Japan International Cooperation Agency
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Annex I of the Final Report of the Study on Potential Forests and Land Related to "Climate Change and Forests" in The Socialist Republic of Vietnam

Basic Plan for REDD+ Development in Dien Bien Province




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Abbreviations

AD: Activity Data
AGB: Above Ground Biomass
A/R CDM: Afforestation and Rehabilitation Clean Development Mechanism
BAU: Business As Usual
BCEF: Biomass Conversion and Expansion Factor
BDS: Benefit Distribution System
BEF: Biomass Expansion Factor
BGB: Below Ground Biomass
C: Carbon
CAPD: Center of Agro-forestry Planning and Designing
CC: Climate Change
CBFP: Community- Based Forest Protection
CER: Certified Emission Reduction
CFM: Community Forest Management
COP17: The 17th Conference of the Parties
CPC: Commune People's Committee
DARD: Department of Agriculture and Rural Development
DBH: Diameter at Breath Height
DPC: District People's Committee
EF: Emission Factor
FAO: Food and Agriculture Organization
FCCM: Forest Change Matrix Method
FIPI: Forest Inventory and Planning Institute
5MHRP: Five Million Hectare Reforestation Program
FRD: Forest Ranger Department, FPD
FRS: Forest Ranger Station, FPD
FPD: Provincial Forest Protection Department, DARD
FSIV: Forest Science Institute of Vietnam
GHG: Green House Gas
GIZ: German Company for International Cooperation
HHs: Households
ICRAF: World Agroforestry Centre
IPCC: Intergovernmental Panel on Climate Change
JICA: Japan International Cooperation Agency
KP: Kyoto Protocol
MARD: Ministry of Agriculture and Rural Development
MRV: Measurement, Reporting and Verification
MODIS: Moderate Resolution Imaging Sectroradiameter
NFA: National Forest Assessment
NFI: National Forest Inventory
NPV: Net Present Value
NR: Natural Reserve
NRMB: Nature Reserve Management Board
NRP: National REDD + Program
MRV: Measurement, Reporting, Verification
NTFP: Non-Timber Forest Products

PaMs: Policy and Measures
PPC: Provincial People's Committee
PFMB: Protection Forest Management Board
QA/QC: Quality Assessment/ Quality Control
RCFEE: Research Centre for Forest Ecology and Environment, FSIV
REDD: Reducing Emissions from Deforestation and Forest Degradation
REDD+: Reducing Emissions from Deforestation and Forest Degradation; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon StocksREL: Reference Emission Level
RIL: Reduced Impact Logging
RL: Reference Level
RS: Root Shoot ratio
SCM: Stock Change Method
SFE: State Forest Enterprise
Stdev: Standard Deviation
Sub-DARD: District Agriculture and Rural Development, DARD
Sub-DoF: Sub-Department of Forestry, DARD
Sub-FPD: District Forest Protection Department, DARD
SBSTA: Subsidiary Body for Scientific and Technological Advice
SWOT: Analysis based on Strengths, Weaknesses, Opportunities, and Threats
TW: Total Weight
UNESCO: United Nations Educational, Scientific and Cultural Organization
UNFCCC: United Nations Framework Convention on Climate Change
VFU: Vietnam Forest University
VND: Vietnam Dong
VNFOREST: General Administration of Forestry, MARD
WD: Wood Density
Ws: Weight of Stem
Wb: Weight of Branch
Wl: Weight of Leave
Wr: Weight of Root

Basic Plan for REDD+ Development in Dien Bien Province

Introduction

The Basic Plan for REDD+ Development in Dien Bien Province (hereinafter referred to as the "Basic Plan") was prepared as one of the primary works of the "Study on Potential Forests and Land Related to 'Climate Change and Forests' in the Socialist Republic of Vietnam" (hereinafter referred to as the "Study") implemented by the Japan International Cooperation Agency (JICA) and the Vietnam Administration of Forestry (VNFOREST), under the Ministry of Agriculture and Rural Development (MARD) from September 2009 to March 2012, based on an agreement between the Government of Vietnam and the Japanese Government. The Basic Plan is a portion of the final report of the Study, which was bound as a separate volume.

1. Objectives of the Basic Plan for REDD+ Development in Dien Bien Province

The objective of preparing the Basic Plan is to contribute to the development of the mechanism of REDD+ and other measures, while improving the livelihood of the rural population and maintaining biodiversity in the province, and also to clarify the process of developing REDD+ pilot activities towards realization of their implementation.

For the developing REDD+ pilot activities, it is important to strengthen forest governance to maintain and enlarge the areas of forest plantations, forest protection, and restoration by providing the stakeholders with incentives towards these activities, while considering improvement of the livelihoods of ethnic minorities and conservation of biodiversity. For this strengthening, it is indispensable that the capacity of provincial/local organizations with regard to REDD+ is developed through the implementation of REDD+ pilot activities that are potentially eligible for credit payment. Since the preparation of the basic plan is in a process of implementation, this preparation could play a role in capacity development.

In addition, regarding the plan's standing, the Vietnamese government is now engaged in preparation of the National REDD+ Program (NRP), and also intends to prepare a REDD+ Program for every province, according to the NRP. Therefore, the plan is set for the readiness stage, to contribute to the establishment of the Provincial REDD+ Program in Dien Bien province, and for its future development.

2. Natural and Socio-economic Conditions of Dien Bien Province

This chapter discusses the natural and socio-economic conditions of Dien Bien Province, based on the survey on natural resources and socio-economic conditions for REDD (+) activities (hereinafter referred to as the "Survey"), carried out in May through June 2011 in 40 selected communes of Dien Bien Province.

2.1 Status of the Forestry Land and Forest Resources

This section and its subsections describe the forest conditions in Dien Bien Province. The information provided here will provide a basis for examining the strategic aspects of the implementation of REDD+ in Dien Bien Province.

2.1.1 Land Use Types and Composition of the Forestry Land

According to the statistics in 2010, the total area of Dien Bien Province is 956,290 ha, of which forestry land accounts for 760,350 ha (79.5%), and agricultural production land accounts for 130,003 ha (13.6%), with the remaining accounted for by land used for other purposes, and unused land (Table 2.1). Forestry land is divided into three categories, as shown in Table 2.2: production forest (289,634 ha, or 38.09% of forestry land); protection forest (423,135 ha, or 55.65% of forestry land); and, special use forest (47,581 ha, or 6.26 % of forestry land). Muong Nhe District has the largest forestry land area (216,073 ha, or 28.4% of all forestry land in Dien Bien Province), followed by Muong Cha District and Dien Bien District. Two thirds of the forestry land in the province is in these three districts. Special use forest is found only in the Muong Nhe and Dien Bien Districts in Dien Bien Province.

Table 2.1 Areas of the lands of various land-use purposes in Dien Bien Province

(Unit: ha)

District/City/Town	Total land area	Agricultural production land	Forestry land	Non-Agriculture land	Unused land
Dien Bien Phu City	6,427.10	1,942.00	3,027.44	1334	123.66
Muong Lay Town	11,255.93	1,835.97	8,676.27	675.57	68.12
Muong Nhe District	249,950.43	10,337.56	216,072.90	3897.81	19,642.16
Muong Cha District	177,177.56	13,852.98	159,108.70	2833.3	1,382.58
Tua Chua District	68,526.45	16,511.03	49,087.08	2158.66	769.68
Tuan Giao District	113,776.82	26,242.87	85,152.10	1633.35	748.50
Dien Bien District	163,926.03	16,922.92	120,319.47	6696.33	19,987.31
Dien Bien Dong District	120,897.85	27,687.02	90,100.00	1364.09	1,746.74
Muong Ang District	44,352.20	14,670.84	28,805.90	784.92	90.54
Total	956,290.37	130,003.19	760,349.86	21,378.03	44,559.29
%	100.00%	13.59%	79.51%	2.24%	4.66%

Source: Decision No 2117 on Approval of planning of forestry land by administrative unit

Table 2.2 Areas of the forestry land by categories in Dien Bien Province

(Unit: ha)

District/City/Town	Forestry land Total	Production Forest	Protection Forest	Special Use Forest
Dien Bien Phu City	3,027.44	823.05	2,204.39	
Muong Lay Town	8,676.27	4,061.64	4,614.63	
Muong Nhe District	216,072.90	76,011.80	94,480.10	45,581.00
Muong Cha District	159,108.70	91,331.70	67,777.00	
Tua Chua District	49,087.08	18,900.00	30,187.08	
Tuan Giao District	85,152.10	34,217.30	50,934.80	
Dien Bien District	120,319.47	35,001.76	83,317.71	2,000.00
Dien Bien Dong District	90,100.00	15,110.00	74,990.00	

Muong Ang District	28,805.90	14,176.34	14,629.56	
Total	760,349.86	289,633.59	423,135.27	47,581.00
%	100.00%	38.09%	55.65%	6.26%

Source: Decision No 2117 on Approval of planning of forestry land by administrative unit

2.1.2 Present Conditions of the Forestry Land

Table 2.3 provides data on the forested area in the forestry land, based on the forest distribution map for 2010 prepared by FIPI in the Study. Among the land cover types listed in Table 2.3, those numbered 1 through 8 are forested areas. According to the table, 311,203 ha (40.3%) of the forestry land are forested in Dien Bien Province. Within the forested area, natural forest and plantation forest cover 302,802 ha and 8,401 ha, respectively. The forest carbon stock in Dien Bien is not high; rich and medium forest, combined account for only 2.58% of the total forestry land (6.40% of the forested area within the forestry land). On the other hand, regrowth forest accounts for a large proportion of the forested area: within forestry land, regrowth forest accounts for 75% of the total forested area. This composition (i.e., the large area of regrowth forest and the small area of rich/medium forest) can be explained by the expansion of shifting cultivations.

Table 2.3 Forested area in the forestry land of Dien Bien

(Unit: ha)

	Land Cover Type	Production (ha)	Protection (ha)	Special Use (ha)	Non-forestry land (ha)	Total
1	Rich Forest	274	655	370	11	1,310
2	Medium Forest	1,097	10,180	7,327	441	19,044
3	Poor Forest	1,305	7,233	8,371	1,120	18,030
4	Regrowth Forest	78,178	139,677	14,984	30,931	263,770
5	Bamboo Forest	1,094	643	0	44	1,781
6	Mixed bamboo	10,473	9,389	160	2,836	22,858
7	Limestone Forest	2,755	8,637	0	1,476	12,868
8	Plantation	6,889	1,512	0	2,128	10,529
9	Limestone	962	2,354	0	636	3,951
10	Bare land	139,541	187,799	14,938	77,176	419,454
11	Water body	636	776	0	2,258	3,671
12	Residential	3,564	1,906	0	9,039	14,508
13	Other lands	49,993	57,593	651	54,072	162,309
	Total	296,762	428,354	46,801	182,166	954,083

Source: FIPI 2010

2.1.3 Change of Forest Resources since 1990

In the forest distribution maps from 1990, 1995, 2000, 2005, and 2010, is found that both forested area and carbon stock have experienced a net overall increase in Dien Bien Province. In contrast, the areas and carbon stock of rich forest, medium forest, and poor forest showed a decreasing trend during the same period. Numerically, during the last two decades, the areas of rich, medium, and poor forest decreased by 59%, 66%, and 59% respectively. On the other hand, the area of regrowth forest increased by nearly 800% (29,579 ha in 1990, and 264,172 ha in 2010). This increase is thought to have made a major contribution to the increase of the total carbon stock of the province.

Changes in the forested areas can be analyzed from a different perspective, as shown in Figure 2.1, which analyzes the areas where forest increases, separately from those where forest decreases. In Figure 2.1, "1st D" represents deforestation, while "2nd D" is forest degradation, "enrich" is the increase in forest quality (*e.g.*, change from poor forest to medium forest), and "reforest" is the change from non-forested land to forested land. From this figure, it can be seen that deforestation and forest degradation actually occur, although forested area and carbon stock increase, as a whole. Both "1st D" and "reforest" exhibited increasing trends from 1990 to 2005. However, the "1st D" and reforestation taking place between 2005 and 2010 decreased substantially, compared to those occurring in previous years. This may be due, in part, to the short interval between the two periods of the satellite data analyzed for 2005 and 2010. The former were shot in 2005, whereas the latter were shot in 2008, so that the interval between the two periods is only three years.

Table 2.4 Areas and CO2 stock for each forest type in Dien Bien Province at five points in time between 1990 and 2010

Year	Area/ CO_2 stock	Rich Forest	Medium Forest	Poor Forest	Regrowth Forest	Bamboo Forest	Bamboo/Timber Mix Forest	Limestone forest	Plantation	Total
1990	Area (ha)	3,233	56,106	44,512	29,579	7,627	28,034	13,534	592	183,217
	CO_2 stock (t)	1,878,634	16,547,655	6,167,773	2,920,226	814,920	5,391,611	2,834,283	46,048	36,601,150
1995	Area (ha)	2,927	44,255	43,509	69,588	3,573	27,629	13,540	2,726	207,747
	CO_2 stock (t)	1,700,823	13,052,374	6,028,793	6,870,167	381,763	5,313,720	2,835,540	212,040	36,395,220
2000	Area (ha)	2,146	27,739	27,672	145,978	5,538	27,921	13,274	8,946	259,214
	CO_2 stock (t)	1,288,687	8,222,974	4,109,773	13,538,424	355,030	3,293,525	2,178,482	908,058	33,894,953
2005	Area (ha)	1,537	19,960	17,897	236,023	1,865	22,415	12,922	9,910	322,529
	CO_2 stock (t)	830,316	5,916,960	2,658,016	21,889,459	119,561	2,644,045	2,120,713	1,005,908	37,184,978
2010	Area (ha)	1,312	19,061	18,033	264,172	1,785	22,860	12,868	10,527	350,618
	CO_2 stock (t)	720,568	5,650,460	2,678,214	24,500,079	114,433	2,696,536	2,111,851	1,068,536	39,540,677

Source: Forest distribution maps of 1990, 1995, 2000, 2005 and 2010

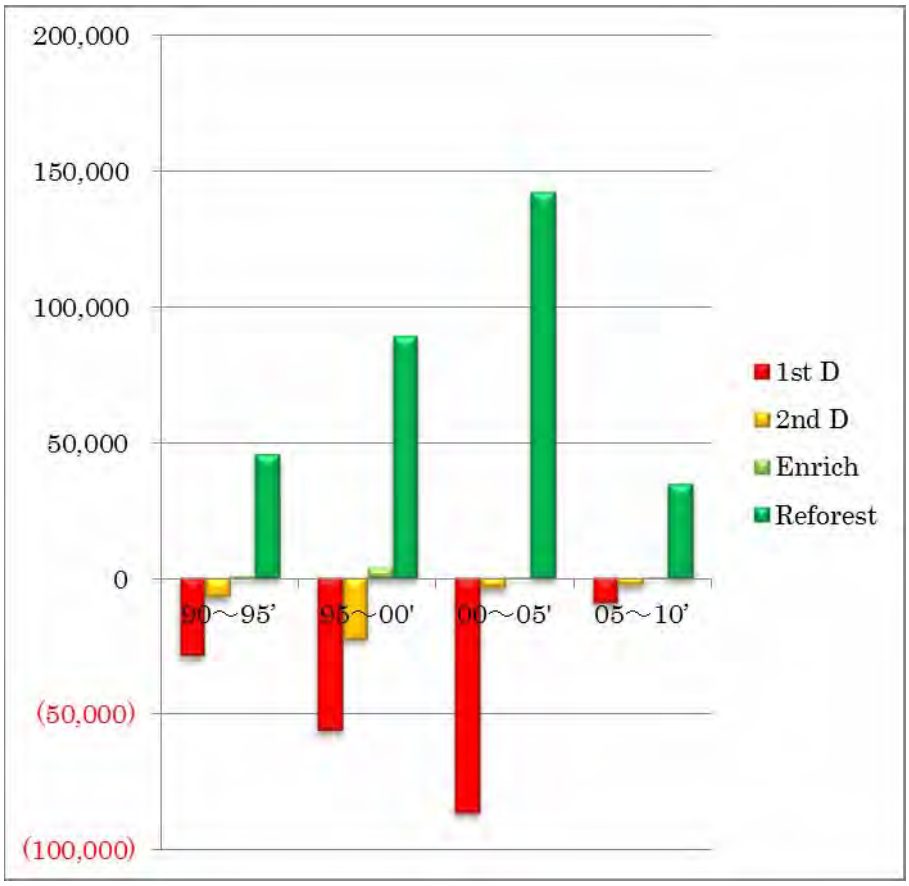

Figure 2.1 Change of the forested areas between 1990 and 2010 (unit: ha)

Estimation of the Unit CO2 stock for Each Forest Type

The CO_2 stock per hectare of each forest type can be estimated, as shown in Table 2.5. The unit volume of each forest type is based on the national forest inventory data, and is calculated separately for each cycle. The biomass conversion and expansion factors (BCEFs) and R/S ratios for rich, medium, and poor forest are estimated based on the results of the survey on forest carbon measurement that took place in April through May 2011 in Muong Nhe Nature Reserve. Since the survey only collected data on rich, medium, and poor forest, the BCEFs and R/S ratios of the other forest types that appear in Table 2.5 are based on the figures provided in the Guidelines for Country Reporting to FRA 2010. The unit CO_2 stock (t/ha) of each forest type is estimated by multiplying the unit volume, BCEF, R/S ratio, carbon fraction of the dried matter (0.47), and CO_2 to C ratio (44/12). The unit CO_2 stock is multiplied by the area to calculate the CO_2 stock of each forest type, as shown in Table 2.4. The unit CO_2 stock of cycle 1 is used to estimate the CO_2 stock of 1990 and 1995. The unit CO_2 stock of cycle 2 is used to estimate the CO_2 stock of 2000. The unit CO_2 stock of cycle 3 is used to estimate the CO_2 stock of 2005. The unit CO_2 stock of cycle 4 is used to estimate the CO_2 stock of 2010.

Table 2.5 Estimated unit CO_2 stock of each forest type

cycle	Parameters	Rich Forest	Medium Forest	Poor Forest	Regrowth Forest	Bamboo Forest	Bamboo/Timber Mix Forest	Limestone forest	Plantation
1	Unit volume (m^3/ha)	374	141	48	33	20	90	98	26
	BCEF	0.7559	1.013	1.400	1.40	2.50	1.00	1.00	1.40
	R/S Ratio	0.1927	0.1982	0.1965	0.24	0.24	0.24	0.24	0.24
	CO_2 stock (t/ha)	581	295	139	99	107	192	209	78
2	Unit volume (m^3/ha)	392	141	45	28	40	59	39	29
	BCEF	0.7453	1.013	1.428	1.40	1.40	1.20	1.40	1.40
	R/S Ratio	0.1927	0.1982	0.1965	0.24	0.24	0.24	0.24	0.24
	CO_2 stock (t/ha)	601	295	133	84	120	151	117	87
3	Unit volume (m^3/ha)	337	140	46	25	147	44	45	28
	BCEF	0.7799	1.015	1.418	1.40	0.90	1.20	1.20	1.40
	R/S Ratio	0.1927	0.1982	0.1965	0.24	0.24	0.24	0.24	0.24
	CO_2 stock (t/ha)	540	293	134	75	283	113	115	84
4	Unit volume (m^3/ha)	345	142	53	31	12	46	64	19
	BCEF	0.7745	1.011	1.359	1.40	2.50	1.20	1.20	2.50
	R/S Ratio	0.1927	0.1982	0.1965	0.24	0.24	0.24	0.24	0.24
	CO_2 stock (t/ha)	549	296	149	93	64	118	164	102

Source: average of the national forest inventory data, FIPI

2.1.4 Driving Force of Deforestation and Forest Degradation

The change in forest conditions, based on interviews with the local administrative staff and farmers carried out in 80 villages in 40 selected communes in the Survey is described in Table 2.6.

