white (i.e dried), Taekuksam (blanched and dried) and red, i.e. steamed and dried. The first are mainly sold as whole roots, whereas most of the red ginseng is further processed into powder, tablet, capsule, concentrated extracts, soft capsule, pill, granule, beverage, candy, etc.. Red ginseng has the largest market share and consumed as health food.[141] At retail level in Europe, generally no difference is made between Asian and American ginseng species so branding of Vietnamese ginseng would need some explanation and explain how it differs from "normal ginseng".

In the US ginseng may be labelled as "wild-simulated ginseng" (WSG), i.e. planted under natural shade without soil tillage; "woods cultivated ginseng", in a (planted) forested environment in tilled beds, including in agroforestry systems, and "field-cultivated ginseng" in raised beds under artificial shade from either wood lathe or polypropylene shade cloth. WSG labelled ginseng can be sold at a premium price over field-cultivated ginseng, and both WSG ginseng in organically managed agroforestry systems could be certified and labelled organic and fetch organic premium prices.[142]

Vietnamese ginseng: By 2022, Vietnamese ginseng was cultivated on 6,000ha in Quang Nam and Kon Tum provinces. Viet Nam aims to increase total land usage for cultivating ginseng to 200,000ha in the provinces of Quang Nam, Lam Dong, Nghe An, Lai Chau, Kon Tum, Lao Cai and Gia Lai by 2030. At a recent conference about the ginseng industry, Quang Nam authorities suggested to create a standard for quality control that aligns with the international standards to help ginseng products gain worldwide recognition.[143]

Currently, there are a number of enterprises involved in the production and processing such as Quang Nam Ginseng Pharmaceutical Trading Joint Stock Company (Quasapharco), Sam Sam, Paper Material Company in central region, Hoa Thien Phu Group, and Vietnam Ginseng Investment Joint Stock Company (VNGI).

Contribution to RECAF objectives

Ginseng grows and reproduces well under shade on 10–30∘ slopes. It is thus an ideal plant to grow through artificial seeding in natural forest under CFM or to cultivate in planted agroforestry systems. The quality and concentration of active beneficial components is usually higher in WSG than under field-cultivated ginseng. The cultivation of ginseng under natural forest canopy has been very

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[140] Kazuo Yamasaki (2000) Bioactive Saponins In Vietnamese Ginseng, Panax Vietnamensis, Pharmaceutical Biology, 38:sup1, 16-24, DOI: 10.1076/phbi.38.6.16.5956

[141] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3659626/

[142] https://www.fs.usda.gov/nac/assets/documents/agroforestrynotes/an15ff04.pdf

[143] https://vietnam.vnanet.vn/english/tin-van/vietnam-eyes-200000-ha-of-ginseng-by-2030-303035.html

successful in increasing income of poor people while protection old natural forest systems. See for details box 2 in paragraph 8.2.3.

Also *Codonopis* (dang shen) is one of the indigenous species identified in the Master Plan and has potential for further development. VNGI

Other medicinal and aromatic plants and herbs

Potential to contribute to RECAF objectives

The forests of the project area are rich in a variety of medicinal plants. Nguyen, Luu and Nguyen (2014) identified 66 species from 40 different plant families known to the K'ho people living in the southern buffer zone of the Chư Yang Sin national park is located in Krong Bong and Lak Districts in southern Dak Lak province. However, the species and the traditional knowledge about them are under pressure from the landscape and lifestyle changes.[144] Looking specifically at the treatment of diarrhea, Nguyen et al (2020) reported 34 species being used by the K'Ho-Cil people of Lam Dong, of which only 5 were cultivated.

Many medicinal plants and herbs can be grown under almost forest canopy, and therefore be truly combined with forest conservation efforts, and certainly as part of CFM and agroforestry systems. There are also several aromatic plants and herbs that are suitable for the drier climates of Ninh Thuan, such as *aloe vera*.

The Master plan for medicinal plant development of 2013 (PM decision 1976/QD-TTg) sets out to plan forest zones for the preservation and exploitation of natural medicinal plants, among which the Central Highlands, but also to develop cultivation of selected species. From the medium mountainous region of subtropical climate (which includes Lam Dong), the plan identified 12 species for cultivation[145], on an area of about 3,150 ha.

OPC Pharmaceutical Joint Stock Company based in HCMC already uses various medicinal herbs, including the tuber of Stephaniae glabrae, which contains the sedative rotudin[146].

Indigenous peoples in the project areas make extensive use of natural medicinal plants in their health care and preserving the habitats of these medicinal plants is thus of high importance for the health of indigenous peoples. Ethnobotanical studies are being conducted to document and preserve traditional knowledge. While this will assist pharmaceutical companies to identify active ingredients that can then be used in patented medicines, the indigenous peoples are hardly rewarded for their knowledge, as they do not enjoy formal intellectual property rights.

8.3.6 Other Nutrition sensitive specialty products

Honey

Production and markets

While national honey production has steadily increased according to FAOSTAT, export volumes and value have peaked in 2014 and have since decreased (UN Comtrade). Most exports (88%) are to the USA. In addition to honey, Vietnam also exports wax (HS152190, beeswax and other non-vegetable wax) and candles.

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[144] Nguyen, Phuong Hanh; Luu, Dam Cu; Nguyen, Quoc Binh. 2014. A survey of traditional medicinal plants used by K'ho people in the buffer zone of Chu Yang Sin national park, Vietnam.
[145] including 5 aboriginal species: stephaniae glabrae tuber, radix codonopsis, fallopia multiflora, teasel (dipsacus japonica) and job's tears (Coix lacryma jobi L.) and 7 imported species: artichoke, atractylodes rhizome, angelica dahurica, matdcada chamomilla L., eucommia ulmoides, angelica sinensis and radix scrophulariae,
[146] https://opcpharma.com/en/medical-knowledge/sleep-and-sedative-tablet-mimosa.html

From 2007 to 2013, Vietnamese honey was banned from the European market. However, since the ban was lifted, Vietnamese honey has not been able to make inroads into the European market due to quality problems, including high glycerine and yeast content and acidity levels, indicating 'unripe' harvested honey, and consequently non-desired fermentation. There are also problems with soya feed residue when bees are bred in a single box. The solution is to find alternative feed resources which can provide protein to bees, and to have better separation from feed, pollen and honey by adding another section to the bee-breeding box.[147]

In June 2021, an US International Trade Commission preliminary report concluded that here is a reasonable indication that an industry in the United States is materially injured by reason of imports of raw honey from Argentina, Brazil, India, Ukraine, and Vietnam that are allegedly sold in the United States at Less than Fair Value (LTFV).[148] When this is confirmed, it could eventually lead to the US imposing antidumping tariffs. Interestingly, from responses from 21 firms, Vietnam's production was considerably higher than reported by FAO.

Figure 10
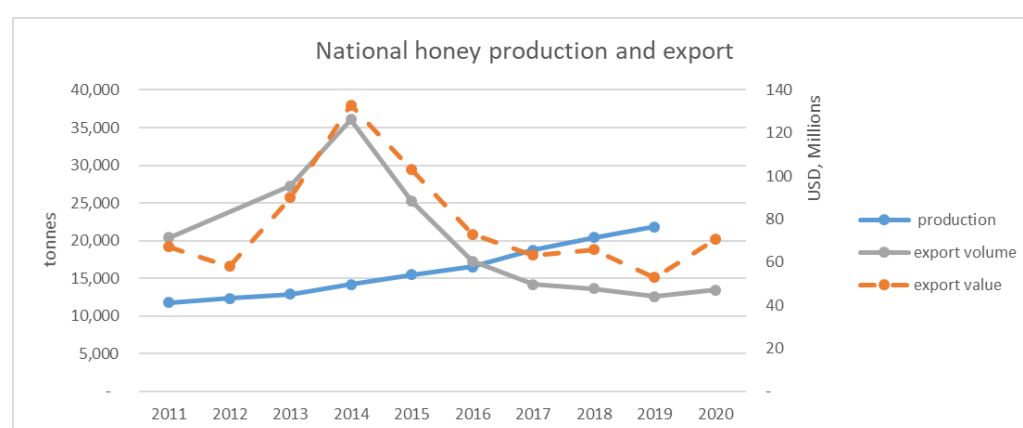
By 2016, the Central Highlands area produced 9,300 tonnes of honey a year, accounting for 60 per cent of the country's honey output.[149] From project provinces, only Dak Nong reported numbers of beehives and liters of honey produced (see figure 11 below).

Figure 11
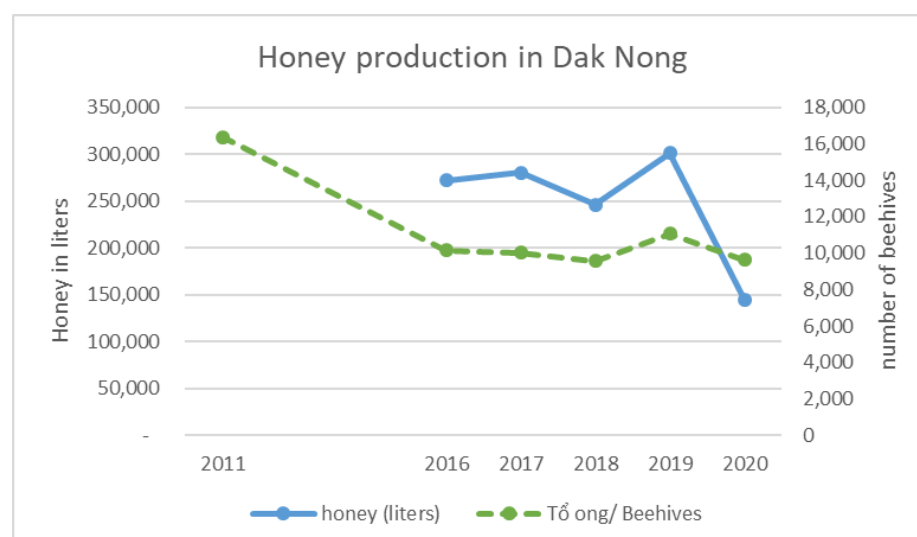
[147] https://vietnamnews.vn/economy/416701/honey-exporters-eye-eu-market.html
[148] https://www.usitc.gov/publications/701_731/pub5204.pdf
[149] https://reliefweb.int/report/viet-nam/central-regions-seek-drought-resistant-animals

Important industry stakeholders: Việt Nam Beekeepers Association, Viet Nam Bee Research and Development Centre (BRDC), Dak Lak Honeybee Joint Stock Company

Potential for contributing to RECAF objectives

Honey and beeswax can be easily harvested from the forest without inflicting any damage. Moreover, bees help in pollination. Beekeeping can also be easily integrated into sustainable community forest management, agroforestry systems and ecotourism. Especially, developing high-quality (soya-free) Central Highland "forest honey" brand(s) and exports could provide alternative income and thus economic incentives for forest conservation. Honey produced from bees foraging on coffee flowers also has a very distinct taste and has high promotional value. This is only possible if orchards are not sprayed, and thus would provide an economic incentive for organic management, and coffee-based-agroforestry systems.

Potential certification programmes:

- VietGAP certification exists for honey. One cooperative in Gia Lai was certified.[150]
- Organic, Fairtrade and FairWild
- Geographic Indications, including OCOP

Example of a specialty honey from Gia Lai made by bees foraging on mint flowers, with a 4-star OCOP recognition.

© Dilva Terzano

Climate change may affect beekeeping through impacts on flowering plants throughout the year. (Acacia flowers come out in July and August and again in November and December, while coffee flowers in January and February.) Heavy rainfall can dislodge flowers. In periods without flowering plants, beekeepers need to provide supplementing sugar. Beekeepers need to be well aware in case the timing of these periods change due to climate change impact.

Mushrooms

Mushrooms can be both collected from the wild or being cultivated. Global demand for mushrooms is expected to increase as they fit well in healthy and vegetarian diets, and they are even marketed as superfoods. In 2019 Viet Nam produced about 24,000 tonnes of mushrooms, up from about 20,000 in 2010 (FAOSTAT). Import volume have also increased to 7,400 tonnes and exceeded export volumes of 2,200 tonnes in the same year (UNComtrade). Thus, there seems to be room for further production growth, although it will depend on the species. Straw mushrooms (Volvariella volvacea) is one of the main species cultivated, concentrated in the Mekong Delta but also in rice-growing areas in the Central Highlands and Ninh Thuan , making use of abundantly available rice straw. About 70% of rice

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[150] https://vietnamnews.vn/society/652926/sweet-start-up-brings-central-highlands-honey-to-the-world.html

straw mushrooms is consumed domestically, with HCMC being the largest domestic market, while the rest is exported.[151]

For the project area, specialty mushrooms that grow wild in the forest may be of more interest, to market with origin labelling or forest-related branding. Both fresh and preserved mushrooms are a staple of indigenous diets and they are prized in traditional Vietnamese medicine. Viet Nam is believed to have as many as 500 species of edible and medicinal fungi[152], so there are many products to explore.For example, some types of Linh Chi (aka Lingzi) mushroom found in the Central Highlands have high nutritional or even medicinal properties.[153]

Wild collection always has the risk of mixing edible and poisonous species, and therefore would need specialist collectors to ensure food safety. There is thus an opportunity ànd a necessity to build on and valorize existing indigenous knowledge about local mushroom species.

Developing cultivation methods for edible species may avoid food safety risks from collection and also allow for larger volumes. Huong et al (2017) successfully tested cultivation of the wild tough mushroom (Lentinus squarrosulus) collected in Tay Ninh Province. Unhusked rice with CACO3 and MgSO4 supplements was the most successful medium, but it could also be grown on rubber tree sawdust and be enhanced by using agricultural residues like corn bran and earthworm dung.[154] Developing value chains for new species would not only need research into optimal growing condition, but also the development of spore and other input suppliers, consumer testing and marketing campaigns to introduce such a new product to consumers. Involving existing rice straw mushroom processors, domestic retailers and exporters may accelerate the process.

Potential to contribute to RECAF objectives

While certain fungi play an important role in how well forests can absorb carbon dioxide, mushroom cultivation as such can be a source of emissions, especially when cultivated in high-tech climate controlled facilities running on electricity or fossil fuels and using peat as substrates. However, low-emission systems also exist in non-heated plastic tunnels on waste products such as straw and sawdust.

Because of the (semi-) controlled environment in which mushroom production usually takes place, it is well adapted to climate change.

For many species, cultivation can be started commercially at a small scale and does not require high capital investments as it can be grown on waste products and has short growing cycles that can produce year-round. Mushroom cultivation is therefore an interesting value chain for poor ethnic minority communities.

Example of Linh Chi mushrooms displayed at the Central Highlands OCOP fair

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[151] Demont M. et al. (2020) Rice Straw Value Chains and Case Study on Straw Mushroom in Vietnam's Mekong River Delta. In: Gummert M., Hung N., Chivenge P., Douthwaite B. (eds) Sustainable Rice Straw Management. https://link.springer.com/chapter/10.1007/978-3-030-32373-8_11

[152] https://www.botanyvn.com/cnt.asp?param=news&newsid=1355&lg=en

[153] https://vietnamnews.vn/society/522083/expert-goes-deep-into-forest-to-explore-mushrooms.html

[154] https://www.researchgate.net/publication/341867784_PURE_CULTURE_OF_WILD_TOUGH_MUSHROOM_COLLECTED_FROM_TAY_NINH_PROVINCE_OF_VIETNAM

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8.3.7 Ecotourism

The Ho Chi Minh Highway from Da Nang to Kon Tum provides easy entry points for tourists. The Central Highlands has many tourist attractions that could be integrated in an ecotourism development, such as wild mountains, forests, lakes and waterfalls and ethnic minorities with interesting cultural traditions. Economic growth rate from tourism is still slow compared to other regions in the country[155], which means there is a window of opportunity to avoid mass tourism and focus on low-quantity but high-quality eco-tourism. A country as Bhutan shows that it is possible to have a relatively high income from a restricted number of tourists. A specific potential tourist group are Vietnamese and American veterans who want to visit some of their old battlefields.

Ecotourism can also be combined with the selling of wood, non-wood forest products and agroforestry products. For example, in Ta Lang community-based tourism village in Quang Nam, developed by the Asian Management and Development Institute, the Vietnam Community Tourism Chapter and Green Truong Son Project, introduced "Dang Shen ginseng" (i.e. codonopsis root discussed earlier) to visitors.[156] Specialty coffees and honey from coffee flowers are already promoted among souvenirs to buy from the Central Highlands.[157] Ninh Thuan also promotes linkages between tourism and OCOP products such as jujube.

The PPC of Dak Lak has proposed a plan developed by DARD to develop to agri- and ecotourism and community tourism in ethnic minority villages, for which partners and funding are being sought. The province plans to develop 5 models linked to nature reserves; 7 models linked to waterfalls and 10 models linked to OCOP products. These models are expected to receive 404,000 visitors by 2025 and to financed from provincial NTPs and private sector investments. Ethnic minority villages that are attractive for tourists are to be supported with solar energy, computers, car parking, WC, information boards, waste collection facilities, marketing and communication.

Mitigation and livelihoods

As discussed above, ecotourism can be a low-impact economic development pathway, however, this only works when a truly participatory approach is followed with forest preservation as an explicit goal of the eco-tourism development.

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[155] https://vietnamnet.vn/en/feature/awakening-central-highlands-tourism-industry-773240.html
[156] https://vietnamnet.vn/en/travel/charming-nature-and-culture-in-tay-giang-684400.html (2020)
[157] https://www.itourvn.com/blog/souvenirs-to-buy-in-vietnam-central-highlands

8.4 Value chain selection and recommendations

8.4.1 Selected value chains and recommendations for design

a) Value chains suitable for a jurisdictional approach to deforestation-free sourcing and/or for the introduction of agroforestry/multiple cropping with shade trees.

Coffee is by far the most important perennial cash crop in the project districts, followed by pepper and cashew. Coffee and pepper have been major drivers in deforestation. The combined effects of the logging ban for natural forests since 2014 and the decreasing world market prices are clearly visible in a slow down of expansion after 2016. However, due to increasing commodity prices, expansionary pressure is likely to increase again during the coming years.

Coffee can be profitably grown in multiple crop systems with pepper and/or with timber trees and/or fruit trees. Due to overproduction, prices have bottomed in 2019 and many pepper orchards have been abandoned. Replanting monocrop pepper with a coffee-pepper agroforestry system would contribute to stabilizing the pepper acreage at a healthy level that avoids overproduction. Potential other perennials that could be added to the coffee-based agroforestry mix are fruits (avocado, durian, persimmon), or nuts (macadamia).

In the Central Highlands, cashews are mostly low-yielding varieties grown from seeds and aging. Therefore farmers tend to replace them by annual crops. Developing value added products and intercropping systems could persuade them to replant cashew, which would reduce GHG emissions compared to annual crops. Cashew is also one of the tree crops suitable for Ninh Thuan province. Other tree crops suitable for drier climates are mango, citrus and jackfruit. See previous sections for detail.

Approximately 80% of plantation timber is short rotation acacia and used as wood chip material and medium-density fibreboard (MDF). Viet Nam's forest sector policy foresees in investing in producing larger diameter wood for its own furniture industry as import substitution. This would require longer duration rotations and diversification, which would increase carbon sequestration and biodiversity.

The loss of pure and mixed bamboo forest to non-forest land was 4%, compared to the average 2.8% of total forest land (see hotspot analysis). Overharvesting is probably the main reason. With better management, this can be improved. Bamboo can also contribute to climate change adaptation by functioning as windbreaks.

b) Specialty products

Promising specialty products around which new deforestation-free value chains can be developed include: i) honey (both wild collected as well as from beekeeping in the forest or in organically managed agroforestry systems), ii) medicinal and aromatic plants (e.g. ginger, turmeric, ginseng, lemongrass, aloe vera) iii) mushrooms (cultivated or collected). In addition, specialty products can also be made from the above mentioned commodities, such as specialty shade/bird friendly coffee, processed nuts, dried fruits etc.

Recommendations for RECAF

To establish public-private-producer-partnership (4P) platforms for specific value chains or for groups of value of value chains that are linked to each other at farm level, for example in agroforestry systems. The multistakeholder platforms should be facilitated by a neutral facilitator, to develop and implement value chain action plans, with the aim to make the value chain deforestation-free, adapted to climate change, and with equitable profit distribution along the chain.

Following the analysis of options for deforestation-free value chain development and the situation analysis per land-use and ownership typology, the following focus activities are proposed:

4 P platform	Potential locations	focus	typology
A. perennials	All districts	- jurisdictional sourcing strategies	All: Landscape approach

		- Percentage tree cover in coffee growing areas (70% by 2030 recommended) and rich agroforestry systems (tree crop mix will depend on district)
		   - Ninh Thuan & Krong Pa district in Gia Lai: cashew or fruits based
		   - CH: coffee based (with 2 or more of the following: pepper, fruits, macadamia, timber, indigenous forest trees)
			- Encroached areas, bare land (PF-MBs, SGFEs, maybe some in SUF)
			- Monocrops on agriculture land close to forests

		- reduction of post-harvest losses	Areas in transition, agriculture close to forest
B. timber/ furniture	All districts except Ninh Thuan	- transition from short-cycle monocrop, to long-cycle mixed timber plantation	Acacia plantations
C. Bamboo	Only districts with bamboo	- sustainable harvesting schedules and management of bamboo stands	Pure and mixed bamboo forests
D. Specialty products 4Ps	At district or commune level, centered around CIGs or cooperatives	- beekeeping, - medicinal plants - mushrooms, - silk, - community-based ecotourism	Ethnic minority and poor communities, focus on settlements in or near encroached areas and degraded forests.

8.4.2 Not selected value chains

Rubber

Context and recent developments

In the Central Highlands, by the mid-2000s, due to the government rubber expansion policy, large areas designated as poor forests were converted inside SFEs for rubber production. Through loopholes, the policy was abused and actual rubber area far exceeded the planned coverage. Rubber plantations are mainly managed by large scale companies, private and state owned. By 2016, export prices had dropped so much that rubber harvesting cost exceeded income and rubber was mainly used as a timber product (SNV, 2018). The government put a planting cap on rubber. As reported by Dak Nong, rubber has been previously also planted erroneously above 700m altitude where yield is not satisfactorily, and companies/farmers are now converting these areas to other crops like coffee, pepper and fruits (avocado, durian and macadamia).

Little scope for RECAF

Because of the fact rubber plantations are mainly managed and owned by large scale companies, it is not a priority for climate change adaptation activities targeted to poor smallholder farmers and ethnic minority groups. For large companies it is also difficult to manage in multi-crop agroforestry systems because this would increase labour costs for rubber harvesting. Furthermore, the rubber area in the selected project districts is relatively small.

Livestock

Context and recent developments

Between 2010 and 2018, the milk sector experienced the highest growth rate in the livestock food market, however, per capita milk consumption is still lower than in China and Thailand, and therefore further growth is expected. In 2018, domestic dairy production covered only 40% of demand. Per capita consumption of meat is also still increasing and is diversified among pork, chicken and beef. The vast majority of meat is still being distributed through wet markets in the form of freshly slaughtered meat, whereas only around 3% is channelled through modern retail in the form of chilled or frozen meat. Both

hog and broiler production is dominated by modern and commercial production units, with a concentration around Ho Chi Minh City. They are under contract with feed procured from the contractor, and do not have a direct relation with the forest, except maybe through maize cultivation. Therefore, the rest of this paragraph will concentrate on grazing animals; cattle and goats.

Ho Chi Minh City has the largest dairy herd, but there are also smallholder dairy farms in the Central Highlands. Virtually all the available grassland on the plateau of Lam Dong has been selected for dairy developments since the late 19th century. Most farmers, whether large or small, have contracts to sell their milk. The largest four companies account for 79% of market share, including Vinamilk (55%), The True Milk (11%), Friesland-Campina Viet Nam (7%) and Moc Chau (6%).

Apart from male calves from dairy herds being fattened for beef, there are also specific beef cattle, such as the long-horned cattle in Ninh Thuan. Cattle raising is mainly extensive farming, based on pasture combined with by-products from cultivation such as straw, corn stalks, etc. In mountainous areas where ethnic minorities live, cattle raising is particularly small-scale and scattered, under forest canopy. Some farmers start using industrial feed supplements, but it is still limited. Cattle grazing areas in the province have shrunk due to expansion of sugarcane, cassava and fruit trees, or for clean energy projects (wind power, solar power). Raw and green forage for cattle in the area is enough in the rainy season, however, in the dry season, the amount of available forage only meets about 45% of the cattle's needs: 9.6% from natural grass and 21.2% of planted grass and the rest from stored and processed storage harvested during the wet season (DARD, NT).

In Ninh Thuan, goat raising take place in mountainous and hilly areas, while sheep raising is in plains and hills. The Central Highlands and Central Coast regions account for more than 98% of the national sheep output. Most sheep are bred in the coastal provinces of Ninh Thuận and Khánh Hoà. In Ninh Thuan, extension staff promotes efficient zero grazing cow fattening models with cows in cages in combination with grass planting for fodder supplemented by use of straw, maize stems and daily addition of purchased refined feed and compliance with vaccination and deworming schedules (DARD Ninh Thuan).

Reasons for not selecting livestock

Most of the feed ingredients comes from feed companies using ingredients from outside the project provinces (maize, soya). Promoting value chain linkages in livestock may actually promote more local feed production, expanding maize area at the cost of forest, agroforestry systems and perennial crops. Such linkage may also increase livestock production, directly increasing GHG emissions and indirectly through increasing grazing pressure on forestland, hampering regeneration. Furthermore, livestock products are mainly destined for the domestic wet markets, where there is as yet little scope of marketing deforestation-free and sustainable products with a higher price than conventional products. There would thus not be any market incentives for value chain actors to invest in traceability systems. Finally, including livestock would add a while new sector with its agencies and expertise needed, adding further complexity to an already very complex project.

Resin and gums

Context and recent developments

Resin can be harvested from a variety of trees, including pine, Sterculia, dipterocarpus and also acacia. Oleoresins can be derived as a by-product of sulphate pulping processes or can be tapped (like rubber). The resin is composed of volatile turpentine oil and the remaining solid material called rosin. Further turpentine processing is only economical if carried out on a very large scale. Rosin is used in the manufacture of adhesives, paper sizing agents, printing inks, solders and fluxes, surface coatings, insulating materials for the electronics industry, chewing gums and detergents.[158]

In Vietnam, the *Pinus merkusii* (aka Teriasserian pine) is tapped commercially and is of moderate quality, comparable to the chir pine tapped in India and Nepal. Of the various tapping methods, the rill method is commonly applied, but the bore-hole method is becoming more popular as it reduces labour

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https://www.forestaction.org/app/webroot/vendor/tinymce/editor/plugins/filemanager/files/BOOKS%20 and%20BOOKLETS/Value%20Chain%20Web.pdf

and costs and results in a superior quality. Tapping pine trees need to sufficient supervision to avoid environmental damage. Issues include[159]:

- resin collectors spray an acid mixture as stimulant and overuse may cause runoff and severe effects to the soil and vegetation.

- tapped tree yield lower quality timber and also less seed. Therefore, there need to be untapped "mother trees" for regeneration.

- Only trees with a minimum diameter should be tapped (in chir pine this is 30 cm at breast height)

The Central Highlands has several *Dipterocarpus* forest systems. Several dipterocarpus species can be tapped, especially *D. alatus*, the resin tree. In Cambodia, traditional methods include cutting a 5cm deep hole of 30 by 30 cm wide and firing it with burning leaves and twigs to stimulate the resin flow. Trees can be tapped from about 20 years of age and minimum diameter of 68cm.[160] *Sterculia foetida* is also growing in dry areas like Ninh Thuan, and its bark and resin are also used for medicinal purposes.[161]

Reason for not selecting resins

The large volume markets are not sustainability-sensitive markets, and supplied by rosin from the pulping industry. Developing a new value chain at any scale from tapped resins would have serious risks of contributing to forest degradation, as explained above. However, the production of low quantities of high value aromatic oils may be considered as part of the medicinal plant category, but only if accompanied by very strict limits on harvesting schedules and criteria for harvesting methods.

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[159] <mark>This information comes from a publication on Nepal, need local verification</mark>
[160] https://pdf.usaid.gov/pdf_docs/PA00TGC8.pdf:
[161]
https://www.researchgate.net/publication/339359446_a_review_on_sterculia_foetida_l_and_it's_pote ntial_for_development_in_the_dry_areas_of_Vietnam/fulltext/5e827b2b92851caef4aff78c/a-review- on-sterculia-foetida-l-and-its-potential-for-development-in-the-dry-areas-of-vietnam.pdf

Chapter 9 - Overview of rural finance in Viet Nam and the project area: The need for rural finance and sources of demand

9.1. The need for rural finance and sources of demand

9.1.1 The objectives of inclusive rural finance activities in RECAF

This chapter provides background information and data on the provision of rural finance in Viet Nam, with a particular emphasis on the Central Highlands, communities within the RECAF target districts/landscapes, and producers and companies participating in the value chain of the commodities prioritized by the RECAF project. The rationale for the inclusion of project activities focused on enhancing access to finance, is that by enabling access to existing or new financial services by smallholders and SMEs, they may co-invest in the production and supply chains of deforestation-free commodities and forest protection activities and climate change adaptation. This then leverages greater volumes of finance for, and results in greater scale of adoption of, the project's activities. Therefore, the desired outcome of this 'output' is that increased access to financial services by the project's intended beneficiaries contributes to greater investment in, adoption of, and long-term sustainability of, the project's activities. It may also include the 'greening' of existing finance – supporting financial institutions to remove the risk of financing activities liked to deforestation, or those ill-suited to future environmental conditions, from their portfolios.

The project's proposed activities will target poor and vulnerable groups which are more likely to be excluded from financial services, including women and ethnic minorities living in and around forest areas, with low levels of resilience to economic or climate shocks. Due to the profile of the intended beneficiaries, there is a big focus on this finance being inclusive.

The immediate objective of this output is to increase the number of farmers and SMEs accessing financial services for the purposes of investment in deforestation free value chains and to enhance the capacity of Financial Service Providers (FSPs) to meet these needs adequately, affordably, and inclusively. Although the short-term impact of this in terms of mobilized finance may be modest, the longer-term objective, consistent with lessons learned from global best practice, is that these clients then graduate into longer-term and lower risk clients. As such, this output forms a key part of the programme's exit strategy.

The development of inclusive rural finance solutions must not only address the need for sustainable financial services for farmers and MSMEs, but also balance with the interests of the FSPs in order to be sustained beyond the project lifetime. This requires providing appropriate long-term risk and return trade-offs, through careful analysis of costs, pricing, and risk, as well as developing the potential for growth and replication by the FSPs of the products and partnerships generated through RECAF. If successful, the potential for scaling impact and effectiveness of the project will be significantly amplified. The project undoubtedly provides services and benefits to potential partners FSPs: the GCF investments in value chain development, in combination with public infrastructure investments (IFAD loan financing), will effectively contribute towards de-risking, and cost reduction of lending by FSPs. In addition, the potential inclusion of a GCF loan, via the Vietnam Development Bank, provides an opportunity for the partners FSPs themselves to 'graduate' and scale their operations to meet the existing and newly developed demand for financial services (see 8.7).

This chapter will identify the characteristics and extent of demand for rural finance, map out the existing sources of rural finance and the key differences between this existing rural finance outreach and products and what is required for inclusive and deforestation-free products. It will propose an implementation plan for the activities required that will embed these financial services within the rest of the RECAF design to best complement and enhance the impacts of other programme components.

The approach taken during both the analysis and subsequent synthesis of a potential set of activities on inclusive rural finance (IRF) for RECAF takes into account the following:

> 1.   IFAD's comparative advantages, including supporting and encouraging innovation and experimentation with value chain development, small-scale infrastructure and financing, payment for ecosystem services (PES), market-oriented planning and public investment, land and forest land planning and allocation, private sector engagement, and climate smart agriculture. In particular it draws upon the successes and lessons learned supporting the expansion of microfinance and development funds managed local membership organisations,

in particular those provided by Women's Development Funds (WDF) in 11 provinces (including Dak Nong, Ninh Thuan and Gia Lai, where IFAD continues to have strong networks).

2.	IFAD's inclusive Rural Finance policy, the guiding principles of which state that IFAD's efforts to promote IRF will recognize diversity in social and economic constraints and financial needs, promote a range of financial services from a wide-spectrum of FSPs and establish links between financial services provision and nonfinancial support to achieve impact at scale, particularly for very low-income and other vulnerable populations.

3.	The desire to further the implementation of 'innovative' approaches, relative to the status quo in Viet Nam. These include pushing further in value chain finance, collaboration with commercial banks (as opposed to only MFIs and state-owned or 'policy' banks) and utilising blended finance structures that might incorporate and monetize alternative revenue streams (such as PFES) and/or channel new sources of impact-seeking capital to allow local providers in Viet Nam (such as the WDFs) to scale their impact.

4.	Initial feedback provided by the Green Climate Fund and the national government (MPI) which highlighted the importance and level of interest in this output, due to its role achieving scale, replication and embedding the project in local institutions and for bringing additional co-investment to the project. But also noting the necessity to show that the project is contributing to a 'paradigm shift' and that the finance must show clear additionality and be 'green'.

5.	The significant investments being made by the project in support of deforestation-free commodities (output 2.1.2), as well as other related activities relating to multi-stakeholder partnerships, policy and public finances to establish partnerships with commercial banks and innovative (within Viet Nam's context) value-chain financing approaches, and leverage the existing credit and balance sheets of these banks.

6.	Emerging lessons on international best practice for example from the studies, programmes and portfolio analysis described in Box 1 and Box 2, and lessons on best practice developed from analysis of the investments and projects made by IFAD and other (IFAD, 2021 and Szebini et al, 2021).

7.	The fact that the project will be a GCF grant project although acknowledging that GCF can operate through other mechanisms, and that IFAD is accredited to also administer loans, and the Vietnam Development Bank is accredited to administer loans and guarantees.

Although enhancing access to finance is a 'means and not an end', this output is significant within the RECAF programme design for the following reasons, which are fundamental to RECAF's rationale:

•	Creating access to finance will contribute to scaling and replication of the project's approach, both during and beyond its lifetime. It is therefore a key part of the programme's exit strategy. It will do this because the financial products will have relevance and beyond the lifetime of the programme, as will the skills/capacity developed by the FSPs, MSMEs, cooperatives, and farmers.

•	By leveraging private finance (the finance of farmers, and MSMEs, enabled and enhanced by credit products from FSPs), it brings additional co-investment to the programme. This co-investment not only expands the total number of activities and outputs that can be achieved, but also increases the effectiveness of the grants/ODA funds by ensuring that project beneficiaries also have a stake in the delivery of the activities.

9.1.2 The role of access to finance in delivering RECAF's activities

The majority of the RECAF project's resources are focused on 'foundational' activities implementing the policy and infrastructural groundwork with which to achieve the project's overall aims. This "infrastructure" includes investments in farmer and enterprise capacity as well as the physical infrastructure required to deliver deforestation-free and climate smart commodities and protect the forests.

The project systematically incorporates the private sector – in all its diversity from multinationals to smallholder farmers - as beneficiaries of the project activities and an agent of change in achieving the desired outcomes. This creates the opportunity to identify where private sector financing can be

mobilized to contribute to the immediate project outcomes, and where it can be systematically co-opted to support continued sustainability, replication and scaling up of the project's desired impacts.

A number of RECAF activities have been identified in which IRF and green credit could potentially support implementation. Table 1 compares the typology of activity for the project as a whole and identifies the potential credit needs by stakeholders in order to implement these activities. In addition to the provision of new finance for new activities within the landscape, the project will also identify the role of 'greening' existing credit flows by eliminating lending to activities that are either mal-adapted to climate change or are contributing to deforestation. Exploring and confirming this demand, gaps in supply, and the added value and unique ability of the RECAF project to facilitate improved (or greener) supply of finance where there is unmet demand, is a key objective of this chapter.

Table 1: Indicative investment and credit needs of some of the proposed RECAF activities

Activity	Related investment needs	Investment size (million VND)
Adoption of agroforestry systems among perennial crops (primarily coffee)	Annual working capital loans (6-9 months) for better, climate-smart inputs and adoption of BMPs by farmers, and planting of intercrops.[162]	20-50 per hectare per year[163]
	Medium-long term (3-8 years) investment loans to fund planting of multi-purpose trees among the crops, irrigation technology, etc.	10-80 per hectare[164]
NTFPs / alternative livelihoods (mushrooms, bee keeping, artichokes, etc.)	Short term (1-3 years) investment loans by farmers to fund purchase of new equipment.	50 per household
	Annual working capital loans (3-9 months) for better, climate-smart, inputs and adoption of BMPs by farmers.	10 per household
Shifting short-rotation acacia to longer rotation and /or mixed stands	Tbc (for example - Medium-long term (4-8 years) investment and / or working capital loans for the shift to long rotation plantation timber, for both farmers and MSMEs in the production and processing value chain.)	10-20 per ha per year[165]

9.2 The client segments in the RECAF target landscape and their demand for finance

It is critical to understand the financial needs of the project's target beneficiaries in order to develop appropriate products for their circumstances. These must be sustainable for the clients, in that the terms of repayment are suitable and affordable for the activity they are financing. These products must also be sustained by the financial service providers, who in order for RECAF to have long-term impacts, must see benefit in continuing these products beyond the lifetime of the programme. It is therefore necessary to identify different customer segments that the project and financial service producers must target. Such an approach is also outlined in IFAD's 'Inclusive Rural Finance Policy', the guiding principles of which state that IFAD's efforts to promote IRF will:

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[162] I.e., in the case of coffee, those BMPs as set out in the National Sustainability Curriculums for robusta and arabica.

[163] Bui 2018 estimated annual working capital needs of 40-50m VND per ha per year for coffee depending on how well farmers apply recommended input schemes. Scott and Gheyysyans estimated up to 70m. Bui's estimate of the financing gap of 20-50m VND reflects that some farmers have access to some finance already.

[164] VNSAT's Water Saving Irrigation Technology (WSIT) product was 80m VND. Estimates for costs (excluding labour) for intercropping coffee with agroforestry from D'Haeze (2020) and Scott and Gheyssens (2020) are around 10m VND per hectare (not necessarily all in Yr1). Author's calculations based on data from Him Lam Maca show that 1 ha of monocrop macadamia has an investment needs of 80m VND in year 1, and a cumulative negative cashflow of 120m VND in year 4, before profitability and repayment is possible.

[165] See Gromko et al 2017a and 2017b for detailed analysis of investment needs for long rotation acacia. Traditional models (including VBSP's 15 year revolving fund loan) assume capital investment in Yr1, however the author proposes a more likely scenario is that farmers require a credit facility / overdraft that they can access for farm and household expenses towards the end of the lengthened rotation.

- Recognize the diversity of rural households and enterprises; their evolving financial needs; and the unique social and economic constraints faced by vulnerable groups including women, youth, indigenous peoples, and persons with disabilities.