Table 2.6 Forest change in the periods 1990 – 2000 and 2000 – 2010

Respondent	Increase	Decrease	No change
Administrative Staffs (commune)	32.69 %	67.31 %	0.00 %
Villagers/Farmers	37.50 %	60.00 %	2.50 %

(Source: Interview carried out in the Survey)

According to results of the interview carried out in the Survey, 67% of administrative staff and 60% of farmers believe that the forested area in their region has decreased since 1990. The main reasons for this decrease are shifting cultivation (51% of answers) and forest fires (46% of answers). Other reasons also exist, such as the construction of roads and hydroelectric power dams, illegal logging, and conversion of the land use. The situation of Dien Bien Province, regarding the major causes of deforestation and forest degradation is described briefly in the following.

(1) Deforestation due to shifting cultivation

Shifting cultivation is a livelihood demand of local people. This activity has been practiced, along with the history of the minority community. However, this activity started to intensify in the period around 1995 to 2005, as the population suddenly increased due to migration. It is found that a rapid population growth requires a greater supply of food, while the means of crop production of the mountainous people are limited to upland cultivation. Thus far, there are no statistical data regarding how many hectares of the forest have been lost due to shifting cultivation since 1990. Through the interviews in the villages, however, the farmers confirm that they deforest land by shifting cultivation. Normally, each household owns 2 to 5 plots of land in the upland fields, which are alternately cultivated. Due to their style and economic conditions, none of these farmers uses fertilizers or any other measures to increase productivity; thus, each upland field plot can be cultivated for only 2 or 3 years, because the soil becomes degraded and crop production declines. From 3 to 5 years are required for the land to be regenerated.

(2) Deforestation due to forest fire

Forest fire is also a major cause of deforestation and forest degradation. Hundreds of forest fire events occur in Dien Bien province annually, although each incident is not large. The main reason for these events is the burning of vegetation by the local people to prepare their upland fields, without following regulations or using improper techniques. As a result, the fire spreads to the adjacent forest. Forest fires usually occur in March to May each year, as this period encompasses the dry season and burning season. Forest fires often occur in the regenerated forest adjacent to upland fields. A less major cause of fires is the indiscriminate use of fire in reed forest, which becomes very flammable during the dry season, by young cowboys, hunters, honey collectors, etc.

(3) Other reasons

In addition to the reasons described above, there are also less major causes of deforestation and forest

degradation. Among these are illegal logging, construction of roads and hydroelectric power dams, landslides, and land use conversion.

a. Illegal logging: Although this activity does not lead to deforestation, it is the primary cause of forest degradation. According to the result of interviews with villagers and local administrative staff, forest quality has deteriorated since 1990. In particular, most of the trees with large diameters have been lost. In addition, logging activities indiscriminately practiced by forestry enterprises are also thought to be a cause of deforestation and forest degradation. Many forestry enterprises were established after 1975. These enterprises attempted to exploit forests with limited capacities for management and production. Consequently, the enterprises exploited the forests thoroughly, without taking into account their ability to recover. As a result, many primary forests have become poor forests. However, from 1995 to the present, the State decided to close nearly the entire forest area of the country. Accordingly, the forestry enterprises were transformed. In addition to the protection and conservation of the remaining natural forests, afforestation was added to their function. However, this movement caused the illegal exploitation of protection forests and special-use forests.
b. Construction of roads: Road constructions do not directly cause deforestation, but indirectly cause forest degradation. A new road is being constructed along the Vietnam-Laos border, according to Decision 37/QD-UBND, dated March 17, 2009 of Dien Bien PPC. This road runs through the core of the Muong Nhe Conservation Area for more than 100 km.
c. Construction of hydroelectric power dams: Construction of the Son La Hydroelectric power dam submerged a large forested area in Son La, Dien Bien, and Hoa Binh provinces. The resettlement that accompanied the construction of the Son La Hydroelectric power dam also caused major immigration into Dien Bien Province, increasing the demand for upland cultivation.
d. Land use conversion: During the period between 1998 and 2005, Dien Bien province introduced coffee to its list of industrial crops. This coffee, which replaced some upland field and degraded forested areas, is concentrated in the Muong Ang district, and is also planted in many other places in Dien Bien province. In 2007, Dien Bien Rubber JSC was established to develop 10,000 ha of rubber in Dien Bien province during the period between 2008 and 2015 in the Muong Nhe, Muong Ang, Muong Cha, and Tuan Giao districts. Thus far, this company has planted more than 4,000 ha of rubber, and large forest areas have been replaced with rubber.

The causes of deforestation and forest degradation can be described in the problem tree shown in Figure 2.2.

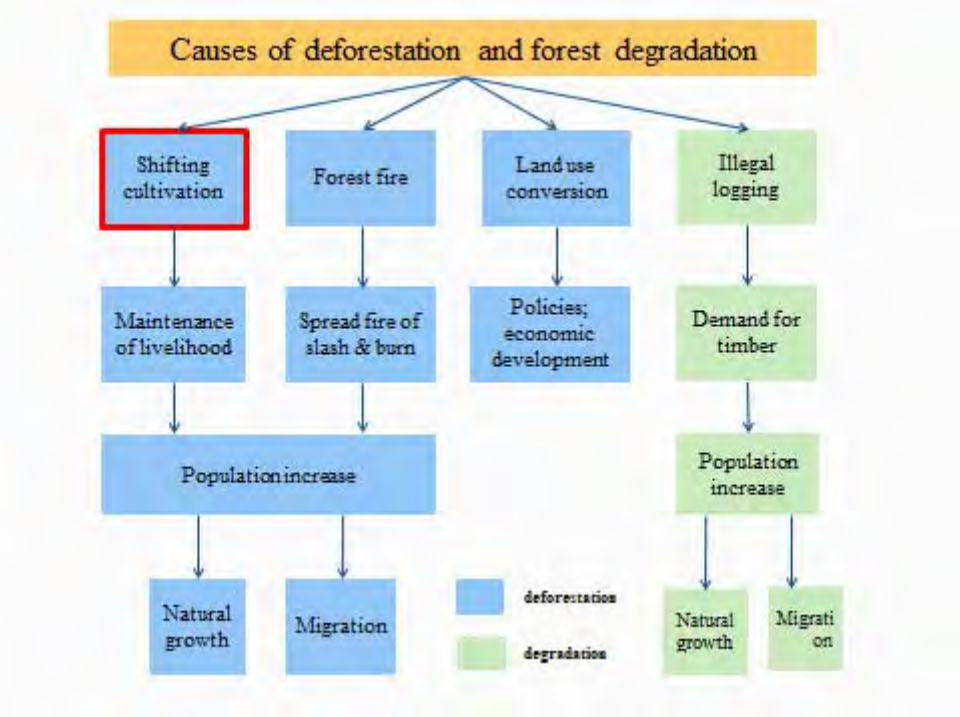

Figure 2.2 Chart of causes of deforestation and forest degradation

Population increase, which is caused by natural growth and migration, appears to be related to the major causes of deforestation: shifting cultivation and forest fire. Roughly 40,000 people have immigrated into Muong Nhe District since 1998. This issue is further discussed in Section 2.2.1.

2.1.5 Other Related Factors

In addition to the topics covered in the previous sections, factors that can affect the natural and socio-economic conditions of Dien Bien province also include the following.

(1) Muong Nhe Nature Reserve (MNNR)

Muong Nhe Nature Reserve (MNNR), the only nature reserve in Dien Bien Province, was established by a decision of the PPC in 2005. The total area of MNNR is 170,490ha, and consists of a core zone (45,581 ha) in 5 communes, and a buffer zone (124,909 ha) in 6 communes. The core zone is divided into three functional areas: a strictly protected zone (2 areas, 25,679 ha); an ecological rehabilitation zone (2 areas, 19,880 ha); and an administrative zone.

Forest restoration/enrichment planting was carried out under the 661 program in the ecological rehabilitation zone. The forestry land near the Lao border is mainly grassland, due to the grazing of large animals. From 2007 to 2011, forest protection with local communities was carried out under the 661 program (32,827 ha, 1,211 households (55 groups) in 19 villages of 5 communes; VND 200,000/ha/year) until 2010 in the Ecological rehabilitation zone.

Many large mammals such as elephants, deer, bears, monkeys, and gibbons used to live in the nature reserve. Biodiversity survey on birds and frogs was carried out by a U.S group in March 2011. A road leading to the

nature reserve was newly constructed in 2006, and is currently under construction towards the Laos – China border.

(2) Flora and fauna of Dien Bien Province

Dien Bien Province has diverse flora, which originates from three distinct floristic areas: 1) Vietnam North - Himalaya – Yunnam – Guizhou flora in the North-West; 2) India – Myanmar flora in the West; and 3) Malaysia – Indonesian flora in the South. The flora of Dien Bien Province is characterized by mountainous topography alternating with limestone mountains in the North-West. Dien Bien Province has 740 species of vessel plants, belonging to 500 genera of 156 families. Currently, 29 plant species are considered to be in need of protection. Four species are currently listed in the Red Book of Vietnam, while another six are under consideration for the new Red Book (DARD 2008).

2.2 Socio-economic Conditions

This section and its subsections describe the socio-economic conditions of Dien Bien Province. The information provided here will form a basis for examining the strategic aspects of REDD+ implementation in Dien Bien Province.

2.2.1 Demography

(1) General situation of Dien Bien Province regarding population increase

A population increase causes an increased demand for food and houses. Therefore, it is expected that more trees will be cut and more land reclaimed for cultivation, to satisfy increasing demands for housing materials and food. In this way, a population increase is considered to affect deforestation and forest degradation. This section discusses the general conditions regarding population growth in Dien Bien Province.

Population data, by district for 2005 through 2010 are based on statistical data from Dien Bien Province (Table 2.7). The annual population growth rate (Table 2.8) is calculated for each district based on Table 2.7. Since population data for Muong Ang Province was not available for 2005, the annual population growth rate between 2005 and 2006 could not be calculated for this province. Similarly, the provincial average of the annual population growth between 2005 and 2006 excluded Muong Ang Province from the calculation.

Table 2.7 Population of each district in Dien Bien Province

Districts/City/Town	2005	2006	2007	2008	2009	2010
Dien Bien	95,182	96,309	99,774	103,057	106,273	108,819
Dien Bien Dong	48,262	50,443	52,524	54,605	56,709	57,678
Dien Bien City	44,213	45,431	46,557	47,683	48,836	50,069
Muong Ang		37,113	38,148	39,457	40,214	41,518
Muong Cha	46,092	47,072	49,312	50,972	52,650	53,522
Muong Lay Town	13,986	14,033	13,971	12,726	11,666	11,304
Muong Nhe	40,817	43,963	47,009	50,878	54,770	57,210
Tua Chua	41,998	43,429	44,760	46,091	47,445	48,450
Tuan Giao	68,577	69,949	71,354	72,809	74,287	75,869
Province Total	399,127	447,742	463,409	478,278	492,850	504,439

(Source: statistical data from Dien Bien Province)

Table 2.8 Population growth rate of each district in Dien Bien Province

Districts/City/Town	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
Dien Bien	1.18	3.60	3.29	3.12	2.40
Dien Bien Dong	4.52	4.13	3.96	3.85	1.71
Dien Bien City	2.75	2.48	2.42	2.42	2.52
Muong Ang		2.79	3.43	1.92	3.24
Muong Cha	2.13	4.76	3.37	3.29	1.66
Muong Lay Town	0.34	-0.44	-8.91	-8.33	-3.10
Muong Nhe	7.71	6.93	8.23	7.65	4.45
Tua Chua	3.41	3.06	2.97	2.94	2.12
Tuan Giao	2.00	2.01	2.04	2.03	2.13
Province Average	2.88	3.50	3.21	3.05	2.35

The population has been increasing in most districts, at an annual growth rate between 2 and 4%. However, Muong Lay Town has been experiencing a population decrease since 2007. This trend is largely due to the immigration of the residents to the outside of the town, associated with construction of the Son La hydroelectric power reservoir. This resettlement policy has reached a larger scale, since 2007 (additional description is provided Section 2.1.4).

On the other hand, Muong Nhe District has experienced a higher rate of population increase than other districts. Historically, most spontaneous immigration takes place in Muong Nhe District (additional description is provided in Section 2.1.4). This fact is considered to contribute to the larger population increase of the district. According to an analysis based on the forest distribution maps for 2000 and 2010 prepared by the Study Team, many communes that have lost large areas of rich and medium forest between 2000 and 2010 are concentrated in Muong Nhe District. It is considered appropriate to relate the higher population growth rate in Muong Nhe District with the severe deforeation and forest degradation of the district.

(2) Characteristics of major ethnic groups in Dien Bien Province

In order to support the issues pointed out as safeguards for REDD+ implementation, it is necessary to understand how each ethnic minority differs from the others, in terms of how they associate with forest resources. A general description of each major ethnic group is provided below.

Figure 2.3 Composition of the ethnic population by districts of Dien Bien Province

Sources: Statistical data of Dien Bien Province except Muong Cha District whose data were obtained by telephone interview

a. Mong Ethnicity

Population: 787,604 persons (Year 1999)

Locality: The Mong are concentrated in Ha Giang, Tuyen Quang, Lao Cai, Yen Bai, Lai Chau, Son La, Dien Bien, Cao Bang, and Nghe An provinces.

Customs and habits: Each lineage lives within a group setting. The head of the village assumes the common affairs for the lineage. Young Mong men and women are free to choose their partners. Marriages are absolutely forbidden between men and women of the same lineage. The matrimonial life of the Mong is very harmonious and divorce is very rare.
Economy: The Mong live mainly on a slash-and-burn agriculture, and also grow rice and corn on terraced fields. The principal crops are corn, rice, and rye. Apart from these crops, the Mong also grow medicinal plants and hemp plants to supply clothing materials.
Association with forests: Before 1990, the H'Mong people in Dien Bien had a nomadic lifestyle, practicing shifting cultivation. In particular, after cultivating one location for 3 to 5 years, the H'Mong would move to another location, burning the rich-forested area to reclaim the new field. In this way, large areas of richer forest were lost. After 1990, sedentarization has been enforced, and most of the H'Mong people of Dien Bien Province have been settled in certain places. According to the result of interviews carried out in the Survey, the H'Mong people at several villages are aware of the importance of watershed forest protection. However, their knowledge is still at the entry level. The elders remind the young not to fell trees in the watershed areas. However, this advice is not strictly followed.

b. Thai Ethnicity:

Population: 1,328,725 persons (Year 1999)
Locality: Lai Chau, Dien Bien, Son La, Hoa Binh, and Nghe An provinces.
Customs and habits: The Thai worship their ancestors, the heavens, the earth, ban, and "muong". They also hold rituals to pray for good crops. The Thai live in houses built on stilts. The Black Thai favor roofs that are shaped like a tortoise carapace, with decorations called "khau cuts" at each ridge. A Thai man first lives with his wife's family for several years until the couple has a child; they then move to the house of the husband's family. The Thai organize funerals as a farewell party to see off the dead to the other world.
Economy: The Thai are experienced in cultivating rice and orchards. They also breed cattle and poultry, make bamboo articles, weave cloth, and produce ceramic ware. The Thai mainly live in mountain valleys. Their main livelihood activity is crop production, among which paddy rice cultivation is the most common. However, all of the Thai people do not practice paddy rice cultivation. Some subsist on a combination of paddy field and upland field cultivations, while others rely only on upland field cultivation. Regardless of the types of cultivation in which they are engaged, their villages are always located near the streams that supply them with water and food.
Association with forests: The issues of forest protection and using forest resources are very well handled by the Thai people. The Thai people in the several villages surveyed developed an effective forest management mode, for community forest management in particular. The village chief is responsible for implementation and direction of forest protection activities, making decisions on the amount of timber and firewood to be exploited by each member, and mobilizing workforces for firefighting once a forest fire occurs.

c. Dao Ethnicity

Population: 620,538 persons (Year 1999)
Locality: The Dao live along the Sino-Vietnamese and Vietnamese-Lao borders and in some midland provinces and provinces along the coastline of northern Vietnam.
Customs and habits: The Dao practice a form of ancestor worship called Ban Ho. Two forms of matrilocals exist: a temporary matrilocal and a permanent matrilocal. Their funerals reflect many ancient customs. In some regions, dead persons aged 12 years old and older are cremated. Their houses are built either on stilts, level with

the ground, or half on stilts and half on beaten earth.

Economy: The Dao subsist mainly on rice cultivation and the growing of subsidiary crops. Sideline occupations include weaving, carpentery, blacksmithy, papermaking, and vegetable oil production.

In the past, the economic life of the Dao mainly involved shifting cultivation, livestock and poultry grazing and forest resource exploitation. As a result, the forest has always been important to them, not only for their physical, but also for their spiritual lives.

Association with forests: The Dao is one of the few ethnic groups that has traditionally shown friendliness towards the natural environment by protecting the forest. In addition to maintaining the forest for timber production, the Dao maintain the forest for food sources such as animals, wood-ears, mushrooms, honey, vegetables, bamboo shoots, etc. They are also skilled at practicing traditional medicine, as the forest provides abundant medicinal materials. For these reasons, none of Dao wants to destroy the forest.

d. Kho Mu Ethnicity

Population: 56,542 persons (Year 1999)

Locality: Nghe An, Lai Chau, Son La, Dien Bien, Thanh Hoa, and Yen Bai provinces.

Customs and habits: The Kho Mu still live a nomadic lifestyle. Their houses are built with temporary and rudimentary materials and have little furniture. Marriage between members of the same lineage is strictly forbidden. The Kho Mu believe in the existence of spirits, and the heavens, the sound of thunder, the earth, the forests, the fields, etc are all assisted by these spirits. Worshipping the spirits of the village and of ancestors is very common. They also pray for bumper harvests and good annual production.

Economy: The Kho Mu subsist on slash-and-burn cultivation, hunting, and gathering. Basketry is also a highly developed skill among the members of this group. The main crops are rice, corn, sweet potato, and cassava. Hunting and gathering is practiced between the harvest seasons, and cattle breeding is also practiced. The Kho Mu's villages are interspersed with the villages of the Thai, H'Mong, and Lao groups. Most of the Kho Mu people in Dien Bien province are now sedentarized, and practice upland cultivation on the allocated areas. Weaving is well developed in some of their communities. They knit items to be used for transporting or storing food, and also sell the woven products to generate income.

Association with forests: The materials which are used for weaving by the Kho Mu people are bamboo and rattan, which can be logged from the natural forest.

e. Ha Nhi Ethnicity

Population: 17,535 persons (Year 1999)

Locality: Lai Chau, Dien Bien and Lao Cai provinces.

Customs and habits: The Ha Nhi language belongs to the Tibet-Burman Group. The Ha Nhi worship their ancestors. They live on rice cultivation on burnt-over land or terraced fields, and are one of the groups which traditionally reclaims mountain slopes to terrace fields, digging canals and building small dams. The Ha Nhi use oxen and buffaloes to plough the fields, and their gardens are often close to their houses. The Ha Nhi have adopted a sedentary lifestyle. Each hamlet contains 60 households. The Ha Nhi consist of many family lineages, each of which comprises many branches. On every Tet (New Year's Day), people of the same lineage gather to listen to the elder men speak about their ancestors. Some lineages recall their ancestors as far back as 40 generations.

Economy: Rice production is a main agricultural activity of the Ha Nhi people, with production taking place in both paddy and upland fields. The Ha Nhi people are one of the ethnic minorities who have traditionally terraced

agricultural fields and constructed irrigation dams. Animal husbandry is highly developed. Handcraft based on wattling and weaving is also highly developed. Most of Ha Nhi people are self-sufficient on their clothes.

Association with forests: The Ha Nhi community in Dien Bien Province has a strict rule to protect the forest. They developed both a forbidden forest and sacral forest for their community, based on their belief in the sacred power of the forest. However, nowadays, they associate with other ethnic groups, and their level of education has improved. Consequently, their belief in the sacred power of the forest is fading, and they have begun destroying the forest in some localities, due to an increasing demand for food and houses.