- Promote a range of financial services from a wide spectrum of providers, with an emphasis on leveraging IFAD's expertise with Community-based Financial Organisations.

- Establish linkages among financial services provision and nonfinancial support to achieve impact at scale, particularly for very low-income and other vulnerable populations.

These segments will be more precisely defined, described and targeted by the FSPs that RECAF eventually collaborates with. Nonetheless creating a working hypothesis is necessary to inform this design, by identifying the sources, size and characteristics of demand and supply in order to identify any resulting gaps in finance for the segments. Ultimately, this analysis will drive the criteria for selecting partner FSPs and will also illustrate RECAF activities which will systematically fill the finance gap.

Reflecting on the target population.

This chapter does not seek to replicate analysis of the target population conducted by the project and recoded in the paper 'Summary description of poverty situation in four provinces: root causes and suggested solutions.' Instead, it builds on this and other analysis to identify some key characteristics that will inform differentiation within the customer segments.

Some general implications of this analysis are that:

1. Many of the project's beneficiaries represent 'base of pyramid' segments who will need bespoke services including provision of very basic financial services. RECAF should support the development of an array of financial products including savings, insurance, payment services and equity investments, as well as credit products.

2. There is a lot of heterogeneity among the farmers in the target RECAF communities (see also Table 1 and the diversity of commodities) and as such the design of the IRF and green credit activities needs to encompass and facilitate this diversity, rather than become too specific and not transferable enough to different segments (within and beyond RECAF's target communities).

3. Financial products are more likely to require alternative or symbolic collateral, including support by value-chain actors and group collateral mechanisms. Other de-risking or risk sharing mechanisms could also mobilise financial products, ranging from portfolio guarantees to training and 'pre-selecting' suitable farmers.

Table 2: Characteristics of RECAF target groups and implication for financial service provision

Characteristic	Description of the population	Implication for segmentation and targeting with financial services	Implication for RECAF design
Province / district	The is a lot of heterogeneity in the target areas, for example Ninh Thuan has a rather unique ecology and climate, compared to the other four provinces, and as a result some more unique value chains are relevant to the project here, including fruit trees (jujube, citrus), Aloe Vera and lemongrass, etc. This heterogeneity exists within provinces also: for example in Lam Dong province, Lac Duong is notably at a higher altitude and is an *arabica* coffee producing region, as opposed to the rest of the coffee in Lam Dong and Central Highlands which is primarily *robusta*.	The profile of farmers and enterprises will differ between communities (although some larger segments will exist, such as *robusta* coffee smallholders). Different activities may be required in different provinces and districts, and as a result so may different financial services.	To simplify project design, products and services are proposed based on different types of value chains: e.g. a perennial, seasonal, tree crops, processing infrastructure, etc.
Poverty	Despite significant progress nationally and within the four target provinces on reducing poverty, it still persists in hard-to-reach places and as such is predominantly an issue that afflicts rural farmers in upland areas – i.e. the target beneficiaries of RECAF.	Limited basic credit worthiness of farmers, and the likely decreased presence and infrastructure of financial	Use of digital banking technology could be a solution to deal with the lack of branches in rural areas. Alternatives to traditional collateral requirements will need to

		service providers in the target communities.[166]	be found. The project will also need to focus on basic financial literacy and basic financial services (such as savings and loans groups).
Ethnic minorities[167]	The RECAF region has an above average proportion of ethnic minority citizens. Ethnic minorities are typically the most dependent on agricultural income, with less diversified income sources. They are also more likely to be poor.	Ethnic minority farmers usually have fewer assets that can be used for loan collateral and often lack land user certificates and titles to access commercial loans. Low levels of income diversification is also a credit risk. They are also less likely to belong to a cooperative or have an existing relationship with a value chain business.	These farmers may require special attention and tailored programs including basic financial literacy and basic financial services (such as savings and loans groups).
Cooperatives and MSMEs[168]	With the focus of RECAF on rural farms and poorer households, the role of cooperatives and MSMEs in the project is important due to their role in supply chains is input providers and aggregators.	Long-term, patient capital is the greatest access to finance need of micro and small MSMEs and therefore any program that targets micro and small SMEs should focus on providing debt with long maturities or even equity investments (Held et al, 2019).	Meeting collateral requirements is particularly a challenge for cooperatives, and micro and small enterprises and should therefore be a focus. The Cooperative Development Fund can act as bridge financing, for smaller investment sizes and collateral-free.

A basic segmentation of RECAF target audience.

A working hypothesis of a segmentation is proposed below in Figure 1 that is used throughout this chapter as a basis for expected engagement with different stakeholders and the design of the output's activities. It has been co-developed with the RECAF design team based on extensive knowledge of the target population and feedback from the design missions. It aims to ensure complementarity with the project's other activities and overall approach, known financial products and issues regarding access to finance (see section 3.1), and the points made above to ensure specific provision for ethnic minorities / Bottom of the Pyramid (BoP) groups, yet not make segments too specific that they cannot cope with the heterogeneity of the target populations.

As a result, it identifies four segments that in sequence represent increased levels of assets and ability to access finance, as well as organization and size:

- BoP / marginalised farmers

- Richer smallholder

- Co-operatives and farmer groups

- Micro, small and medium sized enterprises MSMEs.

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[166] An example of this is the TYM microfinance institute, which is owned by the Women's Union, but does not operate in the RECAF target provinces. See Box 2.

[167] For more detail on Viet Nam's ethnic minorities, see RECAF working paper "*Summary description of poverty situation in four provinces: root causes and suggested solutions.*" That paper arrives at a similar conclusion, that "specific credit programs/policies are needed to target minorities as a special group." Further recommendations that paper are incorporated here in section 3 on solutions, and of course the output design in section 4.

[168] MSMEs in Viet Nam are defined by Decree 56/2009/ND-CP (Table 4: Classification of Enterprises), modified by Decree 39/2018/ND-CP dated March, 11, 2018 (specifying some articles of the new Law on support for SMEs). Micro is under 10 employees, small is 11-200 employees and capital under 20billion VND, and Medium us 201-300 employees and capital between 20 and 100 billion VND.

Figure 1: Working hypothesis of segmentation of RECAF beneficiaries showing characteristics and capacity needs of these segments

	Increasing assets and ability to access finance			
	Base of pyramid / marginalised groups	Richer smallholders	Co-ops / Farmer Groups	MSE(M)s
This group is more likely to:	• Not have redbook • Be Ethnic Minorities • Be reliant on agricultural income • Farm marginal land • Have few other assets or collateral • Have no history of accessing financial services	• Have redbook • Be Kinh majority • Have other non-agri income sources • Farm good quality land • Have some other assets or collateral • Have experience with banking / credit history	• Have few assets or collateral, despite high turnover and membership base • Have little history of accessing financial services	• Have assets and history of access to financial services.
This groups' capacity needs include:	• Basic financial literacy • Village savings and loans groups • Supported access to micro-finance	• Support to organise (as co-op / FG) and / or develop linkage models with value chain companies (suppliers or off-takers) • Support to access commercial finance or value-chain finance.	• Capacity building to develop the co-op/FG as a professional enterprise • Support to access to MFI or bank finance	• Support to access government schemes/support

9.3 Overview of the rural finance landscape in Viet Nam

9.3.1 Financial inclusion in rural and agricultural settings

In Viet Nam, financial inclusion has been increasing from a low base over the last decade, especially regarding the basic financial services, of payments and savings, in 2011 only 21.4 percent of those older than 15 years had an account at a financial institution in 2011, to 30.0 percent in 2017 (World Bank, 2019a based on 2017 FINDEX data). This may likely have increased significantly further in the last 5 years since the last FINDEX report, in parallel with the use of digital financial services which appears to be increasingly rapidly from an almost inexistent base only five years ago.

Access to both physical and digital services is, however, unequal. For rural adults the percent having an account at a financial institution is only 24.6 percent (also low compared to 68.7 percent for rural adults in other middle- and low-income East Asia Pacific countries). And people in rural areas, especially ethnic minorities, are lagging behind in the adoption of digital financial services as well as mobile phone usage, with most payments made using cash (World Bank, 2019b). Only 2.3 percent of rural adults have mobile banking accounts, lower than the already very low national average of 3.5 percent (World Bank, 2019b).

Although account penetration in Viet Nam is "far from satisfactory" (World Bank, 2019b), the statistics on obtaining credit are "encouraging". The government's endeavors to support access to loans, especially to the bottom of pyramid groups such as farmers and rural populations through state banks such as the Vietnam Bank for Agriculture and Rural Development (Agribank) and the Vietnam Bank for Social Policies (VBSP), contribute to a relatively high level of obtaining credit. There is a total of 800 trillion VND (over 35 billion USD) in outstanding bank loans to agriculture, forestry and fisheries (8% of national total) which is concentrated in agro-processing, livestock and crop production (Figure 2). However, this has not grown since 2016, and the share of outstanding loans to agriculture has dropped from 18% to 8% during the same timeframe, indicating that access to credit has stalled among rural and agricultural populations.

Figure 2 Lending to agriculture split by sub-sector
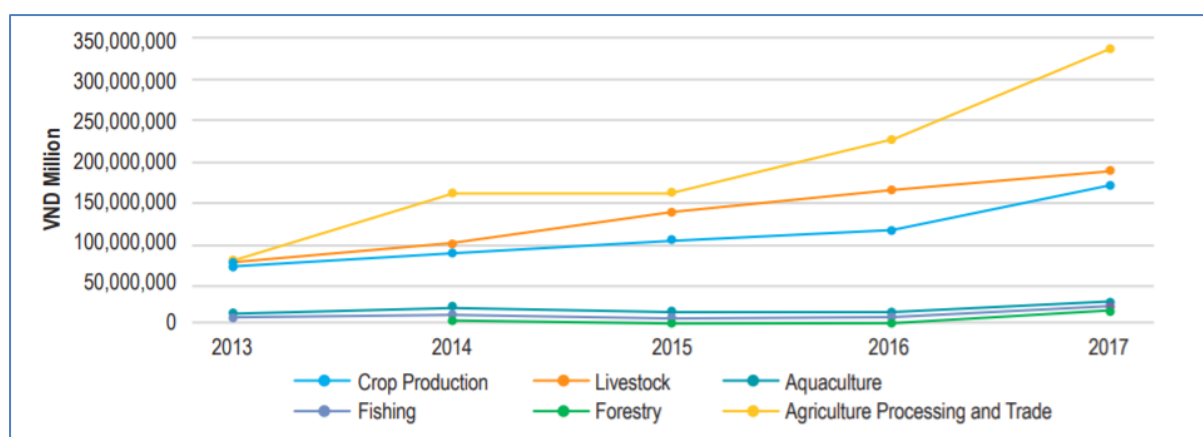
Source: World Bank 2019b based on SBV data in 2017.

This supply of finance mainly concentrates on poverty reduction and financial inclusion through relatively simple credit offerings that usually target the low-income population. However, despite or even because of this, the financial sector has not propelled the acceleration of the agricultural transformation process in Viet Nam (World Bank 2019b). This is because the products and distribution channels are not attuned to the needs of agricultural development in general, nor a climate-smart or deforestation-free transition in particular. The financial services available have not developed as fast as the transformation in the agricultural economy has demanded of it (Brauw et al, 2020), in part because of the dominance of public financial institutions and social protection schemes, and heavy regulation, constraining innovation and new entrants.

Therefore, despite all the potential sources of credit, a relatively large share of households report lacking access to credit. Nationwide, 30.5 percent of rural households report an unmet need for credit (de Brauw et al, 2020, based on 2016 census data), however this unmet demand varies substantially by region: significantly for the RECAF programme it is highest in the Central Highlands where 51.1 percent of rural households report unmet demand for credit. As a result of the relatively inflexible formal financial products, and demonstrating the access-gap that exists, informal lending is still prevalent in rural areas. In addition, there is a limited supply of diversified and sophisticated financial products and services, such as value chain financing, leasing, warehouse finance, receivables and contracts, insurance, and guarantees, to fulfil the demands of farmers and agribusinesses contributing, and adjusting, to the country's agricultural transformation (World Bank, 2019b and de Brauw et al, 2020). The picture among rural communities is therefore of this: due to their relative poverty, most have an existing 'policy loan' (see section on VBSP below), but due to the inflexibility of these, any further (or more complex) financial needs, are typically met by informal finance. Informal loans account for 53 percent of all second loans and over 70 percent of all third loans. Due to collateral requirements that are strictly imposed, taking out more than one formal loan is not an option for most people.

The following sections provide detail on the different providers of credit to rural farmer and enterprises, including banks, microfinance providers, and informal sources (2.2), the key government policies and programmes relevant to the provision of rural finance (2.3) and innovations in rural finance provision with relevance to the RECAF programme that could be adopted or accelerated in Viet Nam (2.4).

9.3.2 Providers of credit to farmers and enterprises.

As discussed above, rural or agricultural finance is available from a number of sources, private and public. The most relevant providers in the RECAF target area are banks (state and commercial), microfinance (managed by Viet Nam's socio-political membership organisations), and informal finance providers.

Table 3: Summary of credit products and their key terms of the most relevant finance providers

Financial service provider	Credit Product	Typical size (VND)	Interest (annual % / APR, as of May 2022)	Key terms and covenants
VBSP	5 year loan	100	6-7%	Must be poor or near poor. Requires land title (red book).
Commercial banks	Various, some innovation specifically for agriculture.	>50m for individuals >2bn for coops or MSMEs	10-12%	Nearly always requires collateral assets, often several multiples of the loan value. Burdensome and slow approval processes.
MFIs	Typically 6-24 months	10-20m for individuals Up to 1-2bn for coops	5-10%	Monthly repayments and/or some compulsory savings. Often using group model. No/low collateral.
Informal lenders	N/a - flexible cash on demand	Up to 50m	42-60%	Very few. Highly flexible, easy to access. Repayment at harvest time.

In Vietnam, there are two "policy banks", one cooperative bank and associated system of People's Credit Funds, four State-owned commercial banks, 31 Joint Stock banks (i.e. commercial), 62 branches of foreign banks, and two Join-Venture Banks. The most important banks at the rural and agricultural level are the Vietnam Bank for Agriculture and Rural Development (VBARD, or 'Agribank') and Vietnam Bank for Social and Policy (VBSP), because these have branches at the district level (and transaction point at commune level), whereas as most commercial banks, and certainly most foreign banks, are mainly physically located in the big cities.

Mirroring this physical presence, lending to the agriculture sector is concentrated with Agribank and VBSP. These banks account for around three-quarters of existing market share in agriculture credit (World Bank 2019b),[169] although due to limitation in their lending products and capabilities (discussed in **Error! Reference source not found.** below), efforts to mobilise commercial bank lending to agriculture are ongoing, from a small level. As of 2017, commercial banks only contribute 20% of lending to agriculture and rural development, although this is growing more rapidly than the other sources of finance (World Bank, 2019b). This is an issue for MSMEs across the economy, not just in agricultural and rural development, who collectively have a marginal share of the credit market in Viet Nam (World Bank 2019c) and report large unmet credit needs.

Vietnam Bank for Social Policies

VBSP, a state-owned development bank, is an important source of financial services in Vietnam, particularly in rural areas due to its focus on poverty reduction. It was created by the Government to provide subsidised credit to the poor and other targeted policy beneficiaries, responding to the need to differentiate commercial and policy credit. Its 6.7 million Vietnamese customers at the end of 2018 mean that not only is it the largest provider of (micro)finance services[170] in Vietnam (covering an estimated 92 percent of borrowers in the Vietnamese microfinance market and 87 percent of volume), it is also one of the largest providers of microfinance in Asia (World Bank, 2019a).[171]

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[169] According to calculations from the 2018 VHLSS, VSBP accounted for 65 percent of outstanding loans to poor, rural household in 2018, while VBARD accounted for 39 15 percent. At the same time, VBARD reports that it accounts for 50 percent of all rural loans in the domestic banking system, a figure that includes loans to larger enterprises (de Brauw et al, 2020).

[170] VBSP is often described as a MFI based on its target customers and the decentralised, last mile, delivery system described in detail in Box 1.

[171] A detailed overview of the current operations, and possible future direction for, VBSP, can be found in World Bank 2019a.

VBSP's client segments and products are determined based on the proposals made by the Ministries.[172] VBSP has over 20 credit programs ('*policies*') for different identified policy needs and population segments, with a combination of loan terms and rates, depending on the level of subsidy deemed necessary.[173] Repayment for VBSP loans is usually in one bullet at the end of the loan term, and to facilitate this VBSP mobilizes monthly savings.

A unique feature of VBSP, in addition to the subsidies, is the delivery model which relies upon strong partnerships with the socio-political membership organisations (Women Union, Farmer Association, Veteran Association and Youth Union) and local authorities who provide the human resources for its credit delivery by identifying and monitoring clients (for a fee) (see **Error! Reference source not found.** below). This gives the membership organisations a significant role in the handling of this credit. For example in Lam Dong province in 2020 the Women Union and Farmers Union together handled over 65,000 customers and 2.4 trillion VND (over 100m USD).

Box 2: Cooperation between VBSP and the socio-political membership organisations

VBSP delegates some tasks in the lending process, especially credit monitoring, to the four mass organization, including the Women's Union and Farmer's Union, who also support VBSP and the local government to identify and approve potential borrowers. It does this by establishing Savings and Credit Groups (SCG) consisting of 5 to 60 members living in the same area. The tasks of the membership organisations include communication, SCG monitoring and supervision. The management boards of SCGs are entrusted by VBSP to collect monthly interest and deposits from group members and conduct some other tasks in the lending process, while individuals still have the responsibility to repay the principal of the loan directly to VBSP. The SCG is not responsible for repaying the loan when the borrowers fail to do so. In return, VBSP pay fees to the mass organizations and commissions to the SCG's Management Board.

Table 21. VBSP's credits through the Farmers' Union and the Women's Union in Lam Dong province

	Criteria	Women's Union	Farmers' Union
Loans	Number of customers with outstanding loans as at December 31	35,328	30,295
	Loan outstanding at December 31 (VND billion)	1,335	1,147
	Average outstanding **loan** amount (VND million / household)	37.79	37.86
Savings	Number of **savers**	34.578	29.964
	Outstanding **savings** (VND million)	84,682	70,147
	Average **savings** (million/household)	2,4	2,34

Source: Tran and Ngo, 2021, adapted from data provided by Lam Dong Provincial Women's Union and Farmers' Union in June 2021 relaying to December 2020.

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[172] Any ministry can propose a credit scheme for VBSP, and ministries with active credit schemes include Ministry of Labor, Invalids and Social Affairs (MOLISA) and Ministry of Agriculture and Rural Development (MARD).

[173] The precise loan amount, term and interest rate depends on each program, the maximum loan amount is 100 million VND, unsecured, monthly interest payment, principal at the end of the period (most loan terms are about 5 years, some afforestation period up to 10 years). A household can take out more than one loan if they are also subject to another program and have a loan need.

Agribank / Vietnam Bank of Agriculture and Rural Development (VBARD)

Agribank is a state-owned commercial bank operating in mainly agricultural and rural areas, with more than 2,300 branches and transaction offices present in all regions of Viet Nam. Agribank is the largest bank in the country in terms of assets, capital, customer base, and network coverage (World Bank, 2019b). It also implements government policy programmes[174] and two National Target Programs.[175] Compared to VBSP, Agribank increasingly focuses on middle-income and high-income clients in rural areas, and it also specializes in SMEs engaged in both agricultural or nonagricultural enterprises. The bank has also expanded its branch network to the cities to seek greater market shares in the urban segment of small and medium enterprises, and support its historically rural client base now that the country is urbanizing. Agribank typically targets a richer client base than VBSP, and regression analysis to predict household loan determinants by de Brauw et al (2020) has shown almost opposite characteristics for VBSP and Agribank customers. Borrowers from VSBP are more likely to be younger, less educated, an ethnic minority, and live in households with lower income, with the opposite true for Agribank loans. Having said that, some Agribank in some provinces an branches is pursuing innovations that enable it to provide services to poorer clients, for example in Gia Lai province Agribank is piloting:

- An agricultural credit card provided as part of a loan, whereby a part of the farmers loan is given up front as cash and part is on a credit card. This ensures that interest in only paid form the time that the debt is used, and that farmer and bank have records of expenditure, and that spending is limited to formal establishments with Point-of-sale machines, reducing likelihood of debt being used for informal spending, and increasing likelihood that is used for agricultural inputs or important household expenditure such as medical or educational bills.

- Collaboration with the Farmer's Union to operate a network of loan groups whereby a lead farmer is trained and paid a retainer to manage a group of farmers with collateral-free loans. Adopting the group model and co-opting the Farmer's Union's trust-based network acts as a risk-reducing mechanism.

Other Commercial banks

Including state-owned commercial banks, foreign owned banks with different legal status in the country, and non-bank credit institutions, there are over 100 commercial banks or credit providers in Viet Nam. As of the end of 2018, the network of commercial banks consists of 10,766 branches and transaction offices (equivalent to 15.1 transaction points per 100,000 adults and 32.4 transaction points per 1,000 km2).

Generally speaking, they have limited footprint in rural areas, and while there are local or provincial-level exceptions, none of these banks have corporate strategies to specifically expand in or target agricultural communities or borrowers. One exception to this rule is – Lien Viet Post Bank which merged with the Post Office Bank in 2011 and inherited its large branch network and can exploit the post offices to provided banking services – something which is especially meaningful for customers in rural and remote areas. By the end of 2018, the bank has a total of 73 branches, 315 transaction offices and 1,404 postal transaction offices in 63 provincial / municipal post offices with the right to exploit over 10,000 access points at post offices and communal culture sites (i.e. it effectively has a branch network equivalent to the entire rest of the Vietnamese banking system).

However, while like some other banks LVPB has developed some innovative products including value chain finance partnerships (see Box 3), it still follows commercial banking business models as opposed to the socially oriented and / or concessional lending of VBSP and Agribank or the microfinance institutes (see next section). This typically manifests itself in higher rates and stricter

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[174] Currently seven different programmes, namely: lending to households and individuals through loan/affiliate groups; lending under the support policy to assist in reducing agricultural losses; lending for cattle and poultry farming; lending for coffee replanting; lending under fisheries development policies; and preferential credit for "clean agriculture".
[175] "New Rural Construction" and "Sustainable Poverty Reduction".

collateral requirements (see **Error! Reference source not found.**), requiring land titles, cash or fixed assets (such as property).

Various Vietnamese banks have dedicated SME loan programs with preferential terms promoted through large loans from multi-lateral and bilateral organizations as well as state budgets (Held et al 2019). This includes, for example, Vietnam's state-owned commercial banks (Agribank, Vietinbank, Vietcombank, Bank for Investment and Development of Vietnam (BIDV), Mekong Housing Bank) and policy banks (Vietnam Bank for Social Policies (VNBSP), Vietnam Development Bank (VDB). One important fund from the state budget is the Ministry of Planning and Investment's (MPI) SME Development Fund (SMEDF). Delivered via four agent banks, it offers short- and medium-term loans (up to seven years) for innovation and start up of SMEs, with a subsidised rate 10% below the commercial rate and with lower collateral requirements. Reporting requirements and due diligence has however made its processes burdensome for both banks and the clients, limiting its uptake (Held et al, 2019).

Overview of micro finance services provided by Viet Nam's socio-political organisations

Viet Nam' microfinance sector is not as well developed as other countries, primarily due to historical constraints on licensing and investment in financial institutions and MFI's, although this is slowly liberalizing and modernizing. As a result there are only four MFI's comparable to those in other countries[176], none of whom have operations in the RECAF target provinces.

Instead, in addition to their role as agents for VBSP (see Box 1) **and often Agribank as well, Viet Nam's membership organisations also engage in management of their own funds and microfinance services.** They have a different license to the four actual MFI's and are classified in Viet Nam as 'microfinance projects'. These sources of finance might be referred to as 'semi-formal', microfinance, or in IFAD's parlance, community-based financial organisations (CBFOs).

The three main microfinance organisations relevant to RECAF are the Women's Union's Women's Development Funds (WDF), the Farmer's Union's Farmer Support Fund (FSF), and the Cooperate Development Funds (CDF), of which the FSF has some what less importance. [177] The footprint of each across the RECAF target provinces is show in *Table* 4.

Table 4: Status of operation and loan portfolios of microfinance funds, at the end of December, 2021 (billion VND)

	Ninh Thuan	Lam Dong	Dak Nong	Dak Lak	Gai Lai
Women's Development Funds	18.1		39.3		31
Cooperative Development Fund		13.7	8	15.6	3
Farmer Support Fund	27	52.2	53.4	46.4	38.1

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[176] TYM, M7-MFI, Thanh Hoa MFI and CEP.

[177] Aside form the fact that the WDF and CDF target segments of RECAF beneficiaries with the most acute access to finance challenges, the WDF and CDF enjoy a stronger (and more recent) legal framework the FSF, whose establishment dates back to 1995 and has not been modernized or strengthened. Currently the Ministry of Finance is in the process of collecting comments to issue a decree related to the on establishment, organization and operation of the Farmer Support Fund (similar with Cooperative Development Fund). The current legal frameworks for the funds are: WDF: Decision 20/2017/QD-TTg stipulating the operation of microfinance programs and projects of political organizations, social – political organizations, NGOs; CDF: Decree 45/2021/ND-CP on establishment, organization and operation of the Cooperative Development Fund; FSF: established & operated under Document no. 4035/KTTH dated 26/7/1995 of Prime Minister to mobilize and receive capital sources inside and outside the state budget to help farmers, especially poor farmers to develop production through the lending program..

Women's Union and provincial Women's Development Funds (WDFs)

The Viet Nam Womens' Union (VWU) network has extensive experience in supporting enterprises and access to finance, including setting up village savings and loan associations (VSLAs[178]) and revolving fund programs, providing training and capacity building to its members on gender equality, household financial management, and small business management, the "Womens' start-up" movement, and creating the opportunity for women to borrow capital to invest in income-generating activities.

Among the membership organizations, VWU is typically considered to be the most active and effective unit in VBSP's lending activities. In the five RECAF provinces the WU manages over 7.2 trillion VND (about 330m USD) in outstanding loans. The Women's Union also owns it own microfinance institution, TYM, which is exclusively operated in 13 provinces in the north of Vietnam (see Box 2). **TYM's record and impact further proves the strong capability of the VWU in implementing financing programs on large scale, especially in rural and agricultural development.**

To further these aims, in 11 provinces the WU has established Women's Development Funds (WDF), with historic support, funding and capitalization from NGOs such as SNV Netherlands Development Organisation (in late 1990s and early 2000s) and IFAD in the 2010s. The provincial WDFs operate the grameen / group model, provide loans to women who are borrowing for economic development via a group guarantee and high level of trust and local relationships between the members themselves and the members and local WDF/WU staff. The WDF structure is widely considered as an effective income-generating and economic development tool for women because it provides products and services suitable for women's needs and repayment conditions, especially the group lending model. However, the WDFs' capital is limited, due to the fact that the funds were mainly established through grants, capital accumulation is slow, and there are few mechanisms through which the funds can get external borrowing (and limited skills within each province to access the funds that are legally possible).

Of the RECAF target provinces, Ninh Thuan, Gai Lai and Dak Nong have operational WDFs, offering slightly different products and terms and conditions as detailed in the below table. The key terms that differentiate the WDFs are:

1. No collateral requirements, instead using the group guarantee model

2. Slightly lower rates than commercial banks (

3. Usually require regular repayments and / or some compulsory savings to be made by loan clients throughout lifetime of the loan period.

Table 5: Key information and product terms and conditions of WDF in Gia Lai, Ninh Thuan and Dak Nong (as of 31/12/2021)

Indicators	Ninh Thuan	Dak Nong	Gia Lai
Charter Capital (million VND)	15,900	43,404,6	18,210
Outstanding loan (billion VND)	18,090	39,282	30,995
No. of borrower	3,464	1,590	3,420
No. of group	223	221	381
Average loan size (million)	5.2	24.7	18

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[178] These VSLA's primarily aim to build basic saving, repayment and borrowing habits, requiring members to save as little as 5,000-10,000 VND per month ($0.25-$0.5). Experience of these models shows that within two years participants demonstrate ability to manage much greater sums of saving and borrowing, and are able to 'graduate' onto MFI loans, etc.

Loan term	6, 12, 18 or 24 months		
Interest rate (year)	9,6% (flat interest rate)	5,07% (reduction interest rate)	Tbc
Repayment method	Monthly (principal and interest)	Quarterly (flexible during the quarter)	Tbc
Collateral	Non-collateral, applying group guarantee		
NPL	1%	5,4%	0
Saving amount (million VND)	4.072	2.870,9	5,716
No. of member saving	3.367	1.590	3,628
Target group	poor, near poor, low-income women, household business, small enterprise		
No.of staff	18 staff (9 part time)	58 (18 full time staff)	Tbc
No. of branch	3	3	Tbc

Box 3: TYM microfinance institution

TYM Micro Finance Institution, founded and owned by Womens' Union, combines micro financing with management capacity building and market access services to targeted women and rural micro-and-small enterprises. It raises all its capital from savings from its members. As of December 31, 2020 it had nearly 175,000 members with good year-on-year growth. In 2020 the total lending to members reached VND 3,835.8 billion, with total outstanding loans more than VND 2,053.3 billion (91.2m USD), growth of over 10% from 2019. Repayment rates were 99.986%, with average loans of 12m VND.

TYM offers collateral-free short- and medium-term microloans to women and micro-and-small enterprises (MSE). Rates are equivalent to between 5.2% and 10.92%. Borrowers are allowed to repay small installments on weekly or monthly basis. Prior to lending, TYM focuses on building business and financial management capacity of the Union members and turns them into TYM members. A nation-wide and deeply-rooted network of Women's Unions helps the Institution to conduct capacity building cost-efficiently. Then, improved-capacity TYM members can become TYM clients.

Source: Pham et al, 2019, TYM, 2021 and Mensik et al, 2018.

See Financial Services - TYM (tymfund.org.vn) for detail of all TYM's loan products for individuals and SMEs.

Farmers Union and the Farmer Support Funds

Similar to WU, in addition to its role as an agent for VBSP, the Famer's Union also manages its own funds (the Farmer Support Funds). The FU is the organisation with the second highest outstanding loans among the four organisations entrusted to support the loans of VBSP (with over 6.1 trillion VND under management on behalf of VBSP), and the FU is very active in promoting economic development and improved markets linkages of its members in other ways, including partnerships with Agribank also.

The Farmer's Support Fund is a source of capital managed by the Provincial Farmers' Union to lend to farmers to invest in production and business in accordance with the Fund's regulations. Capital

sources are not from the government budget but are mobilized from individuals, organizations and members of farmers to support, lend and borrow at preferential interest rates. Lending activities depend on each specific project – a key characteristic of the FSF is that while they lend without collateral, they do require a business plan from the farmer, and compare this with their own data and expertise for investments and cash flow from different agricultural activities, to ensure the investment plans are sound and the lending is responsible. The interest rate is slightly cheaper than commercial rates, around 0.7%/month (8.4%/year), with terms up to 36 months and amounts up to 50m VND per household. They do however typically require farmers to prove their ownership or access to land in order to ensure that the loan sizes are appropriate for the farmer's available land and income generating capacity. See **Error! Reference source not found.** in the background working paper for full details of FSF activity in the RECAF provinces.

Vietnam Cooperative Alliance and the Provincial Cooperative Development Funds

The Provincial Cooperative Development Funds are a source of capital allocated by the State[179] for the purpose of supporting loans for cooperatives and their members. The funds are specifically for cooperatives is to buy fixed assets for investment in "high technology" and clean agricultural production and to support them to expand their cooperative businesses. .Interest rates are capped at 60% of the interest rate of commercial banks, while other features of the loans similar to those offered by commercial banks. They are typically intended to be a bridge for cooperatives between grants from various state funds to commercial lending (which would be higher rates and larger sizes).

The Decree establishing the Cooperative Development Funds in their current form was only issued in 2021. As a result, each province is implementing and managing the funds in a slightly different way. Some provinces are providing loans to cooperatives themselves, and some provinces entrusting through VBSP to lend. In most cases, the lending mechanism is still highly 'traditional' requiring collateral, and with repayment in one bullet the end of the period. In the five RECAF target provinces, the status of the CDFs is therefore variable. Ninh Thuan's has not yet been established, and Gia Lai's is not fully operational, with only VND 3 billion lent out of a possible capital of 20bn. The other three provinces are operational and details of their portfolio is in Table 6. They generally provide loans of around 1bn VND over 2 years or longer and subsidized rates to cooperatives, although Dak Nong follow a different model including direct provision to members of cooperatives, via VBSP.

Although capitalized with 20bn from the state, some provinces have mobilised other sources of finance. Dong Nai province and Ho Chi Minh City, for example, both have CDFs of around VND 100 bn, grown through the savings (compulsory saving and voluntary saving), application of a microfinance lending model (guarantee group, daily/weekly/monthly repayment), and loans from State Financial Investment Company (see **Error! Reference source not found.** for details of legal sources of capital for each microfinance fund). Although the Decree No.: 45/2021/ND-CP was issued in March 2021 the guidelines and circular from Ministry of Finance and relevant ministries are not complete yet, so some provinces, including Lam Dong and Dak Lak, are waiting for that before making strategic decisions on how to grow their CDF's available capital. Some technical assistance is available to support the development and professionalization of CDFs, for example from DGRV[180], who's activities include support to the Lam Dong CDF.

The CDF's also have the opportunity to become private businesses (owned wholly by the Provincial Cooperative Alliance, in Vietnam's "one member" company structure – "*Cong Ty TNHH").* This also opens greater possibilities in the future for borrowing from commercial institutions.

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[179] The Prime Minister issued Decree 45/2021/ND-CP dated March 31, 2021 on the establishment, organization and operation of the Cooperative Development Fund. The Funds are specifically intended to support implementation of the Agricultural Restructuring Programme for the period 2021-2025 to promote clean agriculture and organic agriculture in association with the cooperative development of agro-processing industry; and Decree 98/2018/ND-CP dated July 5, 2018 on product value chains and Cooperative Development Strategy 2021-2030.
[180] https://www.dgrv.coop/project/dgrv-in-vietnam/

Table 6: Key information and product terms and conditions of CDFs in three of the RECAF target provinces

Indicators	Lam Dong	Dak Nong	Dak Lak
Outstanding loan (billion VND)	13.7	8	15.6
No. of borrowers	12	2 cooperatives and their 124 members	32
Management	Direct	Entrusted to VBSP	Direct
Average loan size (billion)	1.1	0.064	0.7
Loan term	2 years	2-5 years	
Interest rate (year)	4.8%	7.92%	
Repayment method	Monthly installments of both principal and interest	Quarterly (flexible during the quarter)	
Collateral	Yes, assets or red book	Yes, above 100m VND	

Informal financial service providers.

In Vietnam, this does not refer to organised and formalised value chain finance, which is rare and covered below in 2.4.1. Instead, it refers to what is effectively 'black market' activities covering input credit, cash advances provided by offtakers, and flexible money lending, all of which are often provided by the same 'shop'. However, the rates are extremely high (usually between 40-60% APR, although 20% per month has been reported), terms are untransparent, and the practice is unregulated. Data on the scale of lending is hard to come by – in surveys farmers typically report no personal borrowing form such lenders, yet in interviews and FGDs they widely admit it is rife within the community. It persists due to close relationships between farmers and these shops as influential people within the community, traders of commodities and inputs, and a desire to maintain good relationships with such shops in order to facilitate produce sales and access to informal credit when required. However, the practice is widely regarded as extortionate, and blamed for trapping many poor farmers in a debt spiral.

The opportunity to work constructively with such lenders is widely agreed to be extremely low. In additional, local authorities disapprove of such practices and would prefer the practices are eliminated, hence, **given RECAF's implementation mechanism which puts much of the activity management in local government hands, working with such providers is not an option**, even in the unlikely scenario that it might be effective.

More information on this source of finance is provided in **Error! Reference source not found.**. Similar products offered in a formalized manner at less extortionate rates is discussed in **Error! Reference source not found.**.

9.3.3 Government policies and programmes relating to rural finance

In recent years the legal and policy framework of the Vietnamese forest and agriculture sector has rapidly developed, and this has included increasingly strong statements, and some directives, to the financial sector to play its role in the sector's transformation. Following the original Agricultural Restructuring Plan[181], and now its successor, the Plan on Restructuring of Agriculture in 2021-2025 period[182], many follow-on policies, decrees and decisions have been made across several facets of the agricultural and rural economy in order to contribute to its implementation. In general, the emerging policy framework is highly supportive of the RECAF project's planned approaches. The country's vision is captured in the moniker "value not volume" and practically it includes a strong focus on development of modern, clean/sustainable and "hi-tech" productions methods and crops, with stronger value-chain linkages and strengthened farmer groups and cooperatives as a platform to achieving this. The need for a financial architecture to deliver on these ambitions is also clearly recognized, and in the revised Agricultural Restructuring Plan, the Minister

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[181] Decision no. 899/QD-TTg
[182] Prime Minister Decision No. 255/QD-TTg 2021, dated February 15, 2021.

also requested the State Bank to "*direct credit institutions to balance capital sources to promptly meet capital needs and facilitate access to bank credit capital for all economic sectors to be able to invest in agriculture and rural areas; especially for enterprises investing in high-tech agricultural projects, organic agriculture, agricultural mechanization development and agricultural product processing industry.*"

Almost simultaneously, the overall regulatory environment for access to finance has improved, driven by developments such as the improved legal framework for collateral assets and the finalization of the credit information system between 2008 and 2017 (Held et al, 2019) These improvements led to Viet Nam being ranked 29th in the World Bank's Doing Business 2018, "Access to Credit Index". The Law on Credit Institutions (effective since January 2018) is well designed and enables commercial banks to provide a wide range of products and services, from traditional financial products to fund management and securities. It also introduced bankruptcy in order to enable restructuring of the banking system. Nonetheless, challenges in collateralization and the absence of a modern collateral registry remain key barriers to access to finance for SMEs (World Bank, 2019).

In Vietnam, Government strategy, policy and regulation is often supported by the establishment of programmes which are dedicated budgets and accompanying mechanisms to achieve specific outcomes. These can occur at national or provincial level. Generally speaking, there is a high level of public intervention to stimulate agriculture finance in Vietnam (World Bank 2019b, de Brauw et al, 2020). Policies and programs largely focus on the provision of credit by (a) directly binding financial institutions to provide low-cost credit to the agriculture sector through a variety of credit policies and programs and (b) addressing the perceived high risk of the agriculture sector through risk management instruments to indirectly incentivize lending to the agriculture sector. They are delivered through a range of financial or regulatory measures, as well as a lot of fiscal or budgetary measures (subsidies or grants to either FIs or the direct beneficiaries).