2.2.2 Status of Income

According to the "Household Living Standards Survey", implemented by the general statistics office for 2010, the household income has been increasing in Vietnam, in recent years, and Dien Bien Province is not an exception. The per capita monthly income in the province increased from 224,000VND in 2004 to 611,000VND in 2010. Thus, it has been increasing rapidly, and is now nearly three times higher than it was six years ago (See Figure 1). According to "The CIA World Fact book for 2011", Vietnam is currently divided into 58 provinces and 5 municipalities, where each of the 5 municipalities is treated administratively as the equivalent of a province. Although its monthly income per capita for 2010 was almost three times higher than that for 2004, Dien Bien Province was ranked 61st among the 63 provinces/municipalities in per capita monthly income for 2010, according to the general statistics office (See Table 1). The highest-ranking provinces/municipalities in per capita monthly income are, in fact, metropolitan areas such as Ho Chi Minh and Hanoi. Thus, there is a clear regional difference in per capita monthly income, and Dien Bien is among the low-income provinces. Furthermore, there is no statistical data on the per capita monthly income of Dien Bien Province by district or commune.

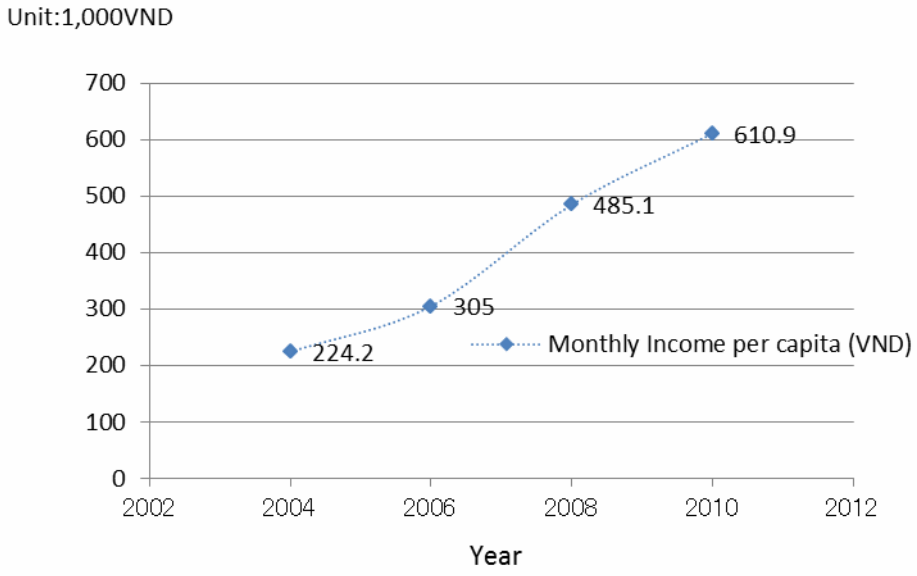

Figure 2.4 Monthly income per capita in Dien Bien (VND)

Table.2.9 Monthly Income per capita by provincial areas

(Unit : 1,000VND)

Regional areas	Provinces / cities	Income	Ranking
South East	Ho Chi Minh	2737	1
South East	Binh Duong	2698	2
Red River Delta	Ha Noi	2013	3
South Central Coast	Da Nang	1897	4
North East	Quang Ninh	1787	5
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North East	Bac Kan	777	59
North East	Cao Bang	749	60
North West	Dien Bien	611	61
North East	Ha Giang	610	62
North West	Lai Chau	567	63

2.2.3 Farming system

The Survey carried out in May through June in Dien Bien Province found that paddy rice, upland rice, corn, cassava, and soybean were the major crops. Although other crops, such as sweet potatoes, peanuts, sesame, etc which are also grown by the local people, their production levels are not significant compared to those of the major crops. Therefore, discussions in this section focus on the major crops. Table 2.10 shows the percentage area cultivated for each major crop, relative to the total agricultural land area. The area of land used for each crop is not stable, but rather, changes each year.

Table 2.10 Percentage of the area cultivated for the major crops to the total area of the agriculture land

District	Paddy rice	Upland rice	Corn	Soybean	Cassava	Other crops	Unused
Dien Bien	40.88	9.80	18.23	2.48	7.35	0.16	21.1
Dien Bien Dong	11.00	22.74	30.19	4.81	7.84	0.06	23.36
Muong Ang	16.02	6.50	12.08	8.07	4.18	0.12	53.03
Muong Cha	9.36	11.74	17.51	2.56	4.58	0.05	54.2
Muong Nhe	5.89	28.04	9.62	2.55	4.13	0.02	49.75
Muong Lay town	26.77	4.56	21.27	0.45	4.01	1.73	41.21
Dien Bien Phu city	42.61	4.10	15.50	0.08	1.45	1.71	34.55
Tua Chua	10.84	10.74	26.60	9.43	0.86	0.06	41.47
Tuan Giao	8.11	11.40	18.50	7.44	3.61	0.03	50.91

Source: Statistical Yearbook 2010 – Dien Bien Statistical Office

In Table 2.10, it may also be seen that the percentage of each crop by area varies among the districts. In those districts where paddy fields account for a larger portion, the area of upland crops is relatively smaller. Conversely, in districts where paddy fields account for a smaller portion, the area of upland crops is relatively larger.

Crop productivity also varies among districts, as shown in Table 2.11.

Table 2.11 Crops productivity (ton/ha)

District	Paddy rice	Upland rice	Corn	Soybean	Cassava
Dien Bien	5.03	2.00	2.43	1.50	10.00
Dien Bien Dong	2.01	1.24	1.71	1.57	8.31
Muong Ang	4.21	1.55	1.41	0.90	6.92
Muong Cha	2.69	1.35	1.81	1.03	7.10
Muong Nhe	2.00	1.35	1.69	1.35	10.50
Muong Lay Town	4.66	1.26	2.37	1.27	6.55
Dien Bien Phu City	6.20	1.31	4.20	1.65	9.80
Tua Chua	2.56	1.30	1.84	1.25	8.40
Tuan Giao	2.88	1.30	2.85	1.39	6.52

Source: Statistical Yearbook 2010 – Dien Bien Statistical Office

The productivity of paddy rice varies between districts. Dien Bien Phu City has the highest paddy rice productivity (6.2 ton/ha), followed by Dien Bien District (5.02 ton/ha), Muong Lay Town (4.66 ton/ha), Muong Ang District (4.21 ton/ha), and so on, while Muong Nhe District has the lowest productivity (2.00 ton/ha). In contrast, the productivities of upland rice and soybean are relatively similar for all districts. The productivity of corn is relatively variable among districts, while the productivity of cassava is relatively similar among districts.

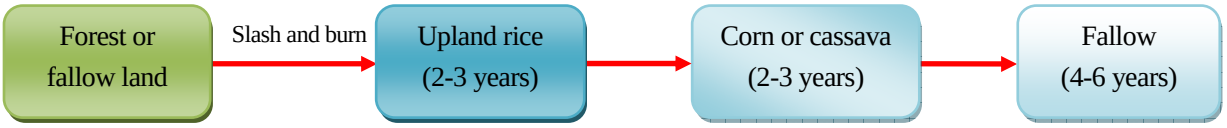
The differences observed in productivity may be caused by natural factors. On the other hand, productivity can also be affected by the farming traditions of the ethnic minorities, knowledge level regarding farming techniques, ability to apply new technologies such as high-productivity varieties, fertilizers, etc.

Shifting cultivation is a traditional method of farming practice of the ethnic minorities in Dien Bien Province. The results of the interviews and field surveys identified four types of upland fields:
1st type: Newly established (but not yet cultivated) upland field, by slashing and burning of forests;
2nd type: Upland field under cultivation (cultivated for 1 to 2 years; will continue to be cultivated);
3rd type: Re-established upland field, by slashing and burning of vegetation regenerated after a fallow period of several years;
4th type: Permanent upland field, which is a type of small garden, located next to a stream or near to houses, with a constant water supply due to irrigation.

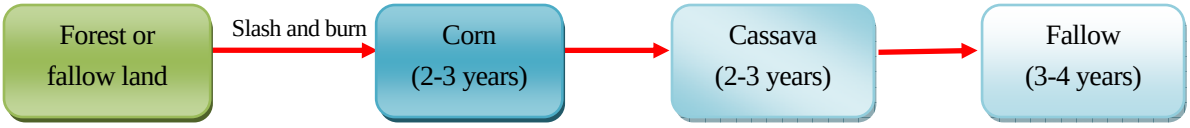
A cycle of the shifting cultivation practiced in Dien Bien Province always begins with slashing and burning of the forest (or regenerated vegetation after a fallow period). The upland field is the cultivated for growing crops (upland rice, corn, cassava) for a period of 3 to 6 years. The duration of the cultivation period depends on the quality of the soil. As the soil quality becomes degraded with use, and crop productivity declines, the filed becomes fallowed. In the meantime, other upland field area is established. The fallow period ranges from 2 to 6 years, depending on the recovery speed of the vegetation.

There are six patterns of the shifting cultivation practice identified in Dien Bien Province, in terms of the crop cycle and duration of each crop period. Each of these patterns is shown in the figures, below.

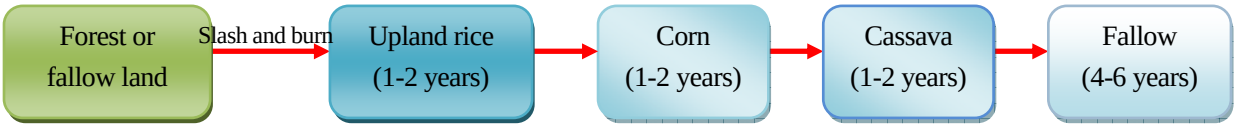
Pattern 1:



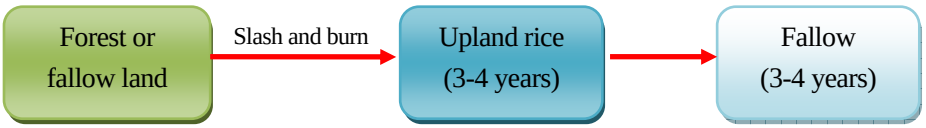
Pattern 2:



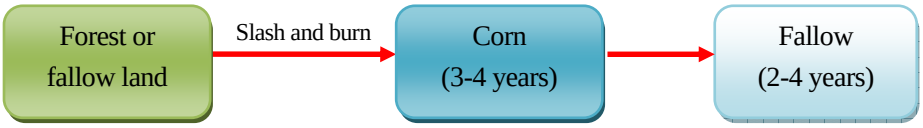
Pattern 3:



Pattern 4:



Pattern 5:



Pattern 6:

The types of crops to be grown and the duration of the period to grow the crops depend on the soil quality of the upland field. For example, the first crop to be grown on fertile upland field after slashing and burning the forest is likely to be upland rice. After harvesting for 1 to 2 years, the upland rice is replaced by corn. After the corn is harvested for 1 to 2 years, it is replaced by cassava, which is harvested for 1 to 2 years. The upland field is then allowed to lie fallow for 4 to 6 years (identified as pattern 3). In a similar pattern, upland rice is harvested for 2 to 3 years, and is then replaced by corn or cassava, which is grown for 2 to 3 years (identified as pattern 1). On the other hand, on the upland field of poor soil quality, corn or cassava only is grown for 3 to 4 years (identified as patterns 5 and 6).

Thus, the farming system (types of crops cultivated, duration of farming and fallow periods, etc) of the ethnic minorities in Dien Bien Province depends on the location, topography, and soil quality of the upland fields. Moreover, the crops to be cultivated in a given upland field also depend on the demand of each household or food market. Therefore, if there is high demand for corn, or if the market price of corn is high, local farmers may grow corn instead of rice on the first year after slashing and burning the vegetation, even in a fertile upland field (identified as pattern 2). On the other hand, local farmers may grow only rice on an upland field if there is a high demand for rice, or if the market price of rice is high (identified as pattern 4). The six farming patterns introduced above do not follow a particular rule. Selection of the crops for cultivation and the duration of the cultivating and fallow periods vary, depending on the following factors:

- Upland field location (distance from the village);
- Upland field quality (both crop selection and the durations of the cultivating and fallow periods are affected);

- Household and market demand (crop selection is affected).

Although the cultivation phase must always be alternated with a fallow phase to rehabilitate the land, due to the rapid population growth and increasing demand for food, the fallow period has been obliged to become shorter, compared to that in the 1990s and earlier, despite the fact that a shorter fallow period downgrades crop productivity and eventurally causes the cultivation period to become shorter. Until the 1990s, the fallow period lasted from 15 to 20 years. In contrast, the current fallow period ranges from 2 to 6 years. The results of the interviews and field surveys show that shifting cultivation using a shorter fallow period (2 to 6 years) is no longer sustainable. Because the land cannot be fully rehabilitated within such a short fallow period, crop productivity decreases. Therefore, it is essential to apply appropriate cultivation practice on upland fields to extend the cultivation period, as well as active land management during the fallow period to assist the land in recovering its fertility for subsequent recurring cultivation periods.

2.2.4 Paddy Field Area per Capita

Although paddy fields are more productive for rice than upland fields, paddy field area is limited, depending on the terrain conditions of each commune and village. In most communes, paddy rice alone does not supply adequate food. Moreover, due to rapid population growth, the demand for food is increasing. As a result, upland field corn and cassava are substituted for paddy rice. Table 2.12 and Figure 2.5 show a declining trend in per capita paddy field area from 2005 to 2010, in the surveyed communes.

Table 2.12 Area of the paddy filed per person for the surveyed communes

NO.	Districts	Communes	Area of paddy field (ha)	Average area or paddy field per person (m^2)					
				2005	2006	2007	2008	2009	2010
1	Dien Bien	Muong Loi	185	588	574	560	535	533	478
2	Dien Bien	Muong Nha	300	904	880	861	840	826	802
3	Dien Bien	Muong Pon	156	309	306	288	286	287	278
4	Dien Bien	Nua Ngam	223	382	386	374	366	361	355
5	Dien Bien	Thanh An	381	631	632	603	594	581	517
6	Dien Bien Dong	Chieng So	123	324	313	300	276	281	279
7	Dien Bien Dong	Keo Lom	125	306	299	292	271	277	275
8	Dien Bien Dong	Na Son	110	257	220	207	199	195	187
9	Dien Bien Dong	Pu Nhi	105	363	353	343	313	301	293
10	Muong Ang	Ang Cang	266		504	462	446	436	423
11	Muong Ang	Muong Dang	158.2		497	485	485	483	462
12	Muong Ang	Muong Lan	138		393	385	376	365	356
13	Muong Cha	Cha Nua	86.4	388	375	363	350	352	154
14	Muong Cha	Hua Ngai	96	193	186	180	174	179	191
15	Muong Cha	Muong Tung	87	282	273	264	255	252	397
16	Muong Cha	Sa Long	119	457	441	427	413	427	329
17	Muong Cha	Si Pa Phin	218	528	510	494	477	449	764
18	Muong Nhe	Cha Cang	55.3	86	123	123	126	123	123
19	Muong Nhe	Chung Chai	66	299	275	184	183	167	154
20	Muong Nhe	Leng Su Sin	10					84	55
21	Muong Nhe	Muong Nhe	85	224	188	193	133	164	147

22	Muong Nhe	Muong Toong	137.2	106	282	282	280	270	247
23	Muong Nhe	Na Bung	145		247	252	240	228	222
24	Muong Nhe	Na Co Sa	55.4					217	187
25	Muong Nhe	Na Hy	190.7	139	418	391	384	380	374
26	Muong Nhe	Na Khoa	118		238	220	219	218	212
27	Muong Nhe	Nam Ke	74.1		161	151	125	206	213
28	Muong Nhe	Nam Vi	52.5					246	221
29	Muong Nhe	Pa My	9.7					41	42
30	Muong Nhe	Pa Tan	60.9		280	237	232	210	246
31	Muong Nhe	Quang Lam	42.9		117	100	92	189	174
32	Muong Nhe	Sen Thuong	35.2					473	434
33	Muong Nhe	Sin Thau	157.7	881	841	833	795	1064	1292
34	Tua Chua	Huoi So	30	134	133	129	124	127	131
35	Tua Chua	Tua Thang	178	453	468	465	456	432	407
36	Tuan Giao	Na Say	130	199	193	190	186	183	177
37	Tuan Giao	Muong Mun	145	308	296	290	282	276	277
38	Tuan Giao	Phinh Sang	110	158	152	149	147	144	141
39	Tuan Giao	Quai Cang	240.49	372	360	353	345	339	334
40	Tuan Giao	Ta Ma	21	74	72	71	70	68	65
Average by commune			***126***	***346***	***342***	***329***	***316***	***311***	***310***

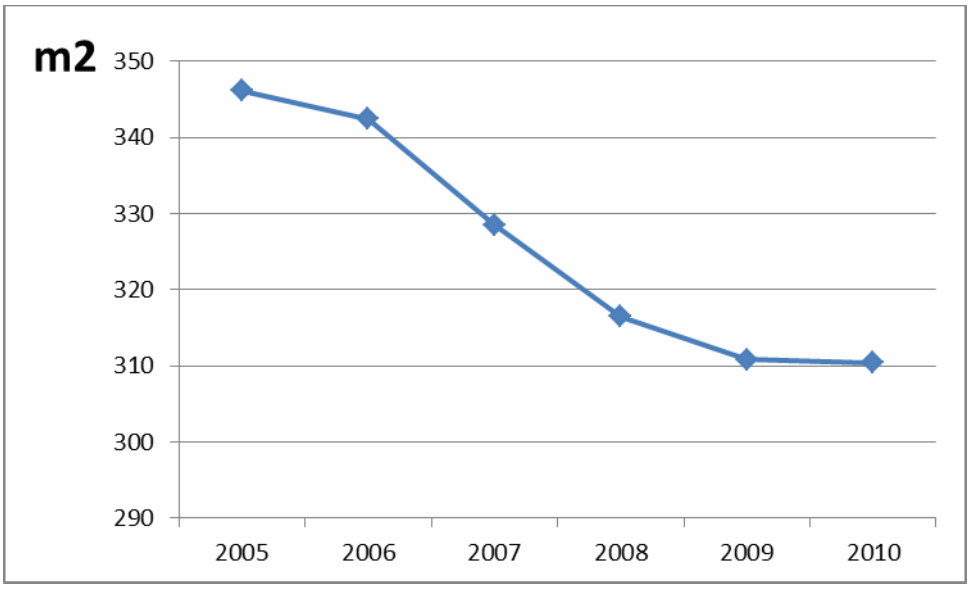


Figure 2.5 Average area of the paddy field owned by a person

The crops grown to substitute paddy rice depend on the socio-economic development strategies of each commune. Local authorities make a plan for their agriculture production, taking into account the market demand. From the interviews and field observations, it was found that all of the surveyed communes have large areas of corn and cassava due to the favorable market conditions for these crops. Therefore, corn and cassava in these communes are not only planted in soil degraded due to shifting cultivation, but also in fertile soil, replacing upland rice.

In most communes where the market conditions are not favorable, corn and cassava are often planted in the upland fields after growing upland rice for 3 to 4 years. Thus, in these communes, the yield of cassava is low, and

it cannot be harvested for long time. Emerging from the fallow period, upland rice can be harvested for 3 to 5 years. According to the commune leaders in the surveyed areas, the fallow period is becoming shorter due to land pressure. It was observed that villages that do not maintain an adequate paddy field area will experience problems with food security. Sales of livestock and vegetable collection in natural forests play important roles for surviving, during periods of food shortage.

2.2.5 Forestry Activities by Locals and the Private Sector

This section describes the afforestation, forest regeneration, forest protection, and logging activities initiated in Dien Bien Province by the local communities, as well as private companies.

(1) Afforestation

In Si Pa Phin commune of Muong Cha District, the local people make their own investments in plantation. *Vernicia montana* was introduced in the commune along with the 327 program. Even after the program ended in 1993, many households continued to plant *Vernicia montana* for firewood. The reason for this individual investment in plantation is the absence of forest on the Si Pa Phin Highland, so that the local people faced difficulty in supplying themselves with firewood. Accordingly, the local people chose to plant *Vernicia montana* (fast growing species) to overcome this difficulty.