General climate change, forestry and agriculture policy and programmes should be covered elsewhere in this feasibility study. The most important *current* and *emerging* financial, fiscal and budgetary policies and programmes that shape the opportunities and approach available to the that the RECAF programme can take regarding this output, include:

Collateral free lending - Decree 55

- **Decree 55**/2015/ND-CP, which is amended in 2018 by Decree 116/2018/ND-CP, introduces several credit policies for agricultural and rural development, the most consequential of which is the promotion of uncollateralized lending. They pave the way for both enterprises and individuals to access commercial loans with no collateral or new forms of collateral which were previously not accepted by the banks (the decree also gives borrowers new debt handling mechanisms when facing difficulties in repaying bank loans due to objective and force majeure reasons).

- Under Decree 55, enterprises, cooperatives and unions of cooperatives are entitled to borrow, without assets to guarantee, an amount of 70% to 80% of the value of production and business plans and projects.

- **Decree 116,** also issued in 2018, then extends this to individuals also, increasing the maximum loan size that credit institutions can provide without collateral to individuals and households involved in agricultural production or businesses. It allows rural individuals and households to borrow, without collateral, when the loans are from USD2,200 to USD8,800. Farm owners and rural cooperatives can borrow up to US$150,000 without collateral. The Decree also allows credit institutions to accept as collateral the production facilities, technologies and equipment funded by the loans.

- Uptake of the possibilities these law changes offer has, however, been slow. Pham et al (2019) report that eight commercial banks used the decree (which was at that stage a pilot programme) to lend to 31 projects. Feedback from the RECAF team's field missions is that while banks are interested to do more collateral-free lendin to support client segments they have so far neglected, they are unsure how to trade-off the lack of collateral with their risk assessment and mitigation measures. The only method utilized at any scale is that of loan groups by Agribank in collaboration with the Farmers Union. Ultimately, banks are still doing collateral-based lending and lack a nuanced approach to risk and risk management. Most

potential customers without collateral are perceived as higher risk (although banks have not attempted to measure and quantify the risk) and without collateral the banks have fewer options to reclaim debt in case of a default. Therefore, customers without collateral are not making it past bank's credit screening processes.

Establishing the Cooperative Assistance Fund - Decree 116

- **Decree 116**/2018 /ND-CP and a new Decree on Establishment, Organization, and Operation of Cooperative Assistance Fund pave the way for more financial resources, in addition to commercial lending, for cooperatives.

- The Cooperative Development Funds have been established in nearly all provinces, capitalized by the State, with 20 billion VND each (about $900,000). The mechanism exists however to grow the capital with other sources, and 6 funds (Ho Chi Minh city, Hai Phong, Dong Nai, Tra Vinh, Quang Ngai, and Quang Tri) have combined state budget with paid-in capital by shareholders – a model worth exploring for RECAF target provinces to expand the capital available to the fund.

Subsidy and grant programmes supporting expansion of agricultural finance

- A number of government backed policies and programmes provide financial support (via subsidies and grants, direct to business or individuals) for both agricultural development itself (covered elsewhere in the feasibility study) and for agricultural and rural finance. These include

  - The **National Target Programme for New Rural Development** and **National Target Program Sustainable Poverty Reduction**, both running from 2016-2020 and will be continued in the period 2021-2025. It is expected that these new NTP policies will shift from grant-based to credit financing in order to achieve its objectives. The support will include free technical assistance aiming at promoting value chains with participation of rural cooperatives.

  - Various interest rate subsidies (compensated for by the government to the banks in various ways), including **Decision 813**[183] and **Decree 57**[184] which reduce the costs of borrowing for enterprises and farmers investing the transition to cleaner, greener and higher tech and value production and processing.

9.3.4 'Innovations' in the supply of rural finance.

Aside from traditional formal and informal financial sources, a number of innovations are emerging that are disrupting the supply of finance in general, and which could be harnessed to positively address specific public policy goals. These are innovations in that they are underused in Viet Nam, although there is a growing evidence base and examples of case studies from other countries where such models have been successfully applied:

- Agricultural value chain finance (formal and regulated)

- Digital finance

- Credit guarantees

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[183] Decision 813/QD-NHNN dated 24 April 2017. This stipulates that borrowers who meet the criteria of high-tech agriculture and green agriculture shall receive interest rates between 0.5 and 1.5 percent below the normal commercial lending rate. It also provides an interest rate subsidy for investments linked to reduce losses in agriculture (which may include investments in storage as well as processing technologies) of 100 percent interest rate subsidy in the first two years and 50 percent in the third year.

[184] Decree 57/2018/ND-CP dated April 17, 2018 of the Government on "incentive policies for enterprises investing in agriculture and rural development sector" which includes support for enterprises on the interest payments of up to 70% of total investment, whereby the government pays the difference between the commercial bank lending rate and the government's concessional rate.

Agricultural value chain finance

Agricultural Value Chain Financing refers to formal financing that affects at least three value chain participants: a financial institution, an end borrower, and at least one other facilitator or beneficiary who is a value chain participant and can either be directly or indirectly involved in providing finance to the end borrower. This is typically an input provider or a lead buyer.

There is little written evidence on the extent of value chain finance in Viet Nam, but based on experience and anecdotal information, value chain finance does not seem that prevalent in Vietnam.[185] Where it does exist, it is usually found in well organized high-value agricultural produce chains (high-value fruits and vegetables, high-quality rice) at relatively small scales. Case studies of these can be found in Brauw et al (2020) and Pham et al (2019). A rare example in the RECAF landscape is that of Him Lam Maca's partnership with Lien Viet Post Bank to provide a loan to smallholder farmers for planting macadamia seedlings (see Box 3).

Within the RECAF landscape and Viet Nam, a slightly more common, although equally under-researched, is the provision of inputs on credit to farmers by input suppliers, or advancing a proportion of payments to farmers by buyers in the form of cash. Payment is then recouped at harvest, although no third party is involved in the collection. As a result, these are typically informal and trust-based systems, and there is a high degree of similarity and overlap with the informal finance described in section 0, whereby such financial services are unregulated and provided by shops who also act as input suppliers and traders in small communities.

Despite the lack of application of such models, in theory the opportunity exists within Viet Nam for some of its most important agricultural products. Brauw et al (2020) assessed a number of Viet Nam's most important commodities and identified horticulture, forestry, and coffee a the three most suitable to value chain finance. The IFC (World Bank, 2019b) has identified a longer list including several perennials (coffee, pepper, cashew, and rubber), annuals/staples (maize, cassava, and vegetables) as well as pigs and poultry within the livestock sector. So several of the commodities that are likely to be targeted by RECAF have supply chains that are amenable to development of such financial systems.

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[185] World Bank 2019b and Brauw et al, 2020. This finding corresponds with the author's own experience also, and our perception of the opinion of other experts in the field.

From the perspective of a financial institution, value chain finance also addresses one of the key constraints in lending to agriculture, namely that they lack outreach to many rural areas. In addition, they typically lack agricultural knowledge and corresponding risks, especially at the direct production level and therefore the opportunity for the FIs to collaborate in value finance initiatives in which they can interact with companies further along the chain, which do know the business and have assessed many risks, rather than directly with farmers, offers one of the solutions to address this need (FAO and AFRACA, 2020).

'Fintech' - Digital finance, consumer credit and cash-flow-based lending

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Box 4: Lien Viet Post Bank and Him Lam Maca's value chain finance collaboration

Lien Viet Post Bank and Him Lam Maca (HLM) share similar shareholders, which led to the origination of the partnership. It is a form of combined input credit with a strong yield and purchase guarantee protection also, from the same company.

Under the collaboration, farmers can borrow up to 80% of seedling costs. This is paid by the bank to Him Lam Maca who supply the seedlings to farmers, guarantee them by replacing those that fail to establish, and provide technical assistance to the farmers on nurturing and tending them in the first years. Repayments are in one bullet, yet flexible and linked to yield. However, farmers usually repay in fist full harvest (at year 4), but protection is there in case of poor yields.
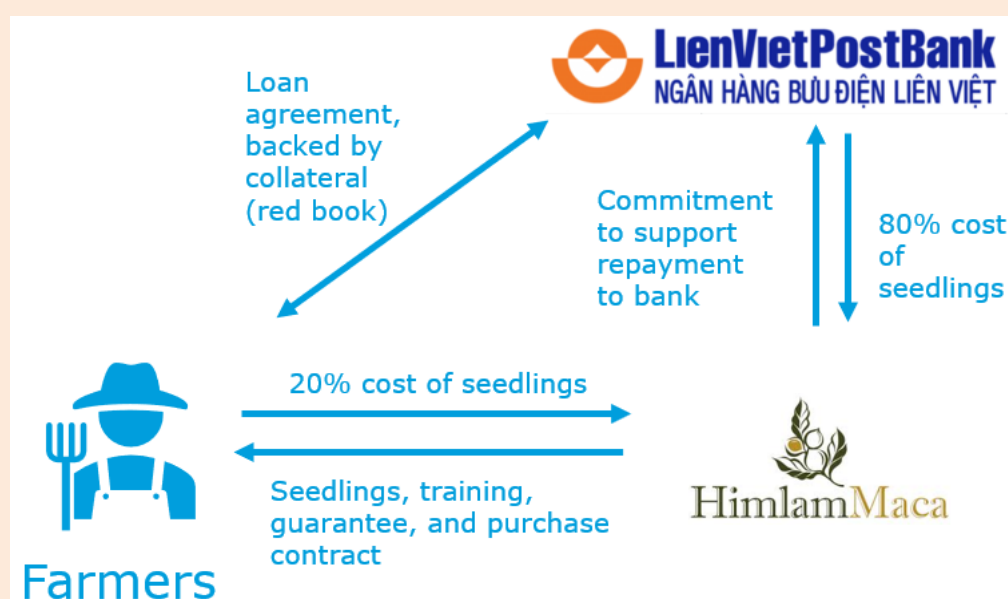
Building on two prior 'waves' of digitilisation - the 'farmer mobile communication wave' and the 'agribusiness digitalization wave' - Voutier and Wo (2021) characterise five new technologies that could drive the next wave of innovation in SE Asia, and are already doing so in India and China, and to a lesser extent already in Indonesia. The first three of which are related to financial service provision, and could perhaps be grouped together as 'fintech'.

- Digital payments by farmers

- Digital trading platforms

- Digital lending platforms

- Hardware innovations for smallholder farmers

- Digital farmer advisory services

Across SE Asia, fintech has made already financial services more accessible to groups that traditionally fell outside of formal finance (EIU, 2021). Fintech can provide alternative and automated

models to facilitate smallholder-focused lending and channel private sector investments more effectively to accelerate adoption of sustainable agricultural practices. These are technologies are being driven by more than 130 start-ups in the region who have a technology that connects with smallholder farmers, concentrated in Indonesia, Philippines, Singapore and Vietnam and Thailand (Voutier and Wo, 2021). 4 showcases a selection of these. While the policy framework for many of these technologies, especially those offering loans, is somewhat a grey area, constraining investment, SBV, in collaboration with Vietnam Fintech Club and other donors, is considering a 'sandbox policy' for fintech. This is expected to clarify the law and stimulate further innovation.

Such innovators have a lot of work to do, or large opportunity ahead of them: as described in section **Error! Reference source not found.**, Viet Nam lags significantly in the use of digital financial services, especially among rural populations. As Tran and Ngo (2021) found in their study in Lam Dong that, while there are a number of digital financial service providers are present (such as Momo wallet, Viettel wallet, Vinapay, QR Pay, and some lenders applying such as FE Credit) these digital technology services are mainly adopted and targeted to populations in cities and urban areas, while they have not been popular in rural areas, especially mountainous areas such as Lac Duong. This is primarily because users are required to have devices such as computers, smartphones and stable internet infrastructure, which is less likely to be the case in the more rural communities. The companies seem in little hurry to solve this and expand services and products to communities that are less likely to be creditworthy or profit generating either.

Equally important, more commercial banks have found new businesses with fintech applications (Pham et al, 2019), as is the understanding that applying these technologies in combination can be very powerful and create a virtuous cycle. The digitalisaton of payments lays the groundwork for cash flow-based lending, whereby the proof of a customer's creditworthiness lies not in their assets (a faulty premise) but a proven level of turnover and income evidenced by their bank transactions. The speed, ease and marginal cost effectiveness of digital transactions also changes the costs for financial service providers and can potentially bridge the divide between the costs of making loans in agriculture and the expected returns (and risks). Further, digitization can reduce the non-monetary debt servicing costs for the smallholders and SMEs as well. Removing cash from the disbursement and payment cycles lowers the risk of cash diversion or loss. Digitalisation of other data (such a geo-mapping[186]), satellite-based farm imaging, and digitalization of tools (such as credit scoring methodologies[187]), as well as the data contained within 'wave two' – *the digitalization of agribusinesses* -could help further increase the scale and scope of lending to smallholder farmers and augment existing value chain finance programs and informal lending.

It is clear that harnessing the power of these business for specific public policy goals, such as the objectives of RECAF, requires coordination and partnership building in order to correct the market failures (Hernandez, et al, 2020). This can be a clear role for a project such as RECAF. Indeed, based on analysis of growth potential, impact and ability of donors and development organisations to drive change in specific areas, Voutier and Woo (2021) conclude that investing in digital lending specifically (in contrast with digital payments or trading platforms) should be a priority for IFAD and other donors, noting the high benefits to farmers and potential to have impact at scale. In addition, donors and the public sector should seek to offer services through platforms and technologies offered by the private sector in order to reduce costs, and enhance uptake, of new services (Hernandez et al, 2020).

Box 2: Selected examples of companies applying fintech to illustrate potential for RECAF project	
Aspire and **Kiu**	Two SE Asia based digital bank account providers that focus on providing cash-flow based lending to SMEs.
Kilimo finance	Kilimo applies a model increasingly seen in Vietnamese consumer goods to agriculture. Focused on coffee, Kilimo's foundation is a digital marketplace for high quality inputs, which incorporates a credit scoring tool and partnership with a bank (Saccombank) to offer these inputs on credit (via automatic application for a credit card) should farmers choose to or require the inputs on credit (which they inevitably do, and

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[186] Leyson and Morgan, 2022.
[187] Grow Asia, no date.

	is something that is typically arranged via physical traders and shops in the existing value chain).
Samunnati	An Indian non-banking financial company that provides loans to smallholder farmers and small and medium-sized businesses across the agriculture value chain. The innovation of Samunnati is to use a cash-flow-based lending technology for value chains, offering working capital loans, it also incorporates digital marketplace and capacity building functions. Samunnati is one of several examples of innovation from India.
TaniHub and **TaniFund**	An Indonesian group, similar to Sumannti, Tani Group provides both a digital market place and financial services through its two products.

Partial (portfolio) credit guarantee schemes.

In the past Viet Nam's government has endeavored to reduce the perceived high risk of the agriculture sector through public-risk management mechanisms such as portfolio credit guarantee schemes and agricultural insurance programs. These aim to absorb part of the default risk of the borrower, and by providing this level of comfort, financial institutions would increase credit supply to credit-constrained firms and farmers (Benni, 2021). PCGs often provide coverage for loans to SMEs more broadly, which can include agriculture as one of the targeted sectors amongst others, but there are also PCGs specific to agriculture. Globally, there are numerous such guarantee systems for SMEs, including some focused on agriculture that have been instrumental in promoting credit, particularly to smaller agribusiness SMEs and smallholder farmers (World Bank, 2019b). These have existed in Viet Nam at both national and provincial level, however they have not achieved expected results, largely due to design flaws, operating and financial issues (World Bank, 2019b).[188]

Despite these failures, well-functioning (partial) credit guarantees remains could still have a significant impact on the amount of credit available to rural and agricultural communities, and serve to strengthen competition in the market and diversify suppliers. Therefore, there is reason to revisit such mechanisms and improve their design and implementation modalities, especially PCGs. The Vietnamese Government could consider reintroducing a national credit guarantee scheme for SMEs (including agriculture) as many other countries in the region have (for example, China, The Philippines, Malaysia, Thailand) or portfolio guarantees for banks lending to individual farmers. The reintroduction needs a different approach to what is currently available in country, following international good practices to make the scheme effective and financially sustainable. For example, Szebini *et al* (2021), in a review of de-risking schemes for agricultural lending in sub-saharan Africa, noted that successful schemes typically included several "*coordinated and mutually reinforcing instruments*" in addition to a partial credit guarantee, including:

- A technical assistance facility (TAF) to support supply - and demand-side capacity building

- Support for the development agricultural insurance

- A direct financing facility or Line of Credit (LoC)[189]

- Support for digital finance-based solutions.

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[188] VDB's prior national level SME guarantee scheme, established in 2009, covered 100% of losses (too high according to agreed best practice) and charged fees of 0.5% to the guaranteed party, not the guarantor (too low). Such terms can easily lead to moral hazard from financial institutions by overlooking risk management of guaranteed loans. According to World Bank 2019b: "*Disputes between VDB and commercial banks arose on the contingency of payment when loans become overdue. The guarantee facility was discontinued after a few severe disputes.*" The provincial-level guarantees tend to be underfunded and non-operational, and their portfolios are also overexposed to risks in specific commodities/sectors.
[189] For further info on LoCs see IFAD Line of Credit Toolkit here: https://www.ifad.org/en/web/knowledge/-/toolkit-lines-of-credit

Summary of supply and demand

Based on the above and the segmentation presented in Figure 1, the different banks, MFIs and MSPs can be mapped onto the segments as follows.

Figure 3: Mapping financial service providers with the different segments within the RECAF target audience that they serve and target.
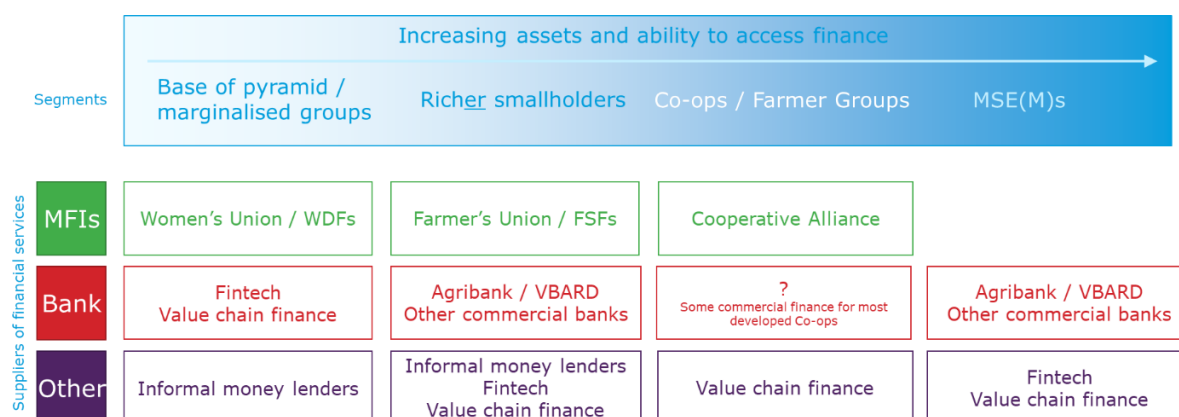
9.3.5 Summary of supply and demand.

Based on the above and the segmentation presented in Figure 1, the different banks, MFIs and MSPs can be mapped onto the segments as follows.
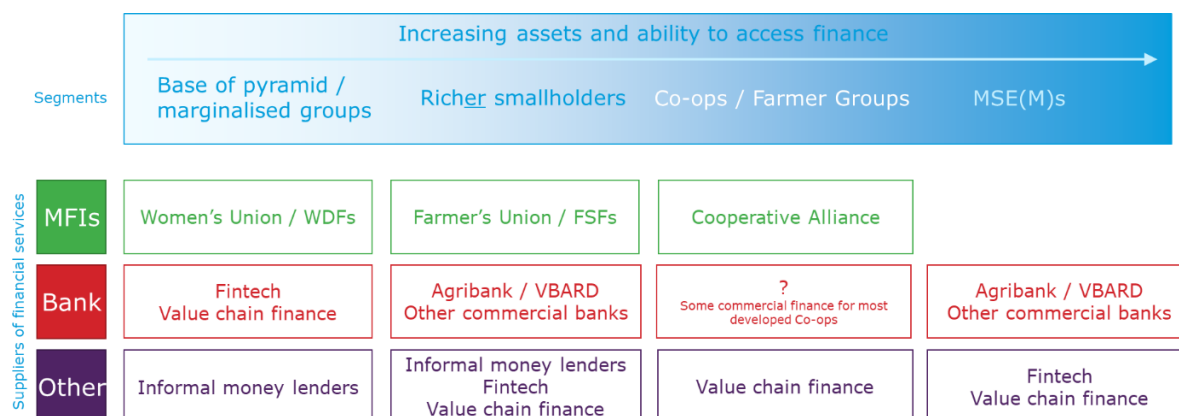
Figure 4: Mapping financial service providers with the different segments within the RECAF target audience that they serve and target.

9.4 Gaps and unmet demand

9.4.1 General evidence for the lack of access to finance.

Despite these sources of finance outlined above it seems there are plenty of possible avenues through which rural and agricultural households and business may access finance in Viet Nam. Yet there is a paradox in Vietnamese rural finance, in that access to finance is both ubiquitous and limited at the same time. While there are indeed a number of financial providers and products available, including subsidized and concessional sources, there is widespread evidence that some segments cannot access finance when they need it, and on terms that suit them. For example:

   • Nationwide, only 2% of producer cooperatives can access financing from commercial banks (Pham et al, 2019).

- According to the World Bank Enterprise Survey 2015, agribusinesses have the highest percentage of firms identifying access to finance as a major constraint compared to firms in other sectors, such as manufacturing or service (Tran and Ngo, 2021).

- In the Central Highland 51.1 percent of households report an unmet demand for credit (de Brauw et al, 2020), 68% higher than the population average (30.5%).

- SMEs, in particular micro and small enterprises, have difficulty accessing finance in Viet Nam. Although SMEs account for nearly 98 percent of enterprises in Viet Nam, contribute 40 percent of the GDP and 30 percent of the state budget, between 2012 and 2017 outstanding loans to SMEs accounted for only 22-25 percent of total outstanding loans.

- Expert interviews conducted by Held eat al (2019) revealed unmet demand for long-term loans, especially amongst logging and nursery SMEs. Land titles are the most common form of collateral and highly constrained for small and micro enterprises.

Therefore, while the proposed activities of RECAF, and the transition towards climate resilient and deforestation free agriculture and livelihoods implies a potentially high demand for investment and credit, there remain significant challenges to the provision of, and access to, suitable finance which justifies intervention in order to leverage finance. This is particularly the case for poorer farmers and cooperatives (identified in Figure 1 above as Base of pyramid farmers and cooperatives/ farmer groups, columns 1 and 3 respectively).This section outlines these challenges in the provision of the financial services discussed previously, and discusses solutions and fixes to this provision that can create access, with a focus on those most relevant to the RECAF programme.

9.4.2 Challenges in the provision of financial services.

Based on the background literature, expert inputs and information gathered during the field missions, the following are direct causes of gaps in the provision of financial services to some or all of the segments identified in Figure 1.

Limited suitability of available products, especially VBSP's.

Overall, the design of the products offered by FSPs do not have suitable terms or are too targeted to be suited to the diversity of agricultural segments, especially those in the RECAF target region. They cannot be relied upon or utilized in order to engineer a transition at farm level or a transformation at the sector /landscape level.

- Although it is the largest source of rural and agricultural finance, not all farmers can access VBSP loans (they are only available to households classified as poor and very poor), and of those that can, most have probably already taken a loan. In addition, the products VBSP offer are very limited (see Table 3) and are not aligned with many needs specific to RECAF. VBSP also does not offer a sustained source of finance, relying on government replenishments, and even availability of its existing products (referred to in Viet Nam as policy loans) can be variable at local level based on availability of funds. Ultimately, VBSP cannot be relied on as a source for additional access to finance without a significant amount of work at national level to develop and finance (from the state budget) a new 'policy loan' (i.e. product accompanied by allocated funds and criteria on accessibility).

- Among RECAF target communities (and potentially applicable to most VBSP clients), many households have already taken out VBSP loans with little investment planning or understanding of the implications of doing so (including using them for general consumer or household spending). The loans do not have specific covenants on what they can be used for. Instead, they have effectively been historically treated as a handout, or overdraft facility, from the government, with the result that many families simply roll-over one 5-year loan with another. Nor are they designed to suit the seasonal cash flows of the family businesses – although VBSP is increasing its use of mandatory savings and options to repay capital and interest in monthly or quarterly installments, this is not compulsory. The design of the loans therefore prevents the finance being used productively, to transform the lives of families, and to achieve societal goals such as climate mitigation and adaptation.

- There is a high administration cost, on the part of the applicant, associated with VBSP loans, and they typically require in-person visits to an office, despite the facilitation by the membership organisations (Box 1). Reports from the field are that it can take several

months from application to receiving it, which is OK for an investment loan, but not working capital. Nor is it ideal for a seasonally, often rain fed business opportunity.

- The typical design of VBSP products are not suited to the needs of agricultural development or supporting households to 'graduate' to other sources of finance. VBSP loans are typically for 5 years, which is not suited to a lot of the demand identified in Table 1. While this table does indicate some (complex) longer-term investment needs, it also includes both annual working capital, and medium (1-3) loans for investments. The 5 year loans might be unnecessarily long and therefore costly for the needs of many poor and agricultural households, and for inexperienced borrowers, it is better practice and cheaper to repay the loans when not being used, and build a history of loan repayment over several seasons.

Lack of competition and diversification among FSPs serving poorer households and small enterprises.

Outside of VBSP, a lack of competition in agricultural and rural sector lending has reduced the diversity of products and financial service providers available to customers.

- Annual and shorter term-loans are theoretically the speciality of other commercial banks and microfinance providers. For example, most of the loans provided by Agribank, the other dominant agricultural and rural lender, are short-term (less than 1 year) with annual interest rate currently around 10%. However, as identified above, Agribank typically targets a wealthier segment of farmers with good collateral and business plans, and these loans are not available to poorer farmers.

- MFIs also typically provide short term credit, however Viet Nam's MFIs, including those managed and owned by the membership organisations, face regulatory restrictions in their ability to raise capital, making it harder for them to build a large balance sheet and loan portfolio compared to VBSP or the other commercial banks. Therefore, despite their proven track record at delivering last-mile services, and delivering to base-of-pyramid groups, their ability to scale is determined by organic growth in assets driven by savings and loan income.

- Short-term finance is more relatively available for SMEs, however access to long-term finance and patient capital needs to be a point of focus for supporting primary production SMEs. Surveyed SMEs reported that financing with maturities longer than three years is rare (Held, et al, 2019).

- Similar to households, cooperatives face their own access to finance gap, with commercial finance available for the most professional ones with collateral and assets, while 98% of them (Pham et al, 2019) struggle to access such finance. There is a wide gulf between the skill, capacity and systems a cooperative needs to graduate to commercial finance and the majority of coops established and existing on government-financed grants. The provincial cooperative development funds are a stepping stone for the most professionalized, offering more favorable terms, no collateral requirements, and small loans. However their overall impact will be limited unless the funds can increase their capital.

- The limited participation in this market of other commercial banks, reduces competition among providers and limits the products offered. There are several structural issues driving this. De Brauw et al (2020) note that Viet Nam's financial sector remains dominated by four state-owned banks, which make risk averse lending decisions due to a particularly large share of NPLs within their loan portfolios (de Brauw et al, 2020). Across all lenders, the provision of long-term credit to firms and individuals in these sectors is further constrained by the short nature of deposits (over 80 percent are one year or less, requiring banks to have high levels of liquidity) and by relatively high transactions costs due to the lack of information, weak collateral, and the poor functioning of the justice system (World Bank 2019c). Lastly, a combination of an interest rate cap on agricultural lending, as well as the existence of state subsidized agricultural credit, reduces the opportunity for commercial banks to enter the market due to limited opportunity to generate a margin on loans, resulting in banks which do not see a profitable market. These factors combine to ensure that banks frequently select the least risky borrowers (such as those with good collateral) and prefer to give larger loans to reduce administrative costs per loan. These practices may unintentionally result in reduced access to finance for the smaller and poorer farmers the policies intend to serve.

Over reliance on collateral as a risk reduction tool or screening mechanism.

Meeting the collateral requirements is a major challenge for smallholders who want to participate in agricultural value chains. Although not required by law, collateral requirements have become a normalised part of lending in Viet Nam.

• For agriculture, farmers nearly always rely on their red book as collateral, and are required to physically deposit their land use certificates with VBSP for example (to prevent collateral being used on several loans). This is a severe problem in 'frontier' areas and the most rural and marginalised communities, where land use is still unclear and many households do not have a red book, for example, households with coffee land in Da Nhim and Da Chais communes have only been granted a red book of less than 45% of the total area.

• As a result of these issues, the Government has aimed to liberalise loan collateral requirements over time, which is a step in the right direction to helping farmers participate (de Brauw at al, 2020). Regulations such as decree 55 (see section 2.3) aim to incentive such liberalisation. In addition, Decree 45 has opened up the opportunity to create a capital source focused on Cooperatives and their members (the CDFs).

• In practice, however, banks or CDFs for that matter, still rarely make use of the lower collateral requirements as they have a strong preference for collateralized loans due to the important role of collateral in reducing the risk of an investment, something that the banks cannot entirely avoid. As a result, Decree 55 has only been implemented slowly, and banks report being uncertain how to manage portfolio risks without collateral.

• Several innovations have been implemented and 'piloted' to varying degrees to reduce risks and avoid over-reliance on collateral (see section on Agribank above). The issue with these is that they are not widely available yet, despite excellent feedback. Adoption of the innovations is very variable, with little national, regional or provincial-level strategy being demonstrated by the banks.

Fundamental high risks and costs of key target segments.

The proposed activities and target segments of RECAF do contain real risks, and there are limited skills among FSPs to assess them and few channels to mitigate them. This leads to financial institutions usually lending to low-risk projects or avoid operating in the sector/communities entirely.

• Aside from their red book, RECAF's communities are likely to have few assets to use as collateral. Many cooperatives, especially newer one in areas such as the RECAF target regions, have no/low amounts of paid-in-share capital of cooperative members, or accumulated cash, and do not meet bank requirements. Although the use of collateral is being liberalized, in that it is a) not always needed and b) can take forms other than the redbook, the fact is that assets/collateral is a useful risk reduction mechanism, or indicator of creditworthiness, to financial service providers.

• The RECAF target communities have low levels of income diversification, are often reliant on agricultural income or employment, and maybe even that is dominated by one crop. This makes farmers and businesses exposed to market and production risks. Market risks are a particular concern in the Central Highlands, due to the dominance of several crops that display wildly fluctuating price cycles such as coffee and pepper.

• The creation of value-chain models with tighter relationships between producers and off-takers is a solution to this market risk, and also offers a vehicle through which training and improvement of production practices may take place. However, these are uncommon and require effort by government or 3rd parties (NGOs, donors, etc.) to establish and nurture. Some innovative value-chain finance structure have been established on the foundation of such models, but banks typically react to such opportunities rather than attempt to engineer them themselves.

• Households, cooperatives, and MSMEs often lack effective or convincing investment plans to present to banks. On the other side FSPs including both banks as well as funds such as the CDF, do not have enough familiar with the business models and risks of many agricultural businesses and lack the skills to properly assess investment plans, typically leading to overly conservative lending decisions.

- Farmers and staff in cooperatives or SMEs might have relatively poor basic financial management skills. Many agri-SMEs & rural cooperatives are prevented from accessing credit and capital as a result of not having have proper accounting and other managements systems including the ability to prepare adequate business plans, conduct feasibility studies, and manage cash flows. Because these target individuals and businesses are less likely to have had bank accounts or other formal loans (outside of VBSP) they are less likely to have a proven history of credit repayments.

Weak application of risk sharing and cost reduction mechanisms among target audience.

These risks and costs are exacerbated by a lack of factors that could contribute to risk sharing or mitigation, and cost reduction, among the target audience, such as strong cooperatives, value chain finance, and digital (financial) tools.

- The Central Highlands, and Ethnic Minorities, have historically formed fewer cooperatives. In recent years, a government-led push driven by a desire to support farmers professionalize and unlock 'value chain approaches' has aimed to grow the number. As a result, many farmer groups and cooperatives are newly established and still have limited operational and administrative functions and capacity (and many are accused of being 'paper cooperatives' established to help hit targets). These cooperatives also have fewer assets (including cash through operational profits or paid in capital from members).

- Value chain finance structures theoretically reduce some of the risks with a 3rd party involved in the transaction, typically validating (if not formally guaranteeing) the market for produce, or the quality of the inputs (and such reducing the risk that investment doesn't generate returns). It also enhances the stickiness of customers, as they are typically engaged more formally in a value chain, more traceable, easier to monitor, and more likely to perceive the benefits of maintaining good relationships with the other parties in the supply of the goods and finance. Delivering credit through such an arrangement solidifies the relationships even further.

- Digital tools, both marketplaces/production tools, and 'fintech', can reduce many of the costs associated with smaller, physically remote clients such as agricultural and rural communities. As identified above, the RECAF target audience is however less likely to have already adopted such tools, and less likely to have the capacity to easily adopt them. The regulatory environment around fintech remains unclear (see 2.4), somewhat suppressing innovation and uptake. Businesses that have invested have typically focused on urban and more wealthy segments, and harnessing fintech for societal and public goods requires engagement in the power of fintech by the public sector at the national, ministerial, levels, something which has yet to be achieved.

9.5 Solutions and implications for RECAF

Where programmes such as RECAF add value and are additional is in targeting specific segments facing acute challenges to access finance, and also facilitating such access to finance in order to achieve specific household and societal goals, and contributing towards graduating these beneficiaries towards more sustainable (and likely commercial) sources of finance. Table 7 below identifies solutions to the five challenges identified in section 3.1, noting that many solutions apply across different challenges.

Table 7: Addressing challenges of financial service provision within the RECAF programme

Challenge	Solutions that RECAF can contribute to
1. **Error! Reference source not found.**Limited suitability of available products, especially VBSP	• **Grow the range of FSPs and products available,** including supporting the participation of new entrants and improving the product design of existing providers in the target areas. This will include working with FSPs to develop systems to ensure that their lending is climate-resilient and deforestation free. It will also include a specific focus on raising capital for the providers who are most able to target the segments facing largest access to finance gap, namely the WDF and CDF, yet who face regulatory and capital challenges to grow.

2.	Lack of competition and diversification among FSPs	• **Grow the range of FSPs and products available,** including supporting the participation of new commercial entrants and improving the product design of existing providers in the target areas. • **Support the MFIs/membership organisations** to enhance their products to best serve the needs of RECAF target audience, and apply their combined credit provision, group organizing and capacity building approach in the target communities. • **Support high performing but capital constrained funds/FSPs to grow the amount of capital they have available for lending,** to scale up their activities among the target communities and in climate-smart / deforestation free lending activities. This should include small grants provided to capitalize the funds, matched by other public sources, with the ultimate aim to help the funds access lines-of-credit (at concessional rates).
3.	Over reliance on collateral as risk reduction or screening mechanism**Error! Reference source not found.**	• **Support local authorities to complete land measurement and issuance of red books to farmers** in communities where this is still incomplete, giving those farmers excluded from existing provision the opportunity to access it. • **Work with finance providers to use alternatives to collateral, and help them implement and realise the opportunities of Decree 55**. This primarily includes support in developing group-lending models and value-chain linkage projects. It can also include cash flow-based financing, and/or development of alternative credit scoring models. • **Build capacity of FSPs to understand and model the different agricultural supply chains,** including developing tools such as credit scoring models and cash flow models. and building the skills and capacity of staff at FSPs with respect to agricultural lending • **Reduce risks and costs to the FSPs in other ways, by supporting them to build partnerships,** in particular value-chain linkage models, and implement risk reducing solutions identified in 4 and 5.
4.	Fundamental high risks and costs of key target segments**Error! Reference source not found.**	• **Improving and diversifying income sources**. This has several potential components, from enhancing the revenue generated from a household/businesses primary crop through better adoption of BMPs, assimilation within value chain linkage models, and upgrading via some processing activities (including via membership of cooperatives). It also can be delivered by diversification to increase the amount of income generated by other crops, as well as other non-farm activities. • **Build partnerships where possible between companies and farmers operating value-chain linkage models and FSPs**, who can mutually benefit from the reduced costs and risks provided by such structures. • **Support SMEs, cooperatives and farmers to develop better business plans and financial skills,** for the loans that they do want to take**.** This can be delivered in parallel with the provision of other training. • **Continue to grow the provision of basic financial services where needed, such as VSLA groups and** opening accounts, in partnership with the membership organisations, which are proven to grow the financial capacity of the poorest segments with the aim to graduate them to loans later. • **Support the FSPs to take a nuanced approach to risk evaluation, measurement and management. This could include the adoption of cash-flow based lending** (for SMEs/Coops, including via digital platforms) which drives data to FSPs that can be used to in credit scoring, and builds financial skills among the borrowers.
5.	Weak application of risk sharing and cost reduction mechanisms among target audience**Error! Reference source not found.**	• **Support digitization of both agriculture and finance data to reduce costs dealing with smallholder farmers.** This including supporting the adoption of fintech by existing FSPs, and the entry of new fintech and digital platforms into the target supply chains / communities (which can also enhance cash-flow based lending, see above). Adoption of digital agriculture platforms more broadly can also lessen risk by enhancing information sharing, monitoring of farmer performance, and strengthening links within the value chain.

- **Develop and enable value chain finance models** whereby the off-taker / supplier is a partner in the flow of finance, including through the strengthening of coops farmer groups.[190]
- **Invest in the strengthening of cooperative groups** because of their potential roles in the provision of financial services as well as being a foundation for many of the other solutions, including value-chain finance, income diversification, farmer training, etc., yet are likely to be weaker than average in the target area.