The Lam Dien Joint Stock Company has been investing in Si Pa Phin Commune and Phin Ho Commune of Muong Cha District to develop plantation, and plans to construct a paper mill, and to plant *Acacia mangium* and *Vernicia montana* for oil seeds. 2,500 ha of land is leased to the company for 30 years, and tree planting will be carried out for three years. Farmers are given two options: 1) receiving compensation based on government regulations; or, 2) becoming an employee of the Company and receiving a share of the profits.

As of August 2011, approximately 20 companies have shown an interest in investing in the plantation of roughly 30,000 ha in Dien Bien Province, although the investment licenses for these companies have not yet been issued. After receiving a license, each of these companies will have to start the investment within a year in order to maintain the license.

Rubber plantation is under development by the Dien Bien Rubber Joint Stock Company, owned by the state rubber corporation. The area for rubber plantation is controlled by the PPC. Rubber plantation is being developed in most districts (Muong Cha, Dien Bien Phu, Tuan Giao, Dien Bien Dong, and Muong Ang), with the exception of Tua Chua and Muong Lay. Interviews carried out in the Survey found the following situation, associated with the rubber plantation development.

- According to the social survey in Na Say Commune, the rubber company purchases farm land from farmers by paying them 10 million VND/ha, and the farmers then become employees of the company. When harvesting begins 7 years after rubber planting, these farmers will collect rubber resin and sell it to the rubber company.
- The cost for the establishment of rubber plantation (roads, land preparation, planting) is more than 100,000,000/ha.
- Social conflicts in villages between farmers who are positive and negative regarding the pros and cons of rubber plantation development are observed.

(2) Forest regeneration and protection

Most forest regeneration and protection activities are funded by the State. However, in some villages, the locals protect the rehabilitated forest voluntarily. This movement can be seen in Ta Hang Village of Muong Toong Commune (Muong Nhe District), etc, primarily due to the awareness of the local people regarding the role and significance of the forest in their lives. Some individuals who are not substantially dependent on shifting cultivation also actively preserve and protect the existing forest.

(3) Logging and collection of timber and non-timber forest products

Logging and the collection of timber and non-timber forest products are regular activities for local people living in the mountainous communities. The main purposes of these activities include firewood collection, supplying housing materials, harvesting vegetables and medicine, animal hunting, and so on.

Logging and associated activities relating to the collection of timber and non-timber forest products are clearly defined in general and village conventions of forest protection. According to these regulations, all local people are allowed to collect forest products in their living area (village, commune). Depending on the specific forest products and level of logging, people may need to obtain permission from the competent authorities.

- Firewood collection

  Firewood collection is clearly defined in the regulations on forest protection, and the local people are aware that they are allowed only to collect the dried branches and dead trees, but not to fell living trees. Therefore, this activity does not affect forest rehabilitation or development. Recognizing this, many village households use timber and shrubs when making upland fields to meet their daily firewood demands. For the local people, firewood is not to be sold but is only for self-consumption, as there is no market for this type of forest product.

- Supplying housing materials

  This activity takes place quite frequently. According to local regulations, only households which need to build their house inside a village can be allowed to log trees. In order to obtain permission for logging, the applicant must first submit an application which explains purpose of the logging, the scale of the house to be built, and the quantity of wood s/he wishes to exploit (expressed in terms of the number of trees needed, or in volume (m^3)). After obtaining approval from the village leader, the application will be reviewed and approved by the people's committee of the commune, and is then reviewed and approved by the people's committee of the district. After the approval of the people's committee of the district has been obtained, the commune authority will assign the logging zone, under the supervision of the local forest protection board.

- Collection of vegetables and medicines

  Vegetables that local people can collect from forest include bamboo shoots, mushrooms, the flowers of bananas, and some other leaves. Most of these products are for daily use, and are not to be sold, because most villages face difficulties regarding marketing issues. Medicines are collected when needed for normal treatments, or to make daily drinks. Similar to other forest products, medicines cannot be sold. In addition, there is no processing facility.

- Animal hunting

  According to the regulations, hunting wild animals and large species such as deer, muntjac, chamois, etc is strictly prohibited. In a campaign to stop wildlife hunting, the Forest Protection Department and the local authorities confiscated the hunting tools and flint-locks of the H'mong people, in particular, and issued a regulation to prohibit individuals from carrying hunting tools when entering the forest. However, the local people continue to hunt illegally, usually targeting boars, muntjac, geckos, varans, and so on.

2.2.6 Land Allocation

Dien Bien Province is located in the mountainous region, and is one of the poorest provinces of the country. Most local people rely on the forest to maintain their livelihoods. Therefore, the forest is an important facility for enhancing economic activities and mitigating poverty among the local people. Recognizing the importance of the forest for ethnic minorities, in 1994 the Vietnamese government began to allocate forestry land to organizations, households, and individuals, in order to improve and stabilize the lives of ethnic minorities, and to contribute to forest protection and development, which is stipulated in the laws on forest protection and development of 2004.

The program has determined the percentage of forestry land allocated to households and individuals in the selected communes, to verify the role of the local people for use in determining whether or not they participate in the project, and to examine whether or not implementation of the project is successful. Table 2.12 shows the percentage of forestry land owned by different stakeholders in the selected communes:

Table 2.13 Percentage of forestry land allocated to stakeholders

District	Number of selected commune	Percentage of forestry land allocated to stakeholders (in 40 selected communes)				
		Company	Natural Reserve	CPC	Community	Households, individuals
Dien Bien	5			10	7	83
Dien Bien Dong	4			11	1	88
Muong Ang	3			45		55
Muong Cha	5	5		74		21
Muong Nhe	16		22	17		61
Tua Chua	2			41		59
Tuan Giao	5		12	22	1	65

Source: Land inventory data in 2010 –DONRE of Dien Bien

Table 2.13 indicates that a large portion of the allocated forestry land is allocated to households and individuals in the selected communes (up to 88% in Dien Bien Dong District). There is also a large area of forest and forestry land which is currently being managed by the local authorities.

Based on the aforementioned data, it is clear that local people play a vital role in forest management, and will be indispensable as partners in the implementation of REDD+ activities in local regions. Local people will be directly responsible for mitigating deforestation and forest degradation on land they own or co-manage with the local authorities. Their management is essential to maintaining and increasing the forest carbon stock, and also provides an inexpensive but effective avenue for monitoring the forest changes.

The results of the Survey show that most of the forested areas allocated to the local people are of low quality, and mainly consist of regrowth forest areas recovering after shifting cultivation or exploitation. Smaller portions of those areas are rich forest, most of which are “sacral” forests. Therefore, in order to enhance the forest carbon stock, it is necessary to apply active measures for forest development, such as forest regeneration, protection, enrichment, afforestation/reforestation, etc.

Thus, a consideration of who owns the land or to whom the land is allocated is an important criterion in selection of a site for REDD+ implementation. Table 2.13 shows that the percentage of forestry land allocated to stakeholders varies among communes and districts. In Dien Bien District and Dien Bien Dong District, a large portion of the forestry land was allocated to individuals and households, while in Muong Cha District, most of the forestry land is managed by the CPC. The effectiveness of forest management and development also depends on the owners. Interviews and field observation performed in 80 villages of 40 communes indicate that allocation of forest and forestry land to households and communities for protection yield greater efficiency than allocation to local authorities. On the other hand, some of the interviewees also demand financial support to establish village regulation and patrols for forest protection, claiming that the forest protection would not be successful otherwise. Land ownership may affect the REDD+ implementation in Dien Bien, as follows:

In forestry land which is allocated to individuals or households, local people may be willing to participate in REDD+ activities, provided they understand how they will benefit from these activities. On the other hand, in forestry land owned by the CPC, the implementation of REDD+ activities may obtain greater support from local authorities regarding legal procedures.

The forestry lands are allocated to different stakeholders. In total, 68% and 21% of the forestry lands are allocated to households and the CPC, respectively. Besides Dien Bien Phu, land allocation to the CPC is relatively high in Tua Chua District (39%), and low in Muong Nhe District (17%) (Table 2.13)

Table 2.14 Forest land allocation of each district by stakeholder (Unit ha)

District		Total	Company	Government agencies	CPC	Community	Household	Others
Dien Bien Phu	Area	2,268	-	-	2,268	-	-	-
	%	100	-	-	100	-	-	-
Dien Bien Don	Area	69,490	-	-	9,708	136	59,646	-
	%	100	-	-	14	0	86	-
Dien Bien	Area	110,768	-	923	12,257	4,238	93,351	-
	%	100	-	1	11	4	84	-
Tua Chua	Area	36,818	-	-	14,377	-	22,441	-
	%	100	-	-	39	-	61	-
Tuan Giao	Area	65,072	145	8,151	10,143	443	46,191	-
	%	100	0	13	16	1	71	-
Muong Cha	Area	209,639	3,604	16,315	61,955	886	126,877	1
	%	100	2	8	30	0	61	0
Muong Nhe	Area	207,315	-	45,506	34,399	-	127,410	-
	%	100	-	22	17	-	61	-
Muong Lay	Area	7,551	-	2,103	2,351	-	3,097	-
	%	100	-	28	31	-	41	-
Muong Ang	Area	23,888	-	-	7,109	-	16,779	-
	%	100	-	-	30	-	70	-
Total	Area	732,811	3,749	72,998	154,568	5,703	495,792	1
	%	100	1	10	21	1	68	0

3 Conditions for REDD+ Implementation

Implementation of REDD+ should be accompanied by the development of conditions which are suitable for the implementation. This chapter discusses the socio-economic prerequisites that have to be taken into account before implementing REDD+. Two important themes discussed are social acceptability and economic feasibility.

3.1 Social Acceptability for REDD+ Implementation

Local people have been playing a significant role in forest management and development in Dien Bien Province. Accordingly, a high level of involvement of these local people is key for successful REDD+ implementation. However, different regions and ethnic groups have differing traditions, customs, and natural conditions, which may lead to different levels of acceptability for the implementation of REDD+ activities.

Perceptions regarding potential REDD+ activities among local staff and farmers were assessed by interviews carried out in 80 villages of 40 communes in Dien Bien Province. The results of the interviews indicated that different points of view exist between local staff and farmers on the potential REDD+ activities. They assumed that potential REDD+ activities include afforestation, protection of the existing forest, and rubber plantation. Table 3.1 shows the percentages of the interviewees who would agree with implementation of these potential REDD+ activities, among all of the interviewees in each of the 40 surveyed communes.

Table 3.1 Social acceptability for potential REDD+ activities at commune level (percentage)

Commune	District	Afforestation		Protection		Rubber plantation	
		Staff	Farmer	Staff	Farmer	Staff	Farmer
Muong Loi	Dien Bien	100	0	100	100	0	0
Muong Nha	Dien Bien	100	100	100	100	0	0
Muong Pon	Dien Bien	100	100	100	100	0	0
Nua Ngam	Dien Bien	100	100	100	100	0	0
Thanh An	Dien Bien	100	100	100	100	0	0
Chieng So	Dien Bien Dong	100	100	100	100	0	0
Keo Lom	Dien Bien Dong	100	100	100	100	0	0
Na Son	Dien Bien Dong	100	50	100	100	0	0
Pu Nhi	Dien Bien Dong	100	50	100	100	0	0
Ang Cang	Muong Ang	100	100	100	100	0	0
Muong Dang	Muong Ang	50	100	100	100	0	0
Muong Lan	Muong Ang	100	100	100	100	0	0
Cha Nua	Muong Cha	100	0	100	100	100	0
Hua Ngai	Muong Cha	100	100	100	100	50	0
Muong Tung	Muong Cha	50	100	100	100	50	100
Sa Long	Muong Cha	100	0	100	100	100	50
Si Pa Phin	Muong Cha	50	100	100	100	100	100
Cha Cang	Muong Nhe	100	100	100	100	0	0
Chung Chai	Muong Nhe	100	100	100	100	0	0
Leng Su Sin	Muong Nhe	100	0	100	100	0	0
Muong Nhe	Muong Nhe	0	0	100	100	0	0
Muong Toong	Muong Nhe	50	50	100	100	0	0
Na Bung	Muong Nhe	0	0	100	100	0	0
Na Co Sa	Muong Nhe	0	0	100	100	0	0
Na Hy	Muong Nhe	50	50	100	100	0	0
Na Khoa	Muong Nhe	100	0	100	100	0	0
Nam Ke	Muong Nhe	100	0	100	100	0	0
Nam Vi	Muong Nhe	0	0	100	100	0	0
Pa My	Muong Nhe	100	0	100	100	0	0
Pa Tan	Muong Nhe	100	100	100	100	0	0
Quang Lam	Muong Nhe	100	0	100	100	0	0
Sen Thuong	Muong Nhe	100	0	100	100	0	0
Sin Thau	Muong Nhe	100	100	100	100	0	0
Huoi So	Tua Chua	50	100	100	100	0	0

Tua Thang	Tua Chua	100	100	100	100	0	0
Na Say	Tuan Giao	0	100	100	100	0	0
Muong Mun	Tuan Giao	100	0	100	100	0	0
Phinh Sang	Tuan Giao	0	0	100	100	0	0
Quai Cang	Tuan Giao	100	100	100	100	0	0
Ta Ma	Tuan Giao	100	100	100	100	0	0

Source: Interviews with the local staffs and farmers of 40 communes in Dien Bien Province

From the above table, it can be seen that the local people are interested in protection of existing forest. In fact, 100% of the local staff and farmers interviewed indicated that they would agree on implementation of this activity. Some of the reasons for this agreement are:

- Only rehabilitated forest and poor natural forest remain near the villages, and little medium or rich forests still remain, even though the needs of the local people for timber, fuel wood, and other forest products are increasing due to increasing population. Therefore, the forest needs to be protected, so that it can continue to provide forest products to support the lives of the local people.
- Protection is the simplest and most effective way of conserving the forest resources, and brings with it both long-term and short-term benefits. Nowadays, most local staff and farmers are aware that the forest protects their lives.

In 28 of the 40 selected communes, all of the interviewed local staff answered that they would agree with the implementation of afforestation. Furthermore, in 6 of the selected communes, half answered that they would agree with the afforestation. However, in the remaining 6 communes, none of the interviewed local staff answered that they would agree, for various reasons, including “no more upland fields remain”, “land must be used for farming to meet the food demands of the local people”, etc. In contrast, regarding the interviewed farmers, all answered that they would agree on implementation of the afforestation in only 21 of the 40 selected communes. Overall, more farmers disagreed with implementation of the afforestation than the local staff. This may be due to fears among the farmers that they will not benefit from the plantation, but instead will lose their land for farming. Furthermore, most of the local staff and farmers answered that compensation for the loss of agricultural products caused by the implementation of afforestation is critical for effective implementation. Although they agree with the implementation of afforestation, the farmers are concerned about their rights and benefits. Therefore, the implementation of afforestation for REDD+ should take into consideration how the activity can support the lives of the farmers.

Neither the local staff nor farmers showed an interest in planting rubber trees. In most of the communes surveyed, none of the local staff or farmers answered they would agree with planting rubber trees. According to the result of the interviews, this activity would be only accepted in Muong Cha District. This fact should be taken into account when the activity is actually planned as a potential REDD+ activity.

3.2 Economic Feasibility for REDD+ Implementation

This section discusses how the implementation of REDD+ is economically feasible, based on an assessment carried out in the Survey, undertaken in 40 selected communes of Dien Bien Province. Economic feasibility is accessed based on whether or not the economic value of the carbon stock gained by the REDD+ activities can exceed the economic value gained by the practice of traditional production activities. If any model associated with REDD+ implementation produces a higher economic value than the agricultural production model, it is

regarded as economically feasible. On the other hand, if the economic value earned by implementation of a REDD+ activity fails to compensate for the replaced agricultural production value, the activity is considered as economically infeasible.

This assessment of the economic feasibility of REDD+ activities takes only upland production into account. Therefore, income from the paddy rice is excluded from this examination of economic feasibility.

Basic production costs refer to initial expenditures on seed, fertilizer, herbicides, pesticides, etc per hectare. These costs are determined based on the farmers' answers to the interviews carried out in the 40 selected communes. The basic production costs are estimated below.

Table 3.2 Basic production costs per hectare (Unit: USD/ha/year)

Crop	Seed	Fertilizer	Pesticide	Herbicide	Total Cost
Upland rice	34.06	0.00	0.00	24.33	58.39
Corn	43.80	97.32	0.00	0.00	141.12
Soybean	175.18	145.99	72.99	0.00	394.16
Cassava	0.00	0.00	0.00	0.00	0.00

(Source: interview)

The net profit from each of the major crops can be estimated, as follows.

Table 3.3 Revenue, cost and net profit for the major crops (Unit: USD/ha/year)

Crop	Revenue	Cost	Net Profit
Upland rice	481.30	58.39	422.91
Corn	411.74	141.12	270.62
Soybean	1,109.17	394.16	715.01
Cassava	368.98	0.00	368.98

(Source: interview)

As shown in the above table, an estimated amount of profit remains after deducting costs from revenue:

- Upland rice: the revenue is estimated at USD 481.30/ha/year; after deducting the costs, the net profit becomes USD 422.91/ha/year, which is seven times higher than the initial costs;
- Corn: the revenue is estimated at USD 411.74/ha/year; after deducting the costs, the net profit becomes USD 270.621/ha/year, which is roughly twice as high as the initial costs;
- Soybean: the revenue is estimated at USD 1,109.17/ha/year; after deducting the costs, the net profit becomes USD 715.01/ha/year, which is roughly twice as high as the initial costs;
- Cassava: the revenue is estimated at USD 368.98/ha, which is also the net profit, as there are no initial costs.

Table 3.3 shows only the average annual income per hectare for each crop. In upland production, however, a portion of the agriculture land cannot be cultivated constantly. In particular, each cultivation period (2 to 4 years) has to be alternated with fallow periods (3 to 5 years). Therefore, calculation of the net profit on the upland production for a specific field must take into account the cycle of cultivation and fallow. Assuming a cultivation period of 3 years, followed by a 4 year fallow period as an average cycle, the average annual income from the upland production can be calculated, by multiplying the figures in Table 3.3 by 3, and then dividing by 7. Based on this method, the average annual revenue, cost, and net profit on upland cultivation can be estimated, as shown in the table below.

Table 3.4 Farm productivity of upland cultivation for the major crops (Unit: US$/ha/year)

Crop	Revenue	Cost	Net Profit
Upland rice	206.27	25.03	181.24
Corn	176.46	60.48	115.98
Soybean	475.36	168.93	306.43
Cassava	158.13	0.00	158.13

The amounts of net profit estimated in the above table are the decisive points, in making REDD+ implementation economically feasible. In particular, it is necessary that these activities earn a carbon benefit which exceeds the net amount of profit obtained by upland cultivation. If the carbon benefit to be earned from the REDD+ activities is less than the opportunity cost, it will then be necessary to consider providing the farmers with additional benefit, by separately improving their livelihoods, etc.

The following is an example of the feasibility assessment of implementation of a REDD+ activity. The protection of the re-growth forest developed by the 661 program is one of the six potential REDD+ activities proposed in this document (Chapter 6). Assuming that this regrowth forest will otherwise be destroyed after termination of the 661 program, the carbon benefit to be earned from this activity can be estimated, as follows:

31 m^3/ha (emission factor for the regrowth forest) x 1.40 (BCEF) x (1 + 0.24) (R/S ratio) x 0.47 (carbon fraction) x 44/12 = 93 CO_2t/ha

If the price of the carbon credit is estimated at 5 USD/CO_2t (carbon price for the avoided conversion under the voluntary market, Forest Trends, 2011), the total profit would be:

93 Co_2t/ha x 5 USD/CO_2t = 465 USD/ha

This amount is larger than the net profit for any crop provided in the above table. However, the net profit provided for each crop is based on annual profit, while the benefit to be earned from the protection activity is only for a single point in time. If the farmers are advised that they will receive 465 USD/ha due to the REDD+ activities on a one-time basis only, it will be more attractive for them to instead continue cultivating the upland fields for crops. Thus, it will be crucial to provide the farmers with additional, supplemental benefit from the REDD+ activities.