Figure 5: Design of output 2.3, combing the segments, the FSPs that are recommended to engage with, barriers to the provision of or access to finance, and proposed solutions.

| Segments | **Increasing assets and ability to access finance** | | | |
	Base of pyramid / marginalised groups	Richer smallholders	Co-ops / Farmer Groups	MSE(M)s
FSPs to partner with	MFI: Women's Union / WDFs	Banks: commercial banks Other: Fintech, value chain finance	MFI: Cooperative Alliance Banks: commercial banks Other: value chain finance	Banks: commercial banks Other: fintech, value chain finance
Barriers	• VBSP product design and application process is unsuited to new investment in CSA/DFS, or to greening. • WDF cannot easily raise capital and scale to meet demand. • Farmers have low levels of collateral/assets and low income diversification. • Poor basic financial management skills.	• Lack of competition n market reduces product offerings • Farmers struggle to meet collateral requirements. • Banks and FSPs are unclear how to proceed with uncollateralised lending. • Farmers have low levels of collateral/assets and low income diversification. • Poor basic financial management skills.	• CDF cannot easily raise capital and scale to meet demand. • Many cooperatives in RECAF area are newly established and not operating effectively. • Cooperatives lack effective or convincing investment plans to present to banks. • Staff have poor basic financial management skills.	• MSMEs lack effective or convincing investment plans to present to banks. • Staff have poor basic financial management skills.
Demand side solutions	• Improving and diversifying income sources. • Support farmers to develop better financial skills.	• Improving and diversifying income sources. • Support farmers to develop better business plans. • Support farmers to develop better financial skills. • Develop and enable value chain finance models and adoption of digital tools.	• Support coops to develop better business plans. • Support coops to develop better financial skills. • Invest in the strengthening of cooperative groups. • Develop and enable value chain finance models and adoption of digital tools.	• Support MSMEs to develop better business plans. • Support MSMEs to develop better financial skills. • Develop and enable value chain finance models and adoption of digital tools.
Supply side solutions	• Grow the range of FSPs and products available, including provision of basic financial services such as SCGs. • Support the MFIs/membership organisations to enhance their products. • Support high performing but capital constrained funds/FSPs to access lines of credit. • Build capacity of FSPs to understand and model the different agricultural supply chains.	• Grow the range of FSPs and products available. • Collaborate with and facilitate entry by 'fintech' companies, including for cash-flow based lending. • Work with finance providers to use alternatives to collateral. • Build capacity of FSPs to understand and model the different agricultural supply chains. • Reduce risks and costs to the FSPs by supporting them to build value chain partnerships. .	• Grow the range of FSPs and products available • Support the MFIs/membership organisations to enhance their products. • Support high performing but capital constrained funds/FSPs to access lines of credit. • Work with finance providers to use alternatives to collateral. • Build capacity of FSPs to understand and model the different agricultural supply chains. • Reduce risks and costs to the FSPs by supporting them to build value chain partnerships	• Collaborate with and facilitate entry by 'fintech' companies, including for cash-flow based lending. • Work with finance providers to use alternatives to collateral. • Build capacity of FSPs to understand and model the different agricultural supply chains. • Reduce risks and costs to the FSPs by supporting them to build value chain partnerships.

See working paper 9 for a detailed description of output 2.3 on rural finance.

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[190] This links with the solutions to challenge 2 - see Pham et al (2019) for examples of how identifying these 'lead companies' can be done via collaboration with banks, who then also lend to up and downstream participants in the supply chain of that lead company.

Chapter 10 - Infrastructure Investments for Deforestation-free value chains and forest protection and management

Current situation and needs of infrastructure investments for deforestation-free value chains and forest protection and management in Central Highland and Ninh Thuan. Over the last 10 years, there were many efforts to improve rural infrastructures (road, irrigation, water supply, electricity, etc.) in Central Highland and Ninh Thuan through government-funded programs such as NTP-NRD, NTP-SPR and donor-funded projects (see *Annex 1* - List of on-going projects/ programs on agricultural and rural developments, and REDD+ in Central Highland and Ninh Thuan Province).

10.1 Irrigation infrastructure.

By 2020, irrigation systems (from public investments) and small irrigation works from other sources (underground water, dug wells, ponds, springs…) served about 48% - 82% of irrigation needs in project provinces. Over 2015 – 2020 period, irrigated areas in each project provinces increased about 15,000 – 30,000 hectares (Table 1). By the end of 2020, the rate of lined irrigation canals (concrete, masonry brisk…) managed by communes and water user cooperatives reached 66.19% for Ninh Thuan, 58.54% for Dak Lak, 72.37% for Dak Nong, 65.58% for Gia Lai and 77.25% for Lam Dong, the remaining are earth irrigation canals (Table 2).

Piped irrigation systems can avoid evaporation and seepages through conveyance canals with about 20% increased efficiency, are more resilient to extreme weather conditions and require less maintenance, making them more cost-effective in the long-term. However, applications of piped irrigation systems are still very limited. By the end of 2020, on-farm water-saving irrigation systems (sprinkler, drip) were applied for vegetable, coffee, pepper, fruit trees… for about 15% of irrigated area in Lam Dong, and for very limited 2% - 6% of irrigated areas in Ninh Thuan, Dak Nong, Dak Lak and Gia Lai (Table 1). Investments in piped irrigation systems or lined irrigation canals, and on-farm water-saving irrigation systems can increase substantially irrigation efficiency and contribute to GHG emission reduction from irrigation pumping in conditions of server draught in Central Highland and Ninh Thuan. With increasing impacts of climate changes and extremely weather conditions (floods, drought) plus demands for intensifications and expansions of agricultural cultivations, the needs for investments in irrigation works and on-farm water-saving irrigation systems in coming years is a high priority for Central Highland and Ninh Thuan.

Table 1 - Summary planted areas and irrigated areas in project provinces over 2015 and 2020[191]

Province	Year 2015			Year 2020			
	Planted areas that need irrigation (ha)	Total irrigated areas (ha)	Irrigated rate (%)	Planted areas that need irrigation (ha)	Total irrigated areas (ha)	Areas applied water-saving irrigation (ha)	Irrigated area rate (%)
Ninh Thuan	70,002	34,791	49.7%	83,766	50,260	1,500	60.0%
Dak Lak	302,950	231,056	76.3%	320,066	262,455	7,120	82.0%
Dak Nong	182,556	124,138	68.0%	185,280	148,244	4,995	80.0%
Gia Lai	314,151			439,868	212,127	28,131	48.0%
Lam Dong	236,000	138,060	58.5%	256,923	167,000	38,500	65.0%

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[191] Sources: Summary results of mid-term survey on rural area and agriculture sector, GSO, 2020; and Provincial reports

Table 2 - Irrigation canal systems managed by commune people committees and cooperatives[192]

Province	Total length of irrigation canals (Km)	Total length of lined irrigation canals (Km)	Rate of lined irrigation canals (%)
Ninh Thuan	998	661	66.19%
Dak Lak	1 529	895	58.54%
Dak Nong	241	174	72.37%
Gia Lai	1 474	967	65.58%
Lam Dong	749	579	77.25%

10.2 Rural transport infrastructure.

Rural transport was enhanced from government and donor-funded projects over the last 10 years. However, by the end of 2020, inner-field earth roads without hard surface (concrete or bituminous) are still dominant at 56% in Central Highland provinces and 49% in Central Coast Region (Table 3). With increasing impacts of climate changes, extreme weather conditions, upgrading rural roads is a priority for Central Highland and Central Coast Region.

Table 3 - Status of rural roads in project provinces[193]

Location	Commune road and inter-commune road			Village and inter-village road			Residential cluster alley			Inner-field road		
	Total length (km)	Total length with hard surface (km)	Rate of hard surface (%)	Total length (km)	Total length with hard surface (km)	Rate of hard surface (%)	Total length (km)	Total length with hard surface (km)	Rate of hard surface (%)	Total length (km)	Total length with hard surface (km)	Rate of hard surface (%)
Ninh Thuan	387	383	99%	515	442	86%	648	537	83%	741	594	80%
Dak Lak	2,574	1,718	67%	4,092	2,007	49%	5,531	4,079	74%	4,526	1,217	27%
Dak Nong	650	482	74%	942	585	62%	2,538	1,233	49%	597	296	50%
Gia Lai	**2,355**	**2,243**	**95%**	**3,018**	**2,535**	**84%**			69%			**59%**
Lam Dong	1,831	1,831	100%	1,347	1,207	90%	2,159	1,750	81%	1,248	1,015	81%
Central Coast Region			67%			63%			72%			51%
Central Highland			81%			62%			76%			44%
National	**139,273**	**101,147**	**73%**	**181,941**	**117,425**	**65%**	**50,547**	**34,871**	**69%**	**111,551**	**70,921**	**64%**

10.3 Forest protection infrastructure.

The area of agricultural production on forestry land (ACFL) in the project provinces accounts for about 7.8% - 13%, partly due to people's encroachment on forest land for agricultural cultivation, partly due to overlaps between the land area people have owned customarily and cultivated for a long time and the land area included in the forest land planning at the Land Statistics (1999) and the Forest Census and Inventory (2014). The project provinces are making efforts to implement solutions to increase

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[192] Source: Summary results of mid-term survey on rural area and agriculture sector, GSO, 2020.
[193] Source: http://nongthonmoi.gov.vn/Pages/tai-lieu-hoi-nghi-toan-quoc-tong-ket-10-nam-chuong-trinh-muc-tieu-quoc-gia-xay-dung-nong-thon--.aspx, and data from provincial reports.

forest cover and ensure people's livelihoods on these areas of forest land. Examples of provincial efforts are:

- The project proposal "Strengthening the management and protection of forests, preventing deforestation and encroachment on forest land; restore and develop forest in Lam Dong province in the period of 2020-2025, with a vision to 2030" issued at Decision 1836/QD-UBND of Lam Dong province, dated August 15, 2020;
- Draft project proposal "Sustainable forest development by agroforestry and scattered tree planting in the period of 2021 - 2025", Dak Nong DARD (2021);
- The project proposal "Strengthening the management of land originating from state-owned agricultural and forestry farms, currently used by agro-forestry companies, forest management boards and other non-business organizations, households and individuals in Dak Lak province" promulgated together with Decision 3512/QD-UBND of Dak Lak province, dated December 26, 2018;
- The action program to implement the Resolution on sustainable forestry development, livelihood enhancement, and forest cover improvement to adapt to climate change in Gia Lai province in the 2021-2030 period (899/CTr-UBND of Gia Lai PPC dated 12 May 2022).

The current system of monitoring and updating forest changes in the project provinces is mainly using handheld GPS devices and paper maps; there are differences between the data, the map system and the reality. Majorities of computer systems, server and software, GPS devices and other facilities for monitoring forest resource changes in the project provinces have been equipped for many years and have not met the work requirements. The use of high technology with applications and facilities of remote sensing and A.I technologies using satellite images in the management, protection and monitoring of forest resources[194] can be applied for the project provinces. This investment is in line with the Project Proposal for Strengthening Capacity for Forest Protection Force in Forest Protection and Management and Forest Fire Prevention over 2021-2030 Period (approved under Decision No. 177/QĐ-TTg dated 10 February 2022). Upgraded Forest Monitoring Systems will strengthen the management and monitoring of forest resources changes (monitoring and warning on deforestation plots, forest fire, chainsaw sounds), and for forest inventory.

Currently, the production and sale of forest and fruit seeds and seedlings in project provinces are carried out by forest owners, and a number of private enterprises, business households inside and outside the provinces. The varieties of forestry and fruit trees offered in the market are not of equal quality (for example, macadamia seedlings recently supplied in Lam Dong, Dak Nong, Gia Lai). With increasing demands in the coming time for afforestation, conversion to planting large timber trees, development of agroforestry models, and planting of medicinal plants under climate change conditions, the enhancement of the quality and quantity of seeds and seedlings for forestry plants, fruit trees, and medicinal herb plants through supporting seeds and seedlings nurseries in the project provinces is necessary.

Provincial forest protection branches and forest owners in project provinces also expressed various needs for supports on other forest protection infrastructures and facilities such as forest patron paths, forest roads, water points for forest firefighting, newly-built/upgraded forest protection stations, and other equipment and facilities (pickup trucks, motorbikes for forest patrols, drones and/or fly-cams, camera traps, radios, GPS devices, iPads, laptops with high configuration, etc.)

10.4 Considerations for Climate change resilient and sustainable infrastructure investment.

With an increase in extreme weather (drought, storm) forecasted in the near future due to the impact of climate change in the project provinces (see chapter 3), there are needs to increase investment in

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[194]that has been implemented in Quang Nam province (Decision 1015/QD-UBND of Quang Nam Province People's Committee, dated April 2, 2019)

productive infrastructures such as irrigation, transportation, extreme weather forecasting and warning systems, environmental monitoring systems. Solutions for mitigation of the negative impacts of climate change on agricultural and forestry production might include (i) storing water for irrigation by building small reservoirs; (ii) enhancing the efficiency of irrigation works by means of piped and/or lined canals (from existing earth canals), applying water-saving irrigation solutions (sprinklers, drip); (iii) upgrading roads to production areas (from existing earth roads) for four-seasoned transportation; (iv) micro weather forecasting/warning stations, etc. The invested infrastructures will be designed taking into account changes in temperature, hydrology and other extreme climate conditions predicted for the medium term. Solutions for slope anti-erosions, heat-resistant building materials, renewable energy use, etc. are considered for application for invested infrastructures.

Previous rural infrastructure investment projects also provide useful insights for selection and management of infrastructure to ensure their effectiveness and sustainability. Agricultures, Farmers and Rural Areas Support Project in Ninh Thuan, Gia Lai and Tuyen Quang Provinces (TNSP) was implemented over 2011 – 2016 period with a sub-component on Community Development Fund for public infrastructure, capacity building and productive infrastructure managed by farmer groups. Project for the Sustainable Economic Empowerment of Ethnic Minorities in Dak Nong Province (3EM) was implemented over 2009 – 2015 period with a sub-component on Community Infrastructure for sustainable agriculture and livelihood development. Several lessons learnt were obtained from these community infrastructure investments:

- Investment selection and prioritization though value chain development planning and commune socio-economic development planning processes are essential in order to integrate effectively investment resources from different projects and programs (NTP-NRD, NTP-SPR, etc.);
- Development of a community infrastructure investment manual with specific criteria for investment selection (value chain development, targeting, investment effectiveness, community participation and contribution, etc.) can facilitate effective investment implementation;
- Community supervision is essential to ensure quality of construction works for small-scaled infrastructure schemes at commune/ village level;
- Application of force account approach can enhance investment effectiveness for small-scaled community infrastructure; and
- Small infield roads and irrigation canals can be effectively managed and maintained by direct beneficiary groups through the establishment of operation and maintenance teams and the development of operation and maintenance regulations by beneficiary groups. Resources for routine and periodic maintenance of these structures include man-hours (and money) contributions by the beneficiary groups.

10.5 Scope, outreach and selection criteria for infrastructure investments for deforestation-free value chains and forest protection and management, and implications for RECAF

The IFAD loan amount will be used for investments in *public* climate resilient infrastructure for selected deforestation-free value chains and forest protection and management. The type of public infrastructure will be identified and prioritized through the process of value chain action planning in connection with the 4P platforms and the district and communal SEDPs. The scope and scale of construction investment is determined according to (i) the required infrastructure for deforestation-free VC development at each stage of prioritized VCs such as perennial crops (coffee, pepper, fruit trees …), (ii) serving the needs of communities, especially the vulnerable group in value chain participation, (iii) a sound economic return on investments, (iv) deforestation free guarantee and climate resilience, and (v) ability to mobilize resources and contributions of the benefiting groups, and commitment and resource for O&M works. Environmental and Social Management Plans (ESMP) will be prepared during design of infrastructure investments and monitored to ensure full compliance with agreed safeguards as outlined in the SECAP.

Eligible public infrastructure for deforestation free VCs (*using IFAD Loan*) that can be selected for investment under RECAF include:
- Community-level (scale TBD) post-harvest storage and processing (drying) to reduce post-harvest rot and losses, and to build some amount of value-addition at local levels. This also

requires addressing the value-chain structural issues, as traders/collectors dominate this area in the supply chain, and would likely resist changes that impact their profitability. This needs careful consideration, and strong government support to help steer the changes.

- Small-scaled irrigation reservoirs for water storage and supply for crop cultivation;
- Small-scaled lined irrigation canals and/or piped irrigation systems (upgraded from earth irrigation canals); Small-scaled irrigation weirs/dams; Irrigation pumping stations for crop cultivation;
- Small-scaled rural roads (upgraded from earth roads) to production areas or linkages between collecting points/ warehouses and production areas;
- Micro weather stations for early-warning of extreme weather conditions (draught, storm, frost…); Pest monitoring systems for agricultural production;
- Other public infrastructures for deforestation-free VC (to be determined during project implementation).

Eligible public infrastructure for forest management and protection (*using IFAD Loan*) that can be selected for investment under RECAF include:

- Forest Monitoring System, such as Terri-I detailed in the above section, or others[195];
- Fire watch towers, water points for forest fire fighting, forest protection stations, forest patrol paths, forest feeder roads; facilities/equipment for forest management and protection;
- Other public infrastructure for forest protection and management (to be determined during project implementation).

Potential (*non-public*) infrastructure for deforestation free VCs and forest protection and management (*using GCF Grant under output 2.1 or 2.4*) that can be considered for investment under RECAF include:

- Forest/fruit/medicine herb seeds and seedlings nurseries for cooperatives/enterprises and farmer groups;
- On-farm water-saving irrigation (drip, sprinkler…) for farmer groups and households;
- Collection points/ warehouse for collecting, pre-processing and packaging of agriculture products for cooperatives/enterprises and farmer groups;
- Other non-public infrastructures for deforestation-free VC and forest protection and management (to be determined during project implementation).

Based on SECAP Procedures (2021), the project is categorized as Moderate in terms of environment and social risks, because it is envisaged that the infrastructure investments for deforestation-free value chains and forest protection and management under RECAF are small-scaled with the following criteria:

- Small dam or reservoir construction (dam wall height below 9 metre, and/or with a reservoir below 100,000 m^3);
- Small-scale irrigation schemes rehabilitation/development (below 300 hectares per scheme[196]);
- New construction, rehabilitation or upgrade of rural roads (Annual Average Daily Traffic below 400 vehicles per day);
- Economic or physical displacement (e.g. land, potable water, water for other uses) less than 10 per cent reduction in farmer/community's assets; or physical resettlement of less than 20 households.

Considerations will be taken into account to address potential effects related to climate change. The invested infrastructures will be designed taking into account changes in temperature, hydrology and other extreme climate conditions predicted for the medium term. Climate resilient measures for infrastructure schemes are:

- Sufficiency of road embankment height to avoid floods;

- Lining of road side drainage especially along hills; Improvement of drainage on valley side to reduce erosion effect;

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[195]Applications and facilities of remote sensing and A.I technologies using satellite images to serve the management and monitoring of forest resources changes for warning on deforestation plots, forest fire, chainsaw sounds, and for forest inventory.

[196] Based on classification of irrigation schemes under Decree 67/2018/ND-CP. According to Decree 40/2019/ND-CP and Decree 18/2015/ND-CP on detailed provisions and guidance for implementation of Law on Environment Protection, EIA is not required for irrigation system serving less than 500 hectares.

- Planting and managing protective forests for watershed areas of reservoirs;
- Erosion control measures by hard and/or soft structure (e.g. planting vetiver grass on embankment slopes);
- Using heat-resistant materials;
- Using renewable energy where applicable, etc.

The detailed selection criteria of infrastructure investments for deforestation-free value chains and/or forest protection and management were drafted in *Annex 3*. Using the above criteria, it is estimated through field consultations that about 12,000 hectares of agricultural land (fruit tree, coffee, pepper...) are guaranteed with more efficient irrigation under climate change conditions (drought, storm, frost...); about 180 km of rural roads will be upgraded; 4 provincial forest monitoring systems will be developed/upgraded; various forest protection infrastructure (fire watch towers, water points for forest fire fighting, forest protection stations, forest patrol paths, forest feeder roads) and facilities and equipment for forest protection and management will be established. The total estimated budget for infrastructure investment for deforestation-free value chains and forest protection in 4 project provinces (Dak Lak, Dak Nong, Gia Lai and Ninh Thuan) is US$ 50.7 million[197] including 85% of IFAD financing and 15% of government's financing and contribution from benefiting groups *(Annex 4)*.