4 Forestry Policy/Program and Institutional Framework in Dien Bien Province

This chapter illustrates the forest-related policy and programs that have been implemented, are being implemented, or will be implemented in Dien Bien Province. The policy and programs introduced in this chapter can provide a basis for developing potential activities for REDD+ in Dien Bien Province. This chapter also explains the basic institutional framework associated with forest management in Dien Bien Province.

4.1 Review of Program 661: The Five Million Hectare Reforestation Program (5MHRP)

The Five Million Hectare Reforestation Program (5MHRP), also called the 661 Program, was implemented from 1998 to 2010. This program specified the following project targets, for the growth of 5 million ha of forest:

(1) To plant 5 million ha of forest, and to protect and restore the existing forest area, to increase forest cover and

help to ensure a secure environment, reduce natural disasters, increase water holding capacity, and preserve the genetic stock and biodiversity;

(2) To put the effective use of bare land under preservation, create more employment, contribute to poverty reduction and sedentary living, increase income for mountain dwellers, and achieve socio-political stability, defense, and security, especially in border areas;

(3) To provide timber for paper, veneer, and fuel, as well as other forest products for domestic consumption and exportation, and to boost the development of forest product processing industries to make forestry an important industry, contributing to the socio-economic development of the mountainous areas.

The activities of the 661 Program can be broken down into three types of activities, as follows: natural forest protection, forest restoration, and afforestation.

(1) Forest restoration

This activity can be further broken down into two types of activities: preservation of bare land, and assisting natural regeneration via enrichment planting. Due to unsuccessful results, the latter was not implemented after 2005. The preservation activity included in this scheme is simply to leave the bare land untouched, aiming to upgrade the land condition to regrowth forest. The duration of the restoration period was set at 5 years. After this restoration period, successful areas may then continue treatment for natural forest protection. The figure below shows the areas of the land in which this activity was implemented, annually.

The numbers provided for the years from 2011 through 2015 are derived from the "Forest protection and development plan for 2011 to 2020 in Dien Bien Province", which replaced the 661 Program.

Restoration is considered to be the most feasible of all of the activities for the northwest areas in Vietnam. Furthermore, the cost for restoration is not as high as that for plantation.

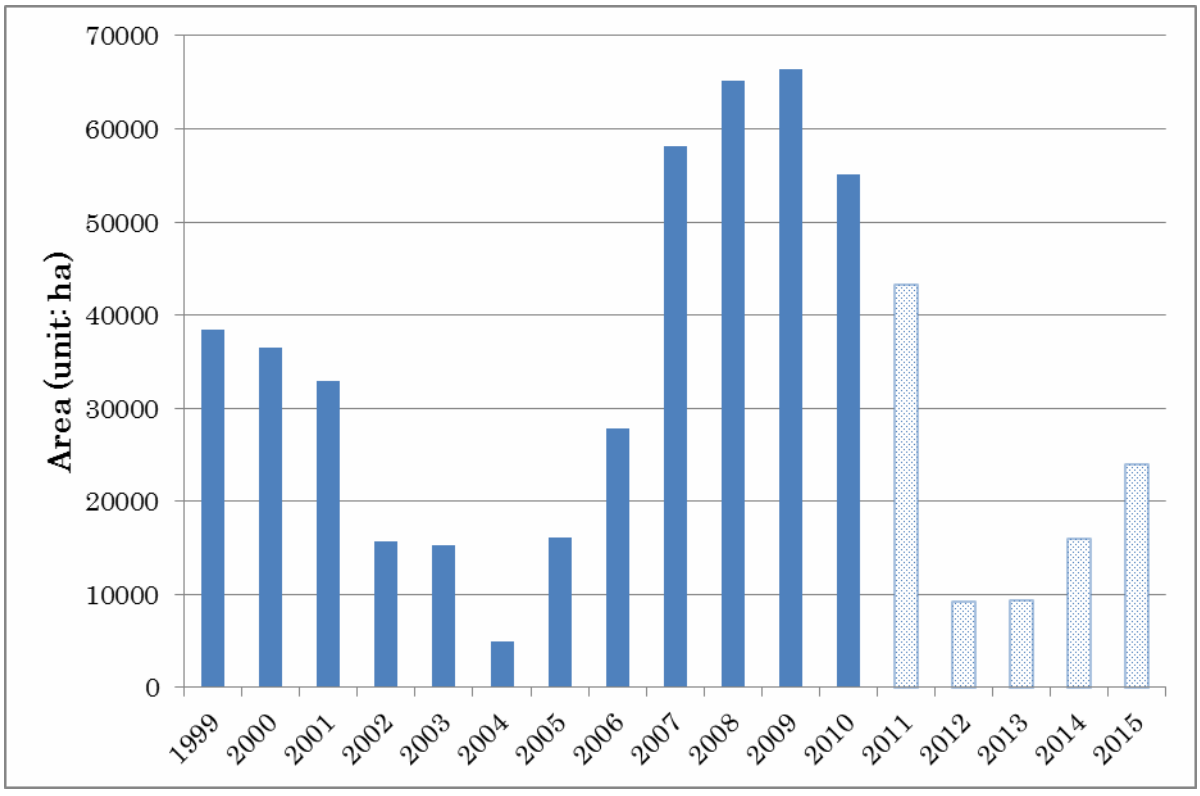


Figure 4.1 Forest restoration by the 661 program (2002-2010) and forest development plan (2011-15)

(2) Natural forest protection

This activity involves protecting the natural forest. The areas contracted for protection are mainly in designated protection forest areas of critical importance, such as watershed areas, hydropower stations, irrigation works, and communes. A forest area to be protected is assigned to each participant, which in many cases are local people. The participants receive a reward for protecting the forest, which is 200,000 VND per hectare per year. The duration of the protection period at a given site was set at 5 years. Some of the forest protection areas are continuations of earlier forest restoration. This activity started in 2008 in Dien Bien Province. The total areas of natural forest protected in 2008, 2009, and 2010 were 32,108 ha, 52,689 ha, and 70,896 ha, respectively.

(3) Afforestation

This activity consists of three stages: planting the seedlings in the first year; application of tending treatment in the second to fourth years; and, protecting the young forests in the fifth to ninth years. The participants receive monetary compensation and technical training, along with this activity. According to the report on the evaluation of the 661 Program prepared by the VFU, the success rate was 56.3%, which is not as high as that of either forest restoration or natural forest protection. The main reasons for the relatively unsuccessful results include a lack of finance and the use of improper techniques.

The main planted species include: *Acacia mangium*, hybrid acacia, *Pinus kesiya*, *Cunninghamia lanceolata*, *Mangletia conifera*, *Dalbergia hupeana*, bamboo *(Dendrocalamus membranceus)*, and *Senna siamea*. Mixed plantations were also largely established in the protected forest areas.

The area of each activity implemented from 2002 through 2010 under the 661 Program is shown in Table 4.1. It can be seen that the implementation of forest restoration and natural forest protection increased dramatically since 2008. Compared to these activities, the area of afforestation activities is relatively stable throughout this period, although the implemented area itself is smaller, overall. The annual area planted between 2004 and 2010 ranges between 400 ha and 1,100 ha (1,093 ha/year on average).

In fact, Project 661 contributed to poverty reduction, socio-economic development, and infrastructure build-up in Dien Bien Province. It also provided support by raising public awareness of the role and value of forests to the ecosystem and socio-economic development.

Environmentally, the project contributed to ensuring environmental security, reducing risks of natural disasters, increasing bio-chemical capacity, and conserving the gene stock and biodiversity.

The forest protection and development helped to create a supply of timber as materials for paper, veneer, fuel wood, and products for domestic consumption. It also supported exports, and boosted the development of processing industries, as contributions to the general socio-economic development of mountainous areas.

Table 4.1 Implementation of the 661 program during 2002 and 2010 (unit: ha)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Forest restoration	16,282	15,328	4,983	16,088	27,769	58,184	65,106	66,397	55,066
Natural forest protection	0	17,742	0	0	0	0	32,108	52,689	71,006
Afforestation: plantation	1,710	2,279	1,046	781	447	902	583	624	1,120
Afforestation: tending	3,713	4,371	3,222	3,012	2,418	1,610	946	552	537
Afforestation: protection	6,724	8,069	4,555	4,102	3,504	3,646	3,361	3,064	2,577

4.2 Forest Protection and Development Plan (FPDP) for 2009 – 2020

According to the Forest Protection and Development Plan (FPDP) for 2009 – 2020, Sub DOF of Dien Bien Province plans: 1) protection of 526,770 ha (including existing forests, plantations after maintenance following

forest restoration); 2) zoning for each forest category; 3) forest restoration for 148,543 ha of natural forests; 4) afforestation of 92,363 ha (including rubber (20,000 ha), special-use forest (1,688 ha), protection forest (18,299 ha), and production forest (52,376 ha)); 5) plantation of 4.55 million trees (equivalent to 30,000 ha) in farm lands; and 6) logging with an average annual volume of 100,000 – 150,000 m^3 (Table 4.2). Taking the real conditions into account, by 2008 the forest cover was 41.6%; therefore, the targets of 44% by 2010 and 65% by 2020 are considered reasonable, as shown below.

The plan for 2009 – 2020 was based on land use planning in combination with an assessment of provincial natural, social, and economic features, and regional and national forestry development strategies. Forest farming associated with processing industries may contribute to stable socio-economic development and enhanced economic growth, in general, helping to increase revenues for the provincial budget. Forest development also helps to conserve the bio-diversity in the area, in order to improve the capacity for eco-system protection and landscaping.

Table 4.2 Forest Protection and Development Plan 2009-2020

Period	Forest Protection (ha)	Plantation (ha)	Forest restoration (ha)	Forest cover target	Timber harvest (m3)
2009 – 2010	380,682	11,350	27,675	44%	97,000
2011 – 2015	422,174	43,587	72,858	55%	150,634
2016 – 2020	526,770	37,426	48,010	65%	
Total	1,329,626	92,363	148,543		

Prioritized projects in the Dien Bien Forest Protection and Development Plan: 2009-2020

In order to implement the plan as expected, priority should be given to the following nine projects:

1. Border establishment by forest type
   - Objective: Boundary marking (protection forest, special-use forest, and production forest) for stable forest stands.
   - Size: Planned area for forestry (760,349 ha): plantation (47,581 ha), special-use forest and protection forest (423,135 ha), and production forest (289,733 ha).
2. Forest land allocation and leasing
   - Objective: To review all lands planned for forestry (60,349 ha)
   - Details: To review the targeted persons, procedures, and documents of forest allocation, and complete the granting of forest land use right certificates.
3. Forest valuation and land pricing for forest development by joint ventures
   - Objective: To harmonize the interests of investors and land owners, and to develop a uniform mechanism for capital investment for land use rights.
   - Size: Projects on production forest development are to reach 200,000 ha by 2010.
4. Agroforestry Rubber plantation development
   - Objective: To develop rubber plantation by agro-forestry.
   - Size: A total area of 20,000 ha in Muong Nhe, Muong Cha, Dien Bien, Dien Bien Dong, Muong Ang, and Tuan Giao Districts and Dien Bien Phu City.
5. Review and revision of the 661 Project at the local level
   - Objective: To review the performance of implementation by the 661 Program over the past years, highlighting achievements and discovering shortcomings, and based on the results, to propose a size and task for each project.

- Size: A total of 526,711 ha, under 10 projects.

6. Muong Nhe Nature Reserve conservation and development
   - Objective: To preserve and maintain natural assets (*e.g.*, fauna gene pools), to rehabilitate forest and develop tourism, and to conduct scientific research.
   - Size: The targeted area is 45,581 ha in 4 communes (Nam Ke, Chung Chai, Sin Thau, and Muong Nhe).
7. Expansion of Muong Phang historic-cultural forest sites
   - Objective: To protect and rehabilitate the forest eco-system for the site, and to improve the natural landscape for the purpose of tourism.
   - Size: 2,000 ha in Muong Phang Commune.
8. Production forest development with NTFPs
   - Objective: To invest in developing the production forests into material-supply zones serving floor materials, pulp, furniture timber, etc, linked with processing mills and contract farming. In addition, to pay attention to NTFP development on forestry lands, to increase the economic value of forest.
   - Size: 289,633 ha in the whole province.
9. Pilot project to pay forest environment services
   - Objective: To financially support forest practitioners by collecting fees for water and environmental services
   - Size: the watershed area of the Son La and Hoa Binh Hydropower Plants (240,000 ha).

4.3 Resolution 30A: The Poverty Alleviation Program and Plantation Achievement

Resolution 30A was an important government resolution, issued in December 2008, which was meant to support 62 districts in escaping the poverty that afflicts half of their population. Since 2008, hundreds of millions of USD, including more than 450 million USD from the state budget has been mobilized to boost the poorest areas of Vietnam. As a result, the number of poor households has fallen by 5% per year. The objective of this program is to reduce the percentage of poor households to below 35% by 2015, in accordance with Resolution 30A. Rather than obtaining support through contracts for forest tending and protection, or allocation of forest and land for forest plantation, the concerned households are able to receive several types of incentives. One such incentive is to be granted rice from the government. In 2010, the poverty alleviation program to provide farmers rice as an incentive to enlarge plantations was initiated in Dien Bien province by Resolution 30A. Note that this program is only intended for the poor districts: Muong Nhe District, Muong Ang District, Tua Chua District, and Dien Bien Dong District in Dien Bien Province.

According to the data from 2010, the area planned for the plantation scheme with rice incentives accounted for 12% of the total planned plantation area. In 2010, the plantation scheme without rice incentives reached only 30% and 17% of the target areas in protection and production forests, respectively (Table 4.3). This suggests that the amount of rice incentives available for plantation and the potential of plantation areas without rice incentives are limited, particularly for production forests.

Table 4.3 Plantation by forest type and incentive in 2010

Plantation by forest type and incentive	Plan (ha)	Implemented (ha)	%
Protection forest	1,454	531	37
Without rice support	1,224	363	30
With rice support	230	168	73

Production forest	2,150	589	27
Without rice support	1,950	330	17
With rice support	200	259	130
Total	3,604	1,120	31

4.4 Institutional Framework of the Forest Sector

First of all, the administration system of the forest sector in Dien Bien Province is divided into three levels: province, district, and commune.

At the provincial level, under the Department of Agriculture and Rural Development (DARD), the Sub-Department of Forestry and Sub-Department of Forest Protection are the main bodies of forest management. Other agencies under the DARD that are related to forest planning are the Agriculture and Forestry Planning and Designing Centre, three Protection Forest Management Boards (Dien Bien, Muong Cha, and Tuan Giao), and the Muong Nhe Nature Reserve Management Board. Muong Phuong Nature Reserve Management Board is in the process of establishment.

At the district level, the Agriculture and Forest Protection Division of the DPC is in charge of managing and implementing forestry activities.

Each commune normally has one agriculture extension staff member, to manage and implement both agriculture and forestry activities.

Under the Sub-DOF is the Department of Planning and Technology, which plans and implements forest plantations. Under the Sub-Department of Forest Protection are the Departments of Forest Management and Protection, Inspection and Legal Affairs, Mobile Forest Protection, and the Forest Fire Fighting Division. The Sub-Department of Forest Protection has district offices in each district, with 16 – 26 staff (depending on the size of the forest area in the district) and a forest guard/ranger in each commune.

Ten Forest Management Boards are in Dien Bien Province: three organizations dissolved from former State Forest Enterprises, one nature Reserve, and six temporally established in the DPC to implement the 661 Program. The communes in charge, by forest management board, are presented in Table 4.4.

Table 4.4 Jurisdiction of Forest Management Boards

	Name	Supervision	District	Communes
1	Muong Nhe Nature Reserve Management Board	PPC	Muong Nhe	Sin Thau, Chung Chai, Nam Ke, Muong Nhe, Leng Su Sin, Quang Lam and Pa Tan
2	Song Da – Muong Nhe Management Board	DPC Temporal for the 661 program	Muong Nhe	Na Hy, Muong Toong, Nam Ke, Quang Lam, Cha Cang, Pa Tan, Na Khoa, Muong Nhe, Na Bung, Sin Thau, Sen Thuong, Chung Chai.
3	Nam Khoai – Nam Muc – Tuan Giao Management Board	DARD	Tuan Giao	Quai To, Quai Nua, Quai Cang, Toa Tinh, Tenh Phong, Muong Mun, Mun Chung, Pu Nhung, Tuan Giao Town, Na Say, Chieng Sinh, Muong Thin, Ta Ma
4	Nam Rom – Dien Bien	DARD	Dien Bien	Dien Bien Phu City, Na Tau, Thanh Nua,

	Management Board			Thanh Luong, Noong Luong, Muong Pon, Thanh Hung, Muong Phang, Pa Thom and Na Nhan
5	Nam Nua – Dien Bien Management Board	DPC Temporal for the 661 program	Dien Bien	Muong Nha, Sam Mun, Noong Het, Thanh An, Thanh Xuong, Nua Ngam, Muong Loi and Na U
6	Nam Muc – Muong Cha Management Board	DARD	Muong Cha	Muong Muon, Na Sang, Hua Ngai, Huoi Leng, Sa Long, Muong Tung and Ma Thi Ho
7	Ba Cha – Muong Cha Management Board	DPC Temporal for the 661 program	Muong Cha	Si Pa Phin, Cha Nua, Cha To, Phin Ho, Nam Khan and Ma Thi Ho.
8	Nam Co – Muong Ang Management Board	DPC Temporal for the 661 program	Muong Ang	Ang Nua, Ang Cang, Ang To, Muong Dang, Bung Lao, Xuan Lao, Muong Lan, Muong Ang town, Na Say, Ngoi Cay
9	Song Da – Tua Chua Management Board	DPC Temporal for the 661 program	Tua Chua	Tua Chua town, Muong Bang, Sinh Phinh, Lao Xa Phinh, Tua Thang, Muong Dun, Sin Chai, Ta Sin Thang, Ta Phinh, Trung Thu, Xa Nhe and Huoi So
10	Song Ma – Dien Bien Dong Management Board	DPC Temporal for the 661 program	Dien Bien Dong	Pu Nhi, Luan Gioi, Hang Lia, Na Son, Keo Lom, Phi Nhu, Muong Luan, Chieng So, Tia Dinh, Sa Dung, Nong U, Dien Bien Phu City

In terms of forest product businesses, there are 8 privately-owned businesses and 1 joint stock company engaged in timber working. One of the private companies specializes in trading in NTFPs, while another LLC (Limited Liability Company) is a paper mill.

In addition, there are other entities involved in forest protection and development, including the Center for Agriculture and Forestry Planning and Design under DARD, and several forestry project management organizations under the District Department of Agriculture.

5. Draft Potential REDD+ Activities in Dien Bien Province

In this chapter, a draft set of potential REDD+ activities in Dien Bien Province are proposed, which include six (6) activities, as follows. These six activities are of two basic types: those which are acceptable as REDD+ activities under the current situation in Vietnam, and those which remain uncertain as REDD+ activities under the current situation in Vietnam.

(1) Acceptable under the current situation in Vietnam

A. Forest protection in areas with large carbon stock and higher deforestation/forest degradation rates

B. Protection of re-growth forest developed by the 661 Program

C. Restoration of shifting cultivation areas to enhance natural regeneration

D. Restriction of rubber plantation development in degraded forest areas

(2) Uncertain under the current situation in Vietnam

E. Afforestation/reforestation

F. Plantation with sustainable forest management

Regarding the above mentioned plantation activities, the study team recognizes that the Vietnam government is considering whether or not plantation activities should be included among the REDD+ activities, as well as the types of plantation activity that can be included, in the case that plantation activity is included in the REDD+ activity in Vietnam.

In addition, the REDD+ activities in Dien Bien Province should not be limited to the above proposed six activities. Additional activities, such as enrichment planting of indigenous and high-valued species, and the maintenance of fallow land for longer periods, should also be considered when the action plans are prepared in pilot areas in the next JICA project.

In the following sections, the contents of each of these activities are described.

5.1 Activity A: Forest protection in areas with large carbon stock and higher deforestation/forest degradation rates

(1) Background

As mentioned in Section 2.1.3, although the forest carbon stock in the whole of Dien Bien province has increased since 1990, a portion of the forest area in Dien Bien Province, involving a large carbon stock, exists which is experiencing deforestation and forest degradation.

In addition, forest protection in Vietnam has been implemented by the 661 Program since 1998. In 2010, 73,583 hectares of natural forests were protected in Dien Bien Province, by paying compensation (200,000 VND/ha, approximately 10 USD/ha/year, by the Decision 10). According to the socio-economic survey carried out in the Study, the "Forest Protection scheme" is fully supported by both villagers and commune officers.

Based on the above-mentioned situation, activity A, "Forest protection in the areas of large carbon stock and higher deforestation/forest degradation rates" is proposed.

(2) Main Activity

1) Patrols

Points to be checked during the patrol: Traces of illegal logging and use of land; fire prevention.
The patrol frequency (*e.g.*, once per week) and structure (*e.g.*, patrol by groups or individuals), etc should be discussed and determined when an action plan for implementing Activity A in a given area is prepared.

2) Fire prevention and firefighting

Since the following options and methods for fire prevention and extinction can be considered, which option and method is to be taken should be discussed and determined when an action plan for implementing Activity A in a given area is prepared.

(a) Constructing fire-suppressing bands. The following two methods are available:

- White fire-suppressing bands: These are vacant belts of land from which all vegetation has been completely cut, and grass and rotten vegetative cover has been cleared away, in order to prevent flames from spreading across the ground surface of the forest.
- Green fire-suppressing bands: These are bands in which green trees are planted, which are fire-resistant and difficult to burn. Green fire-suppressing bands serve to prevent two types of fires: fires which spread on the ground surface of the forest, and tree canopy fires.

(b) Constructing a system of watch towers to facilitate forest fire discovery.

(c) Establishing an organization for forest fire prevention and fighting. The following two methods are available (either or both may be implemented):

- Organizing and building professional forest fire prevention and fighting forces;
- Establishing mass volunteer teams to take part in forest fire prevention and fighting.

(d) Establishing systems for reporting, communication, and issuing information on forecasts and warnings:

- System for Patrolling and Communication: this activity should be connected with the patrol activity mentioned above in Part 2-1.
- Establishing an announcement system for issuing information on forest fire forecasts and warnings. The establishment of a forest fire forecast level signboard can also be considered.

(3) Support activities to facilitate the main activity

1) Environmental education for locals

It is crucial to organize environmental education not only for the participants of Activity A, but also for all other local persons, including children, who can approach the target forests for Activity A. The importance of forests, forest fire prevention, sustainable forest management, etc should be included in the educational content. In particular, engendering land owners and/or users who have rights in the surrounding areas of Activity A target areas with an awareness of the importance of fire prevention is very important.

2) Training in firefighting

Each training course should have different programs and training times, based on the objectives and differences between the organizational units. However, it is indispensable to include techniques for forest firefighting.

(4) Proposed implementation sites

Potential sites for this activity include forests with large carbon stocks and higher deforestation/forest degradation rates. A forest with a large carbon stock actually refers to the rich/medium classes of evergreen broad-leaved forest. However, it is difficult to identify forests with a rate in smaller area than provincial level, because the scale of the forest distribution maps prepared by FIPI in the Study for the five five-year time points from 1990 to 2010 is 1 to 250,000, a level which is insufficient for identifying forest changes at smaller scales such as the commune level. Therefore, the Study Team considered an alternative idea, which was to use a set of socio-economic conditions as criteria for the selection of potential sites which might be feasible for implementation of the activity. Such conditions are less dependent on effects from shifting cultivation which might arise due to low per person shifting cultivation area, low population density, and/or large per person paddy area. In addition, considering the objectives of Protection Forest and Special Use Forest, rich/medium evergreen forest within Protection Forest and Special Use Forest is more suitable.

Meanwhile, the total area of rich/medium forest in Dien Bien Province, as indicated on the 2010 forest distribution map prepared by FIPI, is 20,300 ha. According to the map, Muong Nhe District, where the area of rich/medium forest is largest, has 11,800 ha of the rich/medium forest, followed by Muong Cha and Tuan Giao Districts, with 3,250 ha and 3,150 ha, respectively. Therefore, the rich/medium forests in these districts which are experiencing pressure from the driving forces of deforestation and forest degradation, such as shifting cultivation, may have potential as suitable sites for the activity.

As a result, potential sites at the commune level are places meeting the above conditions in the districts which have communes with large areas of rich/medium forest within the Protection Forest. Please refer to Part 6, in which additional detail is provided regarding the selection of potential sites for implementation of the activity at the commune level.

(5) Points to be kept in mind for implementation of the activity

1) Need for a checking system

For the implementation of Activity A, it is indispensable to have a system for checking to determine whether or not the activities are actually being implemented. It is necessary to establish such a checking system with a strictness comparable to that of the checking system of the 661 Program, because payment to participants in the form of benefit distributions will be made on a performance basis, as well as a participation basis.

Personnel to secure the implementation of this checking system should be permanently stationed at sites near to each implementation location. In addition, these personnel should be recruited at the commune level, to ensure low check implementation costs. However, as the current personnel capacity is insufficient, capacity building will be indispensable.

In addition, regarding working procedures and checking results, both the procedures and data collection should be formatted to ensure reportable and verifiable checking.

5.2 Activity B: Protection of re-growth forest developed by the 661 Program

(1) Background

The forest restoration scheme under the 661 Program has been implemented in order to develop re-growth forests. Between 2002 and 2010, approximately 110,000 hectares were targets for restoration under the 661 Program to produce re-growth forest.

The program continues its financial support for five years in a given area; in other words, it completes its financial support after 5 years. According to the Forest Protection and Development Plan for 2011-2020 proposed by the Sub-DOF, the area which receives financial support for the protection of restored forest will be reduced significantly after 2012 (43,281 ha in 2011, compared with 17,272 ha in 2012). Therefore, after the end of financial support, these forests will be vulnerable to conversion to agricultural lands, by the slash and burn method. These forests can be protected using REDD+ credit.

In addition, it was found that in cases where re-growth forest is located on an important watershed of a village, the villagers are better organized to protect the forest, in order to secure their water resources (*e.g.*, Cha Nua Commune in Muong Cha District). In cases where the activity can be included in the REDD+ program, it may be able to facilitate in intervening in the deforestation process and maintaining the re-growth forest, by integrating the local needs of water resource protection.

(2) Main Activity

Same as for Activity A, mentioned in 5.1 (2).

(3) Support activities to facilitate the main activity

1) Environmental education for locals

Same as for Activity A, mentioned in 5.1 (3) 1).

2) Fire prevention and firefighting

Same as for Activity A, mentioned in 5.1 (3) 2).

3) Livelihood improvement activities

As shifting cultivation was conducted in the some parts of the re-growth forest restored by the 661 Program, it is possible that such re-growth forest areas will be returned to shifting cultivation. In anticipation of this possibility, it is important to incorporate livelihood improvement activities within the REDD+ activity. Options which may be considered for livelihood improvement are as follows:

NTFP production
- Bamboo plantation
- Rattan plantation
- Fruit plantation
- Production of other feasible NTFPs

Animal husbandry
- Improvement of breeds for cattle and/or pigs
- Fish culture

Improvement of agriculture productivity
- Fertilization
- Introducing improved seed

The background of the introduction of livelihood improvement activities for Activity B is as follows:

The results of the socio-economic survey suggested that the opportunity cost of shifting cultivation for plantation, in terms of economic productivities including fallow duration without labor cost, are lowest for corn production,

at US$116/ha/year. This figure is much higher than the payment by the governmental program (US$10/ha/year), suggesting that these re-growth forests are most likely not to be able to be maintained by the program, alone.

Meanwhile, protection of a re-growth forest from conversion to non-forest land means that a volume of 39 m^3 per hectare can be protected. This translates to a credit of 465 US$ (please refer Chapter 3.2), which may be expected, at least on a one-time basis. Compared to a corn production profit of US$116/ha/year, an amount of 465 US$ is nearly equivalent to the opportunity cost for four years of corn production. Therefore, given the case of a one-time only benefit received from credit by keeping re-growth forest, corn production presents a greater advantage than keeping re-growth forest for more than five years. Therefore, it is important to combine livelihood improvement activities with Activity B.

4) Activities which can indirectly contribute to forest conservation

The introduction of improved stoves can decrease the amount of trees cut from forests for fuel-wood consumption. In particular, the use of such stoves can be expected to decrease the pressure on the forest for wood resources, resulting in forest conservation. In this case, additional carbon stock would be maintained in the forests, relative to the situation without improved stove use.

(4) Proposed implementation sites

The re-growth forests which were developed by the 661 Program, and have been maintained as forest within the Protection Forest can be targeted as the implementation sites of Activity B. In addition, communes that are less dependent on shifting cultivation may have the initiative to easily implement Activity B, as such maintained forests may be vulnerable against conversion to agriculture lands by shifting cultivation.

Meanwhile, according to the results of an assessment by VFU, 74% of the implementation area for the restoration activity in the 661 Program was successful, while the total implementation area of the program was approximately 110,000 hectares between 2002 and 2010, as mentioned above. Therefore, the area maintained as forest within the implementation area of the restoration program is roughly 81,000 hectares, or 74% of 110,000 hectares. Thus, the re-growth forests in the Protection Forest and in the communes that are less dependent on shifting cultivation within these 81,000 hectares are the target for Activity B.

(5) Points to be kept in mind for implementation of the activity

Same as for Activity A, mentioned in 5.1 (5).

5.3 Activity C: Restoration of shifting cultivation areas to enhance natural regeneration

(1) Background

This activity is the same as undertaken in “Forest restoration program by the 661 Program”. Therefore, this activity will be followed by “Protection of the re-growth forest developed by the 661 Program” of Activity B. Therefore, unlike the continuing activity that is to be implemented in the re-growth forest, this activity will be carried out in bare land, where shifting cultivation may be practiced. Since there are approximately 35,000 ha of land that qualifies as “continuing activity” under the 661 Program, whether or not the land for this activity can be

secured remains unsure.

(2) Main Activity

Enclosing potential areas with the possibility of natural regeneration in fallow land; then, restoring such area to re-growth forest by patrol and supplementary work facilitating natural regeneration, as follows:

1) Patrols

Points to be checked during the patrol: Traces of use of the land by other persons and fire prevention.
The patrol frequency (*e.g.*, once per week) and structure (*e.g.*, patrol by groups or individuals), etc should be discussed and determined when an action plan for implementing Activity C in a given area is prepared.

2) Supplementary work for facilitating natural regeneration

Spot planting of seedlings and sawing seeds can be considered as supplementary work.

(3) Support activities to facilitate the main activity

1) Environmental education for locals

Same as for Activity A, mentioned in 5.1 (3) 1).

2) Livelihood improvement activities

Same as for Activity B, mentioned in 5.2 (3) 3)

(4) Proposed implementation sites

The target of this activity is fallow land where shifting cultivation has been practiced, especially in the Protection Forest, with the aim of bringing the vegetation to the "re-growth forest" level (39 m^2/ha).

In addition, communes which are less dependent on shifting cultivation may have the initiative to easily implement Activity C, as such communes may potentially have large areas of fallow land which can be enclosed for restoration. Moreover, if such fallow land has low land productivity, which may be distinguished by a steep slope, such as land with a slope in excess of 25 degrees, Activity C can more easily be implemented.

(5) Points to be kept in mind for implementation of the activity

It is important to select physically and scientifically feasible sites for the activities, which are land areas with a potential for natural regeneration. For example, areas of type IC, which is one of the types stipulated by FIPI, and areas of bare land with more than 1,000 naturally regenerated plantlets can serve as such sites.

5.4 Activity D: Restriction of rubber plantation development in degraded forest areas

(1) Background

Dien Bien Rubber Joint Stock Company (JSC) was established in 2007 to undertake the development of 10,000 hectares of rubber plantation in Dien Bien Province for the period from 2008-2015. By 2011, the Company had planted approximately 4,000 ha, with most of this area consisting of voluntarily registered degraded upland agricultural land, managed by local farmers who want to participate in rubber plantation.

For rubber development, bare land areas, as well as poor/rehabilitated forests which have a higher carbon stock than bare land, are planned for conversion to rubber. If the development plan for new rubber plantation focuses only on the development on bare land with almost no carbon stock (Ia, Ib, and Ic) replacing the already planned development in poor/rehabilitated forests, the difference in forest carbon stock between the two land types would yield the equivalent reduction in carbon emission. Accordingly, carbon credit could be provided by the international community (land swap).

(2) Main Activity

This REDD+ draft activity involves only a single main activity, which is a change of the rubber development plan, in which the sites of plantation are changed from poor/rehabilitated forest to areas of bare land.

(3) Support activities to facilitate the main activity

No support activities are needed.

(4) Proposed implementation sites

Bare land areas with particularly gentle areas of slope can serve as targets for this change of plan.

(5) Points to be kept in mind for implementation of the activity

Checking for alterable possibilities in the course of the development plan is crucial. For such checking, careful and close consultation with the JSC by the local government is indispensable. Therefore, the local government should have negotiating ability with the JSC.

5.5 Activity E: Afforestation/reforestation

(1) Background

According to the results of the Model Land Survey implemented in the Study, the amount of carbon accumulated in *Acacia auriculiformis* plantation in 15 years are approximately 200 CO2ton/ha. In order to establish plantation for carbon stock, both the cost of establishment and the opportunity cost need to be considered. The estimated value of the carbon accumulated by the Acacia plantations (200x4.6 (Carbon price of afforestation in a voluntary market) = 920 USD/ha in 15 years, 242 USD/ha in NPV, with a 10% discount rate) is much lower than even the opportunity cost of corn (US$970 in NPV, US$116/ha/year for 15 years, with a 10% discount rate), which is the

crop with the lowest economic performance. This suggests that REDD+ itself cannot directly support biomass plantations.

It was suggested that the area of plantation established by the 661 Program was much smaller than the planned area, due to low land availability (30% and 17% in protection forest and production forest, respectively). Land-based production is a basic economic activity in the rural areas in Dien Bien Province, and the farmers need land in order to survive. Because their livelihood options are limited, in order to make and maintain forests, sufficient compensation needs to be provided to the local population.

Meanwhile, under the 661 Program, large areas of forest plantation are considered to have been unsuccessful (only 60% survived after plantation in protection forests, according to the results of the assessment by the VFU) due to insufficient financial support for protection. The amount of carbon credit to be provided by REDD+ is probably not sufficient to establish plantation. The plantation cost norm, which is approximately 10 million/ha, does not include a compensation cost for the land of the farmers. The provision of rice as a compensation for farmers (700 kg/ha/year) under Decision 30A is popular, but it does not reach all of the villages. According to the Forest Protection Development Plan for 2011-2020, approximately 4,000 ha of plantation is planned in Protection Forest without the provision of rice, while approximately 28,000 hectares of plantation is planned, in total. For the area where it is difficult to reach the target, the establishment of larger plantations may be expected by paying carbon credit as an additional incentive.

Considering the above mentioned conditions, forest plantation may be promoted by REDD+ by extending the maintenance period of the existing plantation scheme for Protection Forests, while considering the available area for food production (paddy and upland cultivation).

(2) Main Activity

Although afforestation/reforestation is the main activity, the method of plantation should be considered, as follows:

1) Plantation of high-value added species

High-value added timber such as *Cunninghamia lanceolata* are considered as species for planting. It has been found that plantations of the high value timber species, *Cunninghamia lanceolata* are well protected due to their value. Therefore, it is recommended that planting such species may help maintain overall plantation in the long run, and thus overcome permanence problems.

2) Plantation with an expected improvement in livelihood

The planting of NTFP production species, and mixed plantations of fast-growing species and indigenous tree species can be considered, taking into account the improvement of livelihood provided by NTFP production and the thinning of fast growing species.

(3) Support activities to facilitate the main activity

1) Livelihood improvement activity

Same as for Activity B, mentioned in 5.2 (3) 3)

2) Technical transfers regarding afforestation

Considering the causes of past plantation failure, it is important to properly conduct training regarding afforestation techniques for the locals who are the participants of Activity E.

(4) Proposed implementation sites

The socio-economic survey undertaken by the Study revealed that 16 out of 40 communes desire to participate in plantation. These villages are divided into three types: 1) villages with sufficient paddy fields for villagers in Dien Bien District, 2) villages with large available upland areas with sufficient food production in Muong Cha District (Hua Ngai) and Tuan Giao District (Quai Cang and Ta Ma), and 3) poor villages which are entitled to receive support by Decision 30A (Muong Nhe, Muong Ang, Tua Chua and Dien Bien Dong). The survey results also suggested that forest plantation is more accepted by Thai communes, compared with other ethnic minorities.

Meanwhile, since plantation should be facilitated in Protection Forest, Activity E should also consider implementing plantation in protection forests, considering the requirements and needs for forest cover.

In addition, areas where the forest plantation undertaken by the 661 Program failed are possible targets, as the land planted by 661 Program cannot be essentially returned to agricultural land, based on the contract between the government and locals regarding the implementation of the 661 Program. According to the results of the socio-economic survey, nearly all of the areas where plantation by the 661 Program failed have actually been returned to agricultural use areas; however, the farmers who participated in the 661 Program plantation activity recognized that the land needs to be man-made forest, and would like to again try to conduct plantation activities, with financial and technical support.

(5) Points to be kept in mind for implementation of the activity

Since it is difficult to cover the cost of plantation using only REDD+ carbon credit, subsidies such as Decision 30A are needed for planting costs. It is estimated that carbon credit can cover the maintenance costs of plantation.

5.6 Activity F: Plantation with sustainable forest management

(1) Background

Based on information regarding the driving force for forest degradation obtained through the results of the socio-economic survey conducted by the Study, forest degradation occurs due to timber demand for housing. Sustainable man-made forest management is required to maintain a sustainable supply of timber, and can be applied as one option for preventing this degradation.

(2) Main Activity

Gradual planting will be carried out until the 1st batch reaches the harvest year. The total carbon stock will then

remain constant after the beginning of harvesting activities, in that and subsequent years. For instance, based on the assumption of a total land area of 10 ha in 10 x 1 ha blocks, 1 ha is planted with a shorter-rotation species each year for 10 years. From the 10th year onwards, 1 ha is harvested yearly in a rotating manner, with the harvested areas replanted each year. In this cycle, the carbon stock is maintained at a stable level from the 10th year.

(3) Support activities to facilitate the main activity

1) Technical transfer regarding forest management as well as afforestation

It is important to properly conduct training regarding man-made forest management, as well as plantation techniques for the locals who are the participants of Activity F.

(4) Proposed implementation sites

Since plantation should be facilitated in Protection Forest, considering the requirements and need for forest cover, Activity E should also consider implementing plantation in protection forests. In addition, low productivity land areas, which may be distinguished by steep slopes, such as land with a slope in excess of 25 degrees, may represent priority land for implementing activity E.

The results of the socio-economic survey carried out by the Study also suggested that forest plantation is more accepted by Thai communes, compared with other ethnic minorities.

Although the activities are managed by individuals, they can also be targeted at communes where larger forestlands are allocated to the CPC, considering implementation by entities such as governmental organizations and private companies.

(5) Points to be kept in mind for implementation of the activity

For the implementation of Activity F, a detailed design for management of the man-made forest should initially be prepared in which the objective, scale, planting species, rotation period, anticipated yield table, etc should be included. It can be expected that a man-made forest management activity may not be accepted as a REDD+ activity, depending on the design. For instance, it is necessary to discuss whether or not man-made forest management using a short rotation period by exotic species can be accepted as a REDD+ activity.