Irrigation works (lined irrigation canals and/or piped irrigation systems, irrigation reservoirs, irrigation pumping stations) will contribute to better ensuring water sources, storing fresh water for agriculture cultivation, saving electricity used for pumping, reducing land occupation for canal construction and reducing O&M cost. Piped irrigation systems can increase efficiency of irrigation about 16% - 24% (or on averages saving 20% of water from evaporation and seepage through canals) in comparison with canal irrigation systems[198]. Upgraded rural roads will contribute to reducing the cost of transporting agricultural inputs and outputs, increasing the selling price of agriculture products to producers, and improving market access. Upgraded Forest Monitoring Systems will serve the management and monitoring of forest resources changes (warning on deforestation plots, forest fire, chainsaw sounds), and for forest inventory. Micro weather stations, pest monitoring stations will provide early-warning information to managerial agencies and famers for proactive mitigation measures for crop cultivation. The collection points, pre-processing, and warehouse help increase the quality and value of agriculture products.

10.6 Delivery and maintenance mechanisms for infrastructure investments

Implementation arrangement. The provincial project management units will be established and responsive as the investment owners of public infrastructure investment schemes. Decentralized management of infrastructure investments to District construction investment management boards and/or commune people's committees might be considered as suitable during project implementation. For public infrastructure investments such as irrigation and road, benefiting groups will contribute about 10% of the construction cost in term of land acquisition and site clearance, labor, locally collected construction materials and cash. For non-public infrastructure investments such as forest/fruit/medicine herb seeds and seedlings nurseries, on-farm water-saving irrigations, collecting points/processing/storage facilities, benefiting groups shall contribute higher percentages of the total investment cost. Implementation by communities and using the procurement with community participation are encouraged for the construction of small infrastructure schemes using simple techniques and intensive manual labor.

Operation & Maintenance (O&M). Irrigation reservoirs and irrigation pumping stations are handed over to the district irrigation management station or the provincial irrigation management company for management and operation. Water use groups (WUGs) are established for O&M management of in-

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[197]IFAD loan allocations to provinces: Dak Lak US$8.5 million, Dak Nong US$10.5 million, Gia Lai US$14.0 million and Ninh Thuan US$10.0 million.
[198] Source: **http://cwc.gov.in/sites/default/files/pin-2772017uploaded_1.pdf**

field irrigation canals. O&M groups are established for O&M management of rural roads. Benefiting groups will be responsible for O&M of non-public infrastructures (forest/fruit/medicine herb seeds and seedlings nurseries, on-farm water-saving irrigations, collecting points/processing/storage facilities). O&M groups will set up operation regulations including collecting fees, mobilizing labor days for routine and regular maintenance of invested works. O&M manual with technical and managerial guidelines for community infrastructure schemes will be developed. Trainings on O&M techniques and management will be organized for O&M groups. Forest monitoring systems, micro weather stations and pest monitoring stations will be managed and operated by provincial line agencies under DARD.

Annex 1. List of on-going projects/ programs on agricultural and rural developments, and REDD+ in Central Highland and Ninh Thuan Province

Projects and implementation duration	Location	Funding and Lead agencies	Description
National Target Program on New Rural Development (NTP-NRD), 2016 – 2020 *(The program started from 2010; The NTP-NRP for 2021 – 2025 period are under preparations following approval of investment policy at National Assembly's Resolution 25/2021/QH15 dated 28 July 2021)*	Nationwide	Funding source: Estimated total government financing VND196,332 billion for 2021-2025 period Project owner: MARD and 63 provinces/cities	The national target program on new rural development includes 11 contents: - New rural development planning - Development of socio-economic infrastructure - Restructuring, economic development, raising incomes - Poverty reduction and social security - Innovate and develop effective forms of production organization in rural areas - Development of education and training in rural areas - Developing health, health care for rural residents - Building cultural life, information and rural communication - Clean water supply and rural sanitation - Improve the quality of Party organizations, authorities, and socio-political organizations in the area - Maintain security and rural social order. A commune meeting new rural standards is a commune meeting five criteria groups, including 19 criteria (Decision No. 491 / QD-TTg April 16, 2009): - Planning group: planning and planning implementation;

Projects and implementation duration	Location	Funding and Lead agencies	Description
			- Socio-economic infrastructure group: transportation, irrigation, electricity, schools, cultural and physical facilities, rural markets, post offices and residential houses; - Economic groups and production organizations: income, poor households, labor structure, form of production organization; - Cultural-social-environmental group: education, health care, culture and environment; - Political system group: strong political-social organizational system and security and social order. *By the end of 2020, Ninh Thuan has 27/47 communes and 2 districts achieved new rural standards; Dak Lak has 61/152 communes and 01 provincial town achieved new rural standards; Dak Nong has 28/60 communes achieved new rural standards; Gia Lai has 87/220 communes and 03 districts/towns achieved new rural standards; Lam Dong has 104/111 communes, 5 districts and 2 provincial towns achieved new rural standards.*
Target Program on Agricultural Restructure, Natural Disaster Prevention and Stabilization of People's lives, 2016 – 2020	Nationwide	Project owner: MARD and 63 provinces/cities	Overall objectives: - Support the cultivation and husbandry production in restructuring towards modernization, high added value and sustainability, contributing to the annual production value increased 2.5 – 3% annually for husbandry production, and from 4 – 5% for cultivation production; proactively preventing and mitigating natural disasters and stabilizing the lives of rural people. Components: - Component 1: supporting agricultural economic restructuring, implemented in all localities in the country.

Projects and implementation duration	Location	Funding and Lead agencies	Description
			- Component 2: supporting disaster mitigation implemented in 28 provinces / cities with sea dikes from Quang Ninh to Kien Giang, 19 provinces have river dykes, 45 provinces / cities have reservoirs (WB8 project is implemented in 33 provinces), 12 large islands are densely populated. - Component 3: to support stabilizing people's lives: Decision No. 1776 / QD-TTg dated November 21, 2012, implemented in 54 provinces; Decision No. 64/2014 / QD-TTg implemented in 13 provinces.
The agricultural restructuring plan for the period of 2021-2025 *(Decision 225/QĐ-TTg dated 25 February 2021)*	Nationwide	Lead agency for implementation: MARD	Objectives by 2025: - The added value growth rate in the agricultural sector averages from 2.5 to 3.0% per year. The growth rate of labor productivity in agriculture, forestry and fishery (hereinafter referred to as agriculture) averages from 7.0% to 8.0%/year. - The rate of value of agricultural, forestry and fishery products (hereinafter referred to as agricultural products) produced in the forms of cooperation and association reaches over 30%; the percentage of value of agricultural products produced by GAP processes is over 25%; the rate of value of agricultural products applying high technology reaches over 20%; added value growth rate of processing industry for agricultural products reaches over 8.0%/year; the agriculture land area for organic production is about 1.5 to 2.0% of the total agriculture land area; The growth rate of agricultural product export turnover is about 5.0%/year on average. - The proportion of agricultural laborers in total social labor decreased to about 25%; the rate of trained agricultural laborers reaches over 55%; over 80% of agricultural cooperatives operate effectively; income of rural residents increased at least 1.5 times compared to 2020. - - The proportion of organic fertilizer products in the total fertilizer products produced and consumed is over 15%; increase the number of biological plant protection

Projects and implementation duration	Location	Funding and Lead agencies	Description
			drugs in the list of pesticides permitted to be used to over 30%; forest coverage rate is maintained at 42%, enhancing forest quality. Agricultural restructure for regions: - *Middle South coastal*: Develop drought tolerant crops and regional fruit trees (grapes, dragon fruit, mango, apple, watermelon). To form concentrated areas for the production of high-quality rice varieties, meeting the needs of the market. To develop the cattle grazing (beef, goats, sheep), pigs and chickens in suitable areas, according to the potentials and advantages of the region; develop swiftlet farming in a number of advantageous localities in order to create specialty products with high economic value. To develop afforestation areas associated with the national major wood processing industry; take advantage of having many seaports and convenient transportation to develop the export wood processing industry; protect and develop the coastal protection forest system; develop eco-tourism, cultural and historical tourism. Developing brackish water aquaculture in estuaries and coastal areas, shrimp farming on sand, key areas for shrimp seed production. To rationally organize the exploitation of coastal areas, especially tuna fishing and fin fishing; change the structure of boats, occupations and labor in accordance with natural conditions and marine resources. - *Central Highland*: To develop areas specialized in major industrial crops such as coffee, pepper, rubber and tea; forming high-tech agricultural areas for the production of flowers, vegetables and fruit trees. To develop pig, chicken and cow breeding in the form of large-scale farms, closed value chains, and high technology application; promote organic farming. Protect the watershed protection forest system, ensure the maintenance of biodiversity, protect water sources, and prevent natural disasters; develop intensive afforestation, non-timber forest products (Ngoc Linh ginseng, macadamia...). To develop aquaculture on reservoirs, river basins and streams with traditional culture objects such as fish, freshwater shrimp and cold-water fishes of high economic value.

Projects and implementation duration	Location	Funding and Lead agencies	Description
National Target Program on Socio-economic development in ethnic minority and mountainous areas over 2021 – 2030 period *(The Program is under preparation following approval of investment policy at National Assembly's Resolution 120/2020/QH14 dated 19 June 2020)*	The program is implemented in ethnic minority and mountainous areas, which are communes and villages with a percentage of ethnic minority households of 15% or more	Total cost: VND137,664 billion Project Owner: Committee for Ethnic Minority (CEM)	Objectives by 2025: - Improve socio-economic infrastructure, create livelihoods to solve pressing problems of very few ethnic groups and ethnic minorities with many difficulties for more than 16,100 households; supporting the creation of livelihood models, stabilizing the lives of ethnic minorities in 382 border communes; contributing to increase the average income of ethnic minorities by more than 2 times compared to 2020; - Contributing to reducing the rate of poor households in ethnic minority areas and mountainous areas annually by over 3%; strive to reduce over 60% of communes and villages with special difficulties compared to the 2020 criteria; - 100% of communes have road to the commune center which is convenient to travel in four seasons; more than 2,600km of rural roads have been asphalted and concreted to serve production and people's lives; improve technical and social infrastructure in 1,400 extremely difficult communes (Zone III) and 8,000 extremely difficult villages in Zone II communes in ethnic minority and mountainous areas; providing domestic water for more than 217,600 households; building 800 domestic water supply schemes. Strengthening facilities, equipment and teaching aids at 316 Ethnic Minority Boarding Schools, 1,097 Ethnic Minority Semi-boarding Schools; 6 university and university preparatory schools, 3 regional boarding high schools for ethnic minorities; - Arrange and stabilize population for more than 12,000 unsettled ethnic minority households subject to spontaneous migration; sustainable settlement for more than 1,300 ethnic minority households; stable arrangement of population in extremely difficult areas, border areas and areas at high risk of natural disasters for more than 51,200 households. Address the urgent needs of ethnic minority households including (i) Settlement of residential land for more than 17,400 households; (ii)

Projects and implementation duration	Location	Funding and Lead agencies	Description
			Housing settlement for more than 16,700 households; (iii) Solve livelihoods for more than 227,600 households. - Vocational training for more than 3 million people; create more jobs and increase income for more than 4 million ethnic minority households and poor and near-poor Kinh households in extremely difficult communes and villages. - …
National Target Program for Sustainable Poverty Reduction over 2021-2025 period	Nationwide	Funding sources: Total funding of VND75,000 billion Project Owner: MOLISA (a steering committee for all 3 NTPs established)	Objectives: - The rate of poor households according to the multidimensional poverty line maintains a decrease of 1-1.5%/year; - The rate of poor ethnic minority households decreases by over 3%/year; - 30% of poor districts, 30% of communes with special difficulties in coastal areas and islands escaped poverty, especially difficult situations.
Sustainable Agriculture Transformation Project in Vietnam (VnSAT), 2015-2020 (extended the project closing date to June 2022)	Thirteen provinces and cities: *Dak Lak, Dak Nong*, *Gia Lai*, Kon Tum, *Lam Dong*, An Giang, Can Tho, Dong Thap, Hau Giang, Kien	Funding sources: Total cost of US$301 million including WB loanUS$237.3 million and government financing US$28.8 million)	Objectives: - For Rice Component: With 200,000 hectares of rice production by 140,000 farmers applying advanced technology, farmers' profits per hectare can increase by 30%, the total added value for the whole region is about 40 - 60 million USD/year. - For the coffee component: With 69,000 hectares of coffee of 63,000 sustainable farming households, applying advanced technology, farmers' profits per hectare can increase by about 15 million VND/ha compared to coffee with no sustainable farming or no replanting; the total added value for the whole region is about 48-50 million USD/year (242 - 250 million USD for 5 years). This profit will last throughout the coffee business cycle (20-25 years).

Projects and implementation duration	Location	Funding and Lead agencies	Description
	Giang, Long An, Soc Trang and Tien Giang and 7 provinces selected for the pilot restructuring are: Vinh Phuc, Nam Dinh, Thanh Hoa, Ha Tinh, Binh Dinh, Dong Thap, *Lam Dong*	Project Owner: Agriculture Project Management Board under MARD	- About 140,000 rice farmer households in the Mekong Delta have access to, apply sustainable farming techniques and link along the value chain from production to consumption with businesses and cooperatives and increase their income by about 30%. - About 63,000 farming households in the Central Highlands have access to and apply sustainable farming techniques, replanting coffee and increasing their income by about 20%. - Reducing negative impacts on the environment through reducing the amount of water for irrigation, reducing the amount of fertilizers and pesticides in the process of cultivating rice and coffee. - Strengthen the capacity and institutions for restructuring the agricultural sector in the Ministry of Agriculture and Rural Development and the provinces participating in the project. The project consists of 4 components: (i) Capacity building, institutional implementation of agricultural restructuring; (ii) Support sustainable rice cultivation; (iii) Sustainable coffee cultivation; and (iii) Project Management.
Integrated sustainable landscape management through deforestation-free jurisdiction project in Lam Dong and Dak Nong, 2021-2025	Lam Dong and Dak Nong	Funding: EU, USD 5.957 million Implementation: MARD, Lam Dong, Dak Nong Implementing partners: UNDP (lead), CIAT, EFI, IDH, UNEP	Result 1- Effective governance systems including integrated land use planning and management tools and processes are established at district and provincial levels Result 2 - Sustainable, climate-smart, productive standardized practices are implemented for agriculture and non-timber forest products and services Result 3- The financial environment is enhanced with innovative mechanisms, increased funding and thriving partnerships to support transformation towards sustainable landscapes, with emphasis at provincial and district levels

Projects and implementation duration	Location	Funding and Lead agencies	Description
			Result 4 - Sustainability and scaling up are ensured through robust coordination, monitoring and evaluation, knowledge production and dissemination, and active advocacy at regional and national levels 4 pilot Districts: in Lam Dong: Lac Duong and Di Linh, and in Dak Nong: Dak Glong and Dak R'Lap
Dam Rehabilitation and Safety Improvement Project (DRSIP/ WB8), 2016-2022	34 provinces in Red River Delta, Northern Central, Southern Central Coast, Central Highland Regions (including *Ninh Thuan, Dak Lak, Dak Nong, Gia Lai, Lam Dong*)	Funding Sources: Total cost US$ 443 million including WB IDA loan US$415 million and Government financing US$28 millions Project Owner: Central Project Office (CPO) under MARD, MOIT, MONRE, PPCs	The development objective of the project is to improve the safety of dams under the Government's Dam Safety Program to protect downstream communities and economic activities through prioritizing investment and capacity building. The project specific objectives are (i) Restoration and safety improvement of irrigation works through repair and upgrading of lakes and dams that have been degraded or lacked flood discharge capacity; (ii) Improvement of institutions and policies on management and monitoring of dam safety at the national level, strengthening capacity for management, operation and coordination information mechanism in the basin; and (iii) Improvement of project management and implementation capacity, management of social environment. Project components: (i) Dam Safety Restoration; (ii) Dam Safety Management and Planning; (iii) Project Management Support; and (iv) Disaster Prevention.
Productive Rural Infrastructure Sector Project in the Central Highlands (PRI-CHP), 2014-2019 *(extended the*	*Dak Lak, Dak Nong, Gia Lai*, Kon Tum, and *Lam Dong* provinces	Funding sources: total project cost of US$87.8 million (ADB loan US$80 million, government	The project aims to regenerate and upgrade underdeveloped or outdated productive rural infrastructure (PRI), targeting areas with good potential for agricultural production with existing irrigation schemes. The PRI investments will include irrigation and associated access infrastructure. It directly supports the Government of Viet Nam's National Target Program for New Rural Development, 2010- 2020 (NRD) with activities based on the socioeconomic development plans (SEDPs) of the participating provinces.

Projects and implementation duration	Location	Funding and Lead agencies	Description
project completion date from June 2019 to June 2020)		financing US$7.8 million) Project owner: Agriculture Project Management Board (APMB) under MARD	The project outputs include (i) Productive rural infrastructure improved; (ii) Enhanced capacity to develop, manage, and use productive rural infrastructure; and (iii) Efficient project management.
Water Efficiency Improvement in Drought-Affected Provinces Project (WEIDAP), 2020-2026	Binh Thuan, *Dak Lak, Dak Nong,* Khanh Hoa and *Ninh Thuan* Provinces	Funding sources: total project cost of US$124.26 million (ADB loan US$100, CCF grant US$0.3 million, Water Financing Partnership Facility grant US$0.75 million, Government financing US$ 23.21 million) Project owner: MARD and PPCs of 5 project provinces	The project integrates climate-resilient agricultural practices through a transformational shift in irrigation modernization, including (i) strengthening irrigation management to improve climate resilience, (ii) modernizing irrigation infrastructure, and (iii) supporting efficient on-farm water management practices. Specifically, the project will modernize eight irrigation systems in five drought-affected provinces: Binh Thuan, Dak Lak, Dak Nong, Khanh Hoa, and Ninh Thuan. The modernized systems will enhance the provinces' ability to manage climate variability, improve the water productivity of agriculture, and increase incomes by supporting farmers in growing high-value crops (HVCs) such as coffee, peppers, grapes, apples, dragon fruits, and mangoes.2 The project was predicated by the El Niño Southern Oscillation (ENSO)-induced drought in 2014−2016, which affected Viet Nam's south-central coastal and central highlands regions. The project outputs include (i) Irrigation management services strengthened; (ii) Modern irrigation infrastructure developed; and (iii) Efficient on-farm water management practices adopted
Strengthening the resilience of smallholder agriculture to	Binh Thuan, *Dak Lak, Dak Nong,* Khanh Hoa	Funding sources: GCF grant US$30.2 million,	The project objective is to empower vulnerable smallholders in five provinces of the Central Highlands and South-Central Coast regions of Vietnam – particularly women and ethnic minority farmers - to manage increasing climate risks to agricultural production. To achieve its objective, the project will enable smallholder farmers to adapt to climate-driven rainfall

Projects and implementation duration	Location	Funding and Lead agencies	Description
climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam, 2020-2026	and *Ninh Thuan* Provinces	Project owner: MARD and PPCs of 5 project provinces	variability and drought through implementation of two linked Outputs integrating GCF and co-financing resources from the Asian Development Bank and the Government of Vietnam: (i) improved access to water for vulnerable smallholder farmers for climate-resilient agricultural production in the face of climate-induced rainfall variability and droughts, and (ii) strengthened capacities of smallholder farmers to apply climate and market information, technologies, and practices for climate-resilient water and agricultural management. While this project will use GCF financing to specifically target ethnic minority, women and other poor/near poor farmers, it will use GCF and co-financing resources to build the capacities of all farmers in climate vulnerable areas; as such the project will reach 222,412 direct individual beneficiaries in the five provinces of Dak Lak, Dak, Nong, Binh Thuan, Ninh Thuan and Khanh Hoa.