6. Prioritized Areas for Potential REDD + Activities

6.1 Methodology for the Selection of Prioritized Areas

As mentioned in Chapter 5, the JICA Study Team considers the following six activities as potential activities for REDD+ implementation:

A. Forest protection in areas with large carbon stock and higher deforestation/forest degradation rates
B. Protection of the re-growth forest developed by the 661 Program
C. Restoration of shifting cultivation areas to enhance natural regeneration

D. Restriction of rubber plantation development in degraded forest areas
E. Afforestation/reforestation
F. Plantation with sustainable forest management

This chapter examines which communes should be prioritized to implement each REDD+ activity. In order to select the priority communes, several criteria (or conditions that can affect the implementation) have been identified for each activity. The table below shows the criteria applied to the selection of the prioritized communes for each activity. Among the criteria listed in the table, those applied to selection of the prioritized communes are marked with an "o" for the corresponding activity. These criteria are divided into three groups (forest and land resources, socio-economic conditions, and relevant policy/program), based on the subjects into which each criterion falls. Each criterion is briefly described in Appendix 1.

Category	Selection criteria	A	B	C	D	E	F
Forest and land resources	Large volume in the rich/medium forest	o					
	Large "protection forest" area	o	o	o		o	o
	Large unused land area				o	o	o
	Large bare land area			o	o	o	o
	Large low land productivity area per person (large area of slope land with more than 25 degree)			o		o	o
	Large area of land with less than 25 degree				o		
Socio-economic conditions	Large area of forest lands where CPCs own				o		o
	Low population density	o	o	o		o	o
	Large paddy area/person	o	o	o		o	o
	Less dependent on shifting cultivation (Less area/person of shifting cultivation)	o	o	o		o	
	High portion of Thai people					o	o
Policy/programs	Large area of Implementation of the 661 program	o	o				
	Area supported by Decision 30A					o	

For each criterion, each commune is rated according to how well the commune matches (meets) the criterion. The better a given commune matches a criterion, the higher the points the commune earns for that criterion. The rating results are then depicted on a thematic map prepared for each criterion, where ratings are represented by different colors, with red representing the highest degree of matching, followed by brown, yellow, and blue, respectively, based on how well the criterion is matched. The resulting thematic maps, showing the rating results for each criterion are provided in Appendix 1.

Based on the commune rating results for each criterion, the JICA Study Team has examined the following three methods to select prioritized areas:

1. "First class extraction"

Only the highest matching communes (red color) score a point for each criterion, while the other communes score zero. The points scored in all of the criteria are summed for each commune.

2. "Simple score"

The communes rated as highest (red color) score three points, communes rated second-highest (brown color) score two points, and communes rated third-highest (yellow color) score one point for each criterion. The points scored for all of the criteria are then summed for each commune.

3. "Score with prioritized criteria"

Some of the criteria are designated as "prioritized". For each prioritized criterion, the communes rated highest (red color) score six points, communes rated second-highest (brown color) score four points, and communes rated third-highest (yellow color) score two points. For each non-prioritized criterion, the communes rated highest (red color) score three points, communes rated second-highest (brown color) score two points, and communes rated third-highest (yellow color) score one point, as in the "simple score method", presented above. The points scored in all of criteria are then summed for each commune.

The following pages show the results of commune selection for each potential activity.

6.2 Initial Results for Prioritized Areas for Each Potential REDD + Activity

6.2.1 Activity A: Forest protection in areas with large carbon stock and higher deforestation/forest degradation rates

The criteria applied to the selection of the prioritized communes for Activity A, and details regarding the three methods of rating are described in the following table.

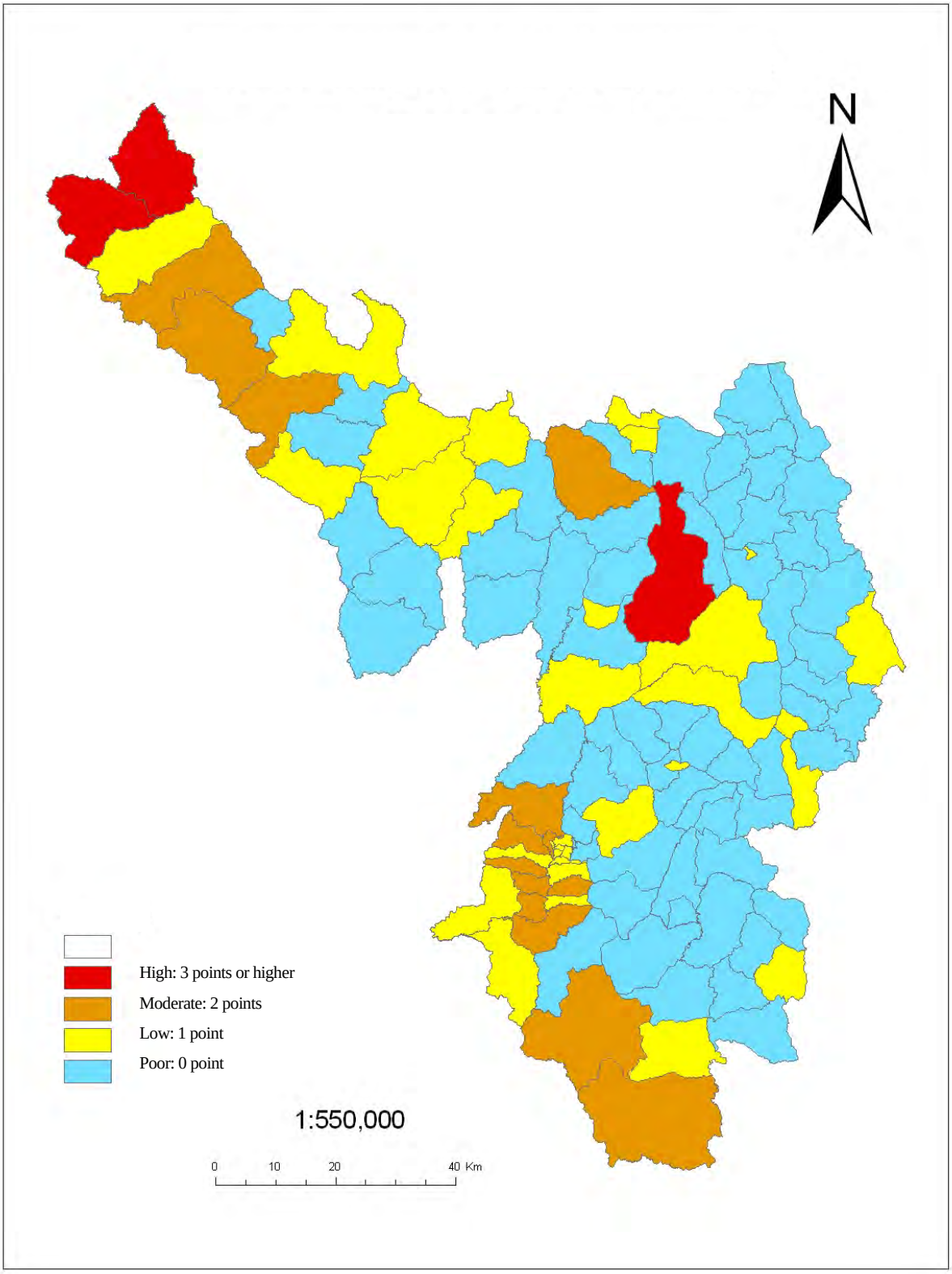
Criteria	Method 1by first class extraction	Method 2 by simple score	Method 3 by score with priority criteria
Large volume in the rich/medium forest	Extracting only first class (red color)	three point to first class (red), two point to second (brown), one point to third (Yellow)	six point to first class (red), four point to second (brown), two point to third (Yellow)
Large "protection forest" area	Same as above	Same as above	Same as above
Low population density	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large paddy area/person	Same as above	Same as above	Same as above
Less dependent on shifting cultivation (Less area/person of shifting cultivation)	Same as above	Same as above	Same as above
Large area of Implementation of the 661 program (Protection)	Same as above	Same as above	Same as above

High-ranking communes are shown below, based on the assessment results obtained using each of the above three methods for rating communes for the selected criteria. As shown, the outcomes differ slightly between the methods. Sin Thau Commune, Hua Ngai Commune, and Sen Thuong Commune are selected by all of the methods.

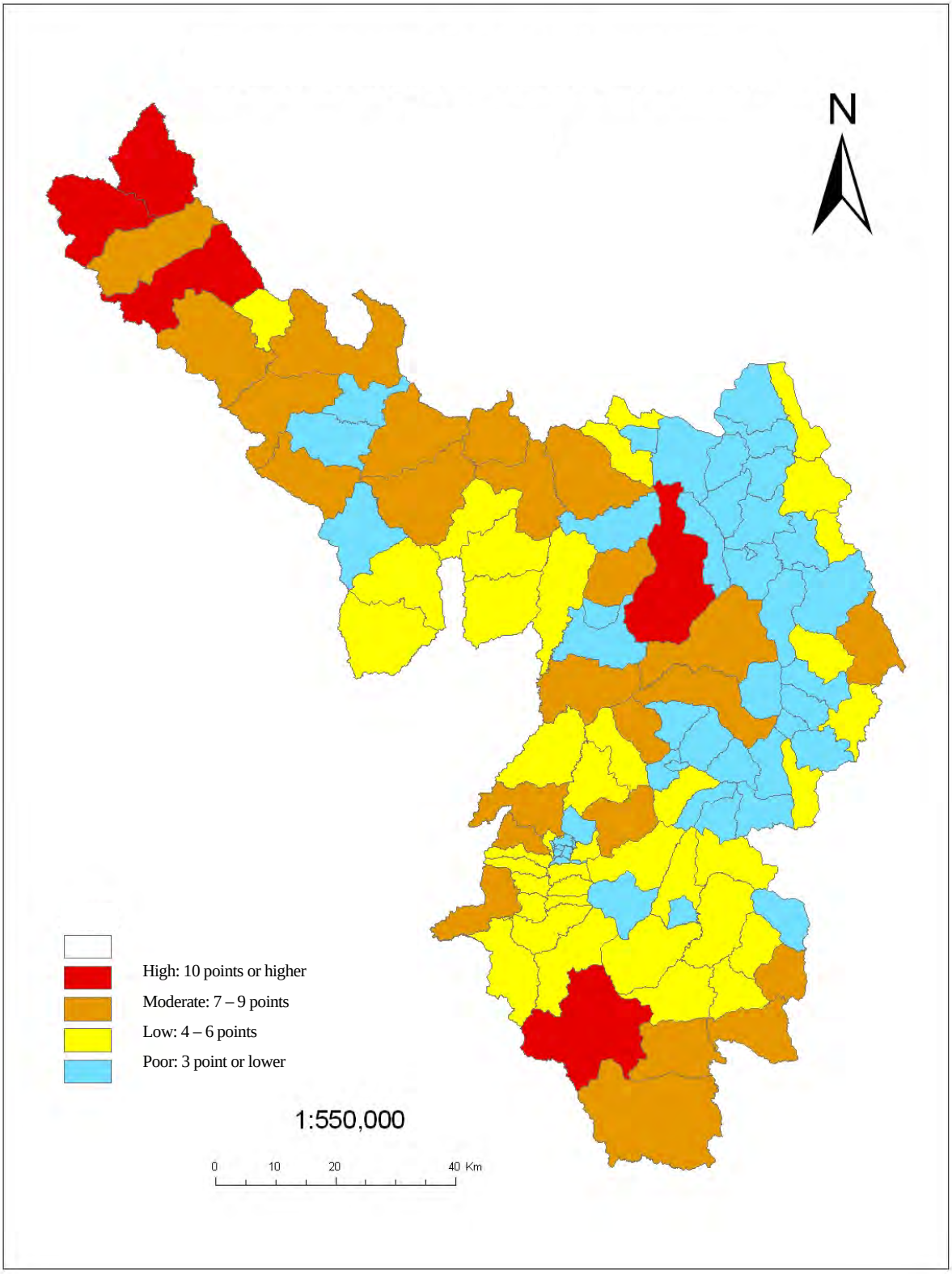
First Class Extraction			Simple Score			Score with Priority		
Commune	District	Pt.	Commune	District	Pt.	Commune	District	Pt.
Sin Thau	MN	4	Chung Chai	MN	12	Hua Ngai	MC	17
Hua Ngai	MC	3	Sin Thau	MN	12	Chung Chai	MN	17
Sen Thuong	MN	3	Muong Nha	DB	11	Muong Nha	DB	16
			Hua Ngai	MC	11	Sen Thuong	MN	16
			Sen Thuong	MN	10	Sin Thau	MN	15
						Na Co Sa	MN	14
						Na Say	TG	13

Communes selected by three methods and two methods are shown in red and brown, respectively. The results of commune selection by the three methods are depicted in the maps shown on the next three pages.

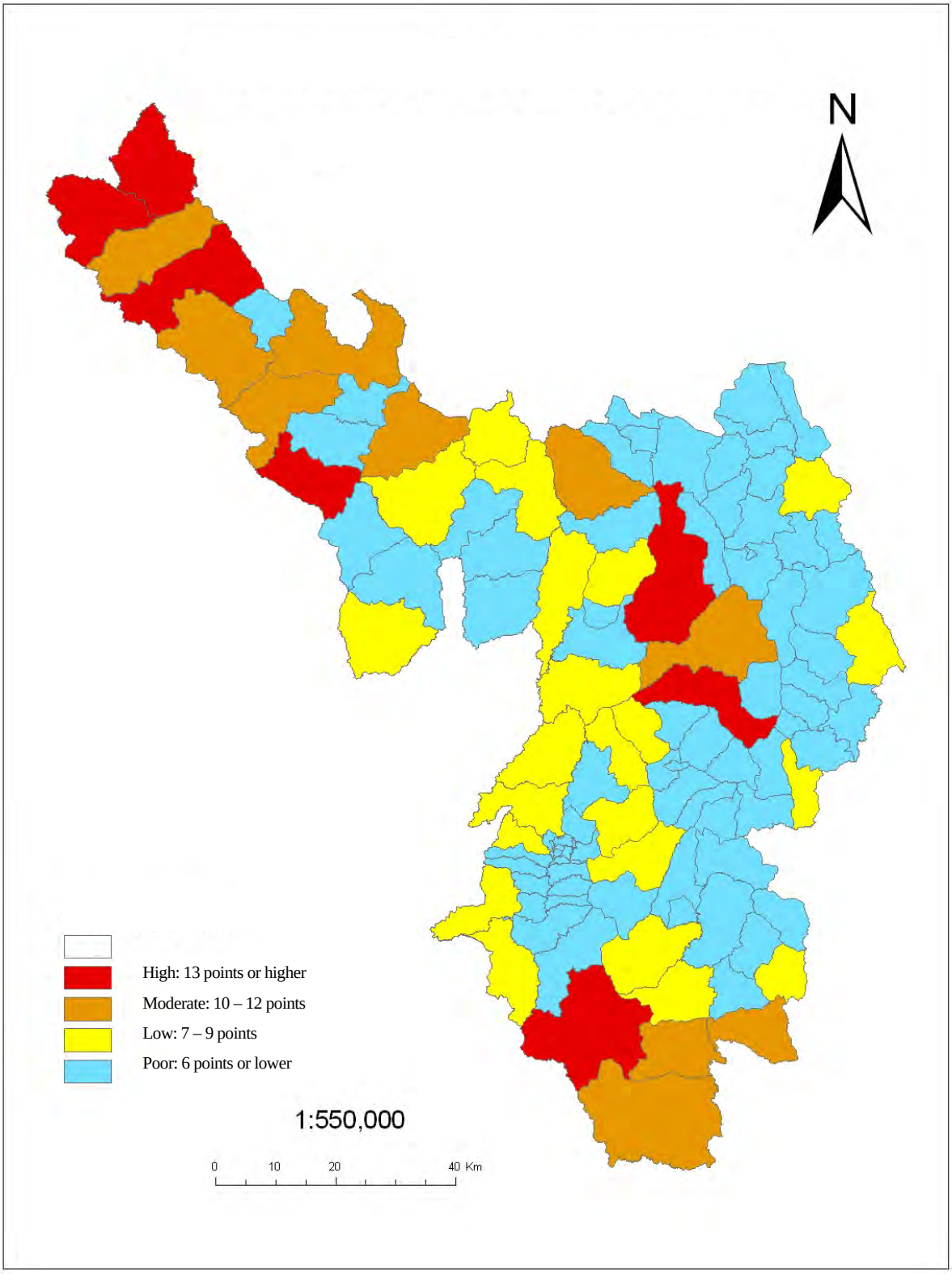
Result of commune selection by the first class extraction method:



Result of commune selection by the simple score method:



Result of commune selection by the score with priority method



6.2.2 Activity B: Protection of re-growth forest developed by the 661 Program

The criteria applied to the selection of the prioritized communes for Activity B, and details regarding the three methods of rating are described in the following table.

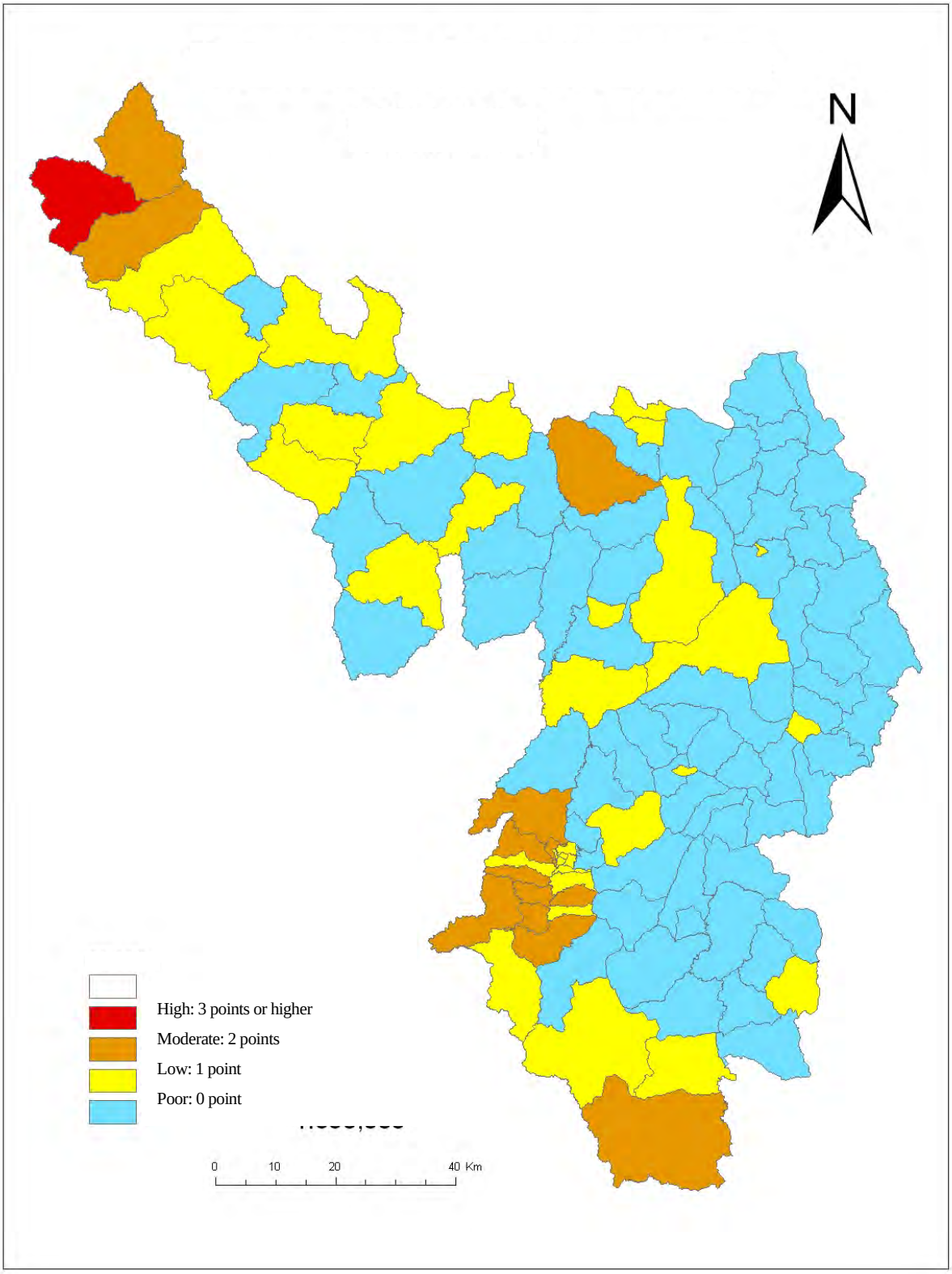
Criteria	Method 1by first class extraction	Method 2 by simple score	Method 3 by score with priority criteria
Large "protection forest" area	Extracting only first class (red color)	three point to first class (red), two point to second (brown), one point to third (Yellow)	six point to first class (red), four point to second (brown), two point to third (Yellow)
Low population density	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large paddy area/person	Same as above	Same as above	Same as above
Less dependent on shifting cultivation (Less area/person of shifting cultivation)	Same as above	Same as above	Same as above
Large area of Implementation of the 661 program (restoration)	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)

High-ranking communes are shown below, based on the assessment results obtained using each of the above three methods for rating communes for the selected criteria. The outcomes differ somewhat between the methods. Sin Thau Commune is the only commune selected by the "first class extraction" method, and is also the only commune selected by all of the methods. Pa Thom Commune, Leng Su Sin Commune, Na Hy Commune, Muong Nha Commune, and Chung Chai Commune are selected by the "simple sore" method and the "score with priority" method.

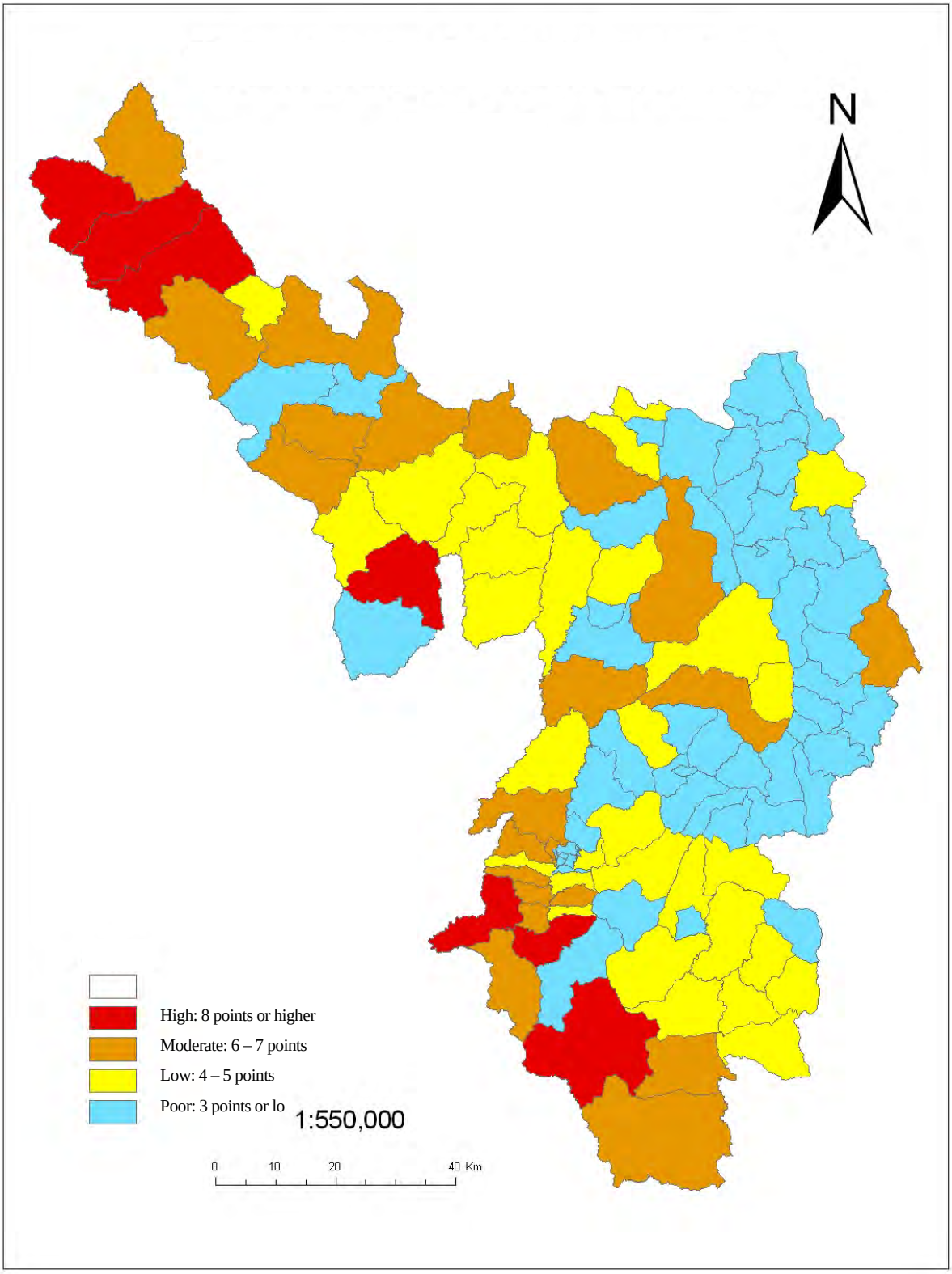
First Class Extraction			Simple Score			Score with Priority		
Commune	District	Pt.	Commune	District	Pt.	Commune	District	Pt.
Sin Thau	MN	3	Pa Thom	DB	10	Pa Thom	DB	15
			Chung Chai	MN	9	Chung Chai	MN	14
			Leng Su Sin	MN	9	Muong Nha	DB	13
			Sin Thau	MN	9	Leng Su Sin	MN	13
			Muong Nha	DB	8	Na Hy	MN	12
			Sam Mun	DB	8	Sin Thau	MN	12
			Na Hy	MN	8			

Communes selected by three methods and two methods are shown in red and brown, respectively. The results of commune selection by the three methods are depicted in the maps shown on the next three pages.

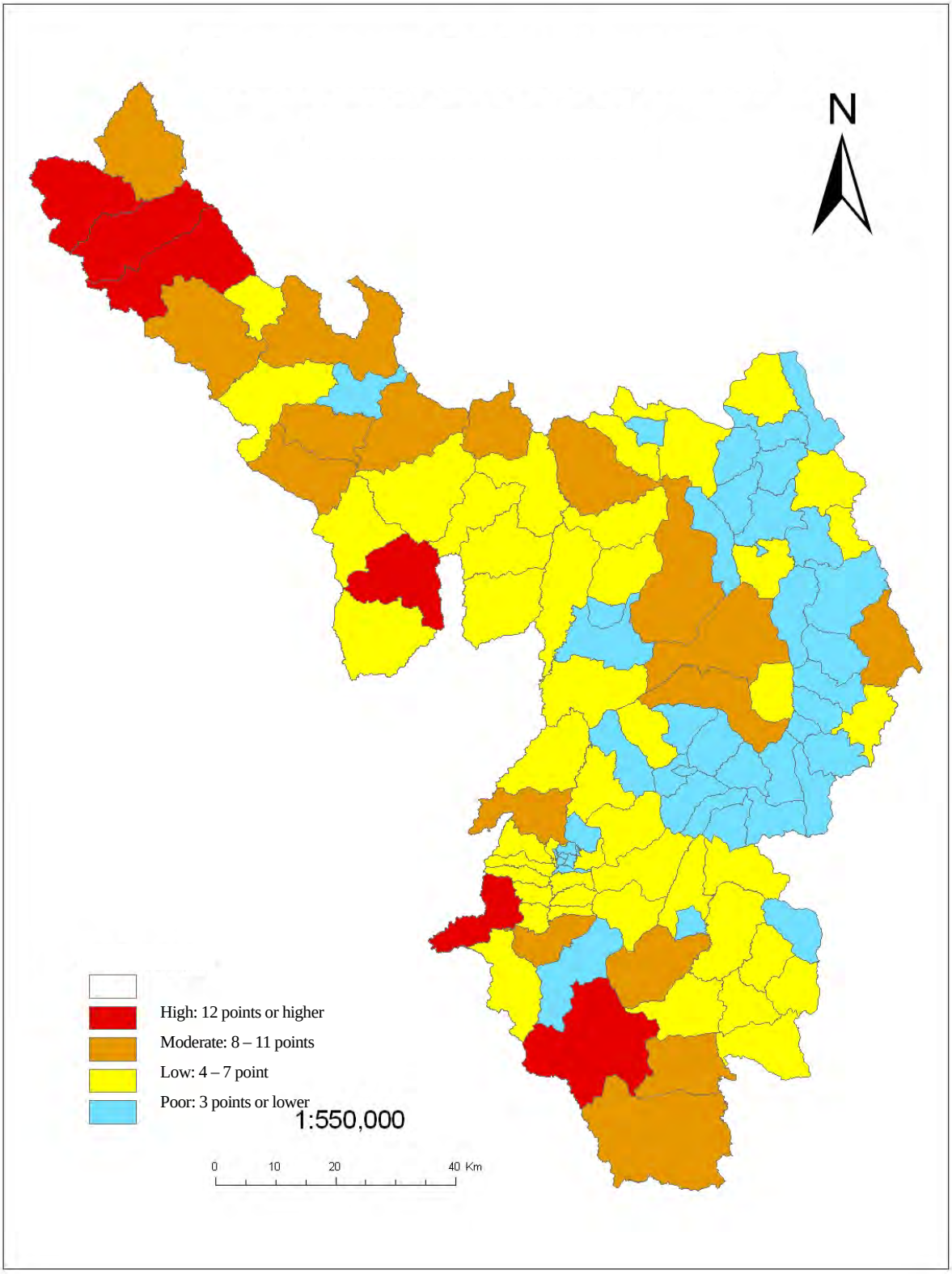
Result of commune selection by the first class extraction method:



Result of the simple score method:



Result of the commune selection by the score with priority method:



6.2.3 Activity C: Restoration of shifting cultivation areas to enhance natural regeneration

The criteria applied to the selection of the prioritized communes for Activity C, and details regarding the three methods of rating are described in the following table.

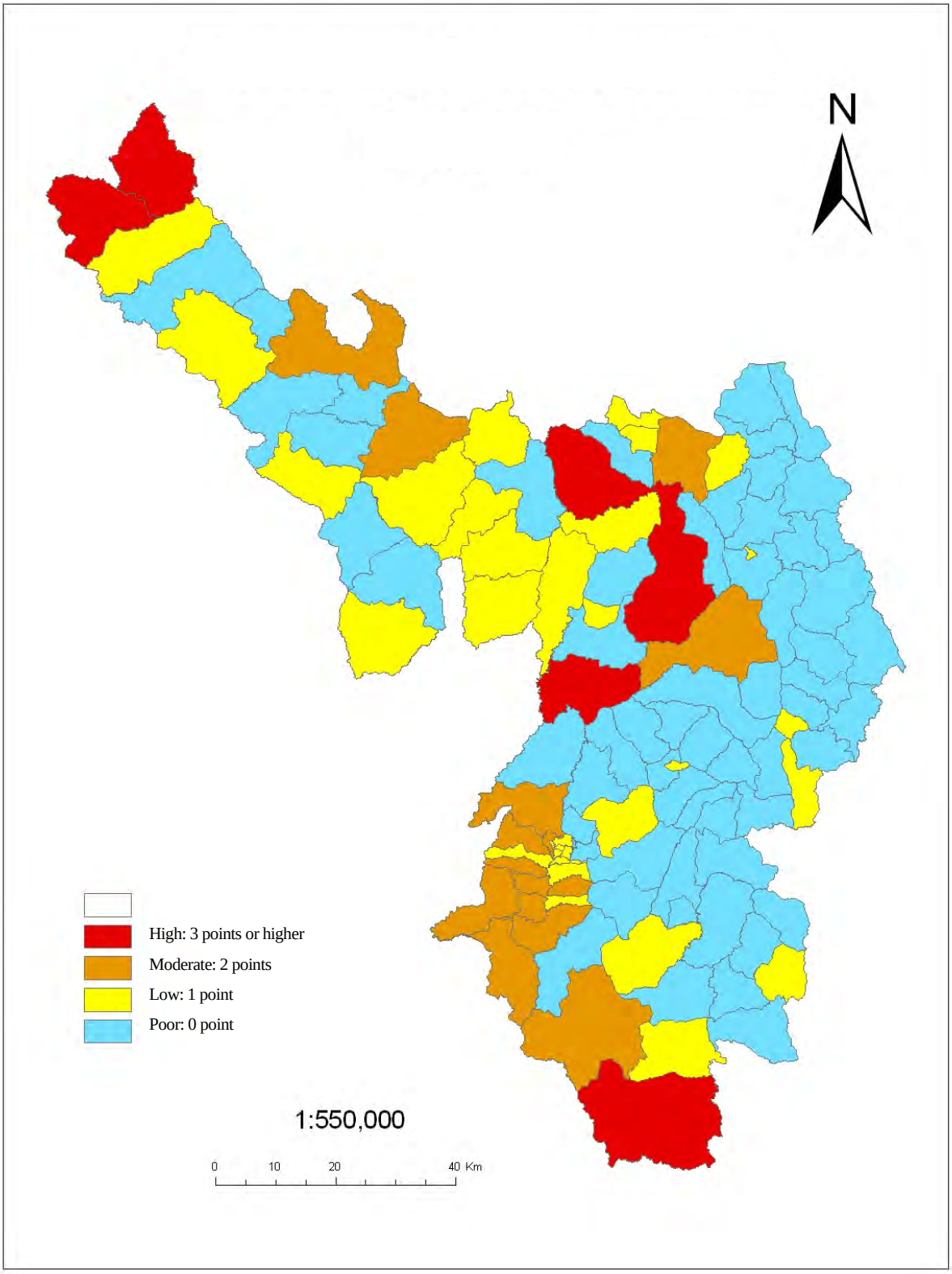
Criteria	Method 1by first class extraction	Method 2 by simple score	Method 3 by score with priority criteria
Large "protection forest" area	Extracting only first class (red color)	three point to first class (red), two point to second (brown), one point to third (Yellow)	six point to first class (red), four point to second (brown), two point to third (Yellow)
Large bare land area	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large low land productivity area per person (large area of slope land with more than 25 degree)	Same as above	Same as above	Same as above
Low population density	Same as above	Same as above	Same as above
Large paddy area/person	Same as above	Same as above	Same as above
Less dependent on shifting cultivation (Less area/person of shifting cultivation)	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)

High-ranking communes are shown below, based on the assessment results obtained using each of the above three methods for rating communes for the selected criteria. All of the high-ranked communes in the "first class extraction" method are also selected by the other methods. For example, Muong Loi Commune, Muong Tung Commune, Hua Ngai Commune, and Sen Thuong Commune are selected by all three methods. Muong Mon Commune and Sin Thau Commune are selected by the "first class extraction" method and the "simple score" method. On the other hand, Pa Thom Commune is selected by the "simple score" method and the "score with priority" method.

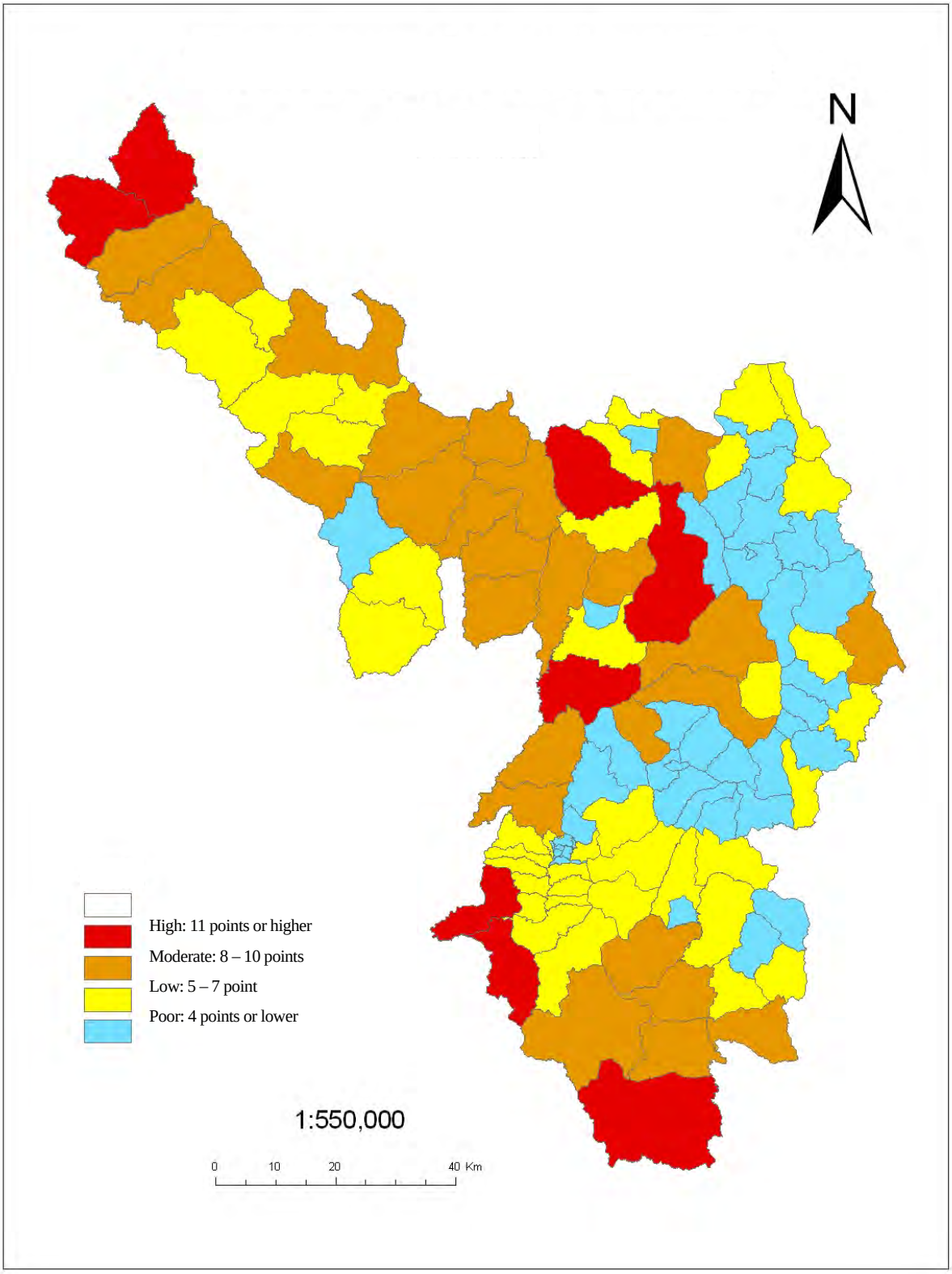
First Class Extraction			Simple Score			Score with Priority		
Commune	District	Pt.	Commune	District	Pt.	Commune	District	Pt.
Muong Loi	DB	4	Muong Loi	DB	13	Muong Loi	DB	16
Muong	MC	4	Muong	MC	13	Muong Tung	MC	16
Muong Mon	MC	3	Pa Thom	DB	12	Sen Thuong	MN	16
Hua Ngai	MC	3	Muong Mon	MC	12	Pa Thom	DB	15
Sin Thau	MN	3	Sen Thuong	MN	12	Na Co Sa	MN	15
Sen Thuong	MN	3	Na U	DB	11	Pu Hong	DD	14
			Hua Ngai	MC	11	Hua Ngai	MC	14
			Sin Thau	MN	11	Muong	MN	14

Communes selected by all three methods are shown in red, while communes selected by two of the methods among the three methods are shown in brown and yellow. The results of commune selection by the three methods are depicted in the maps shown on the next three pages.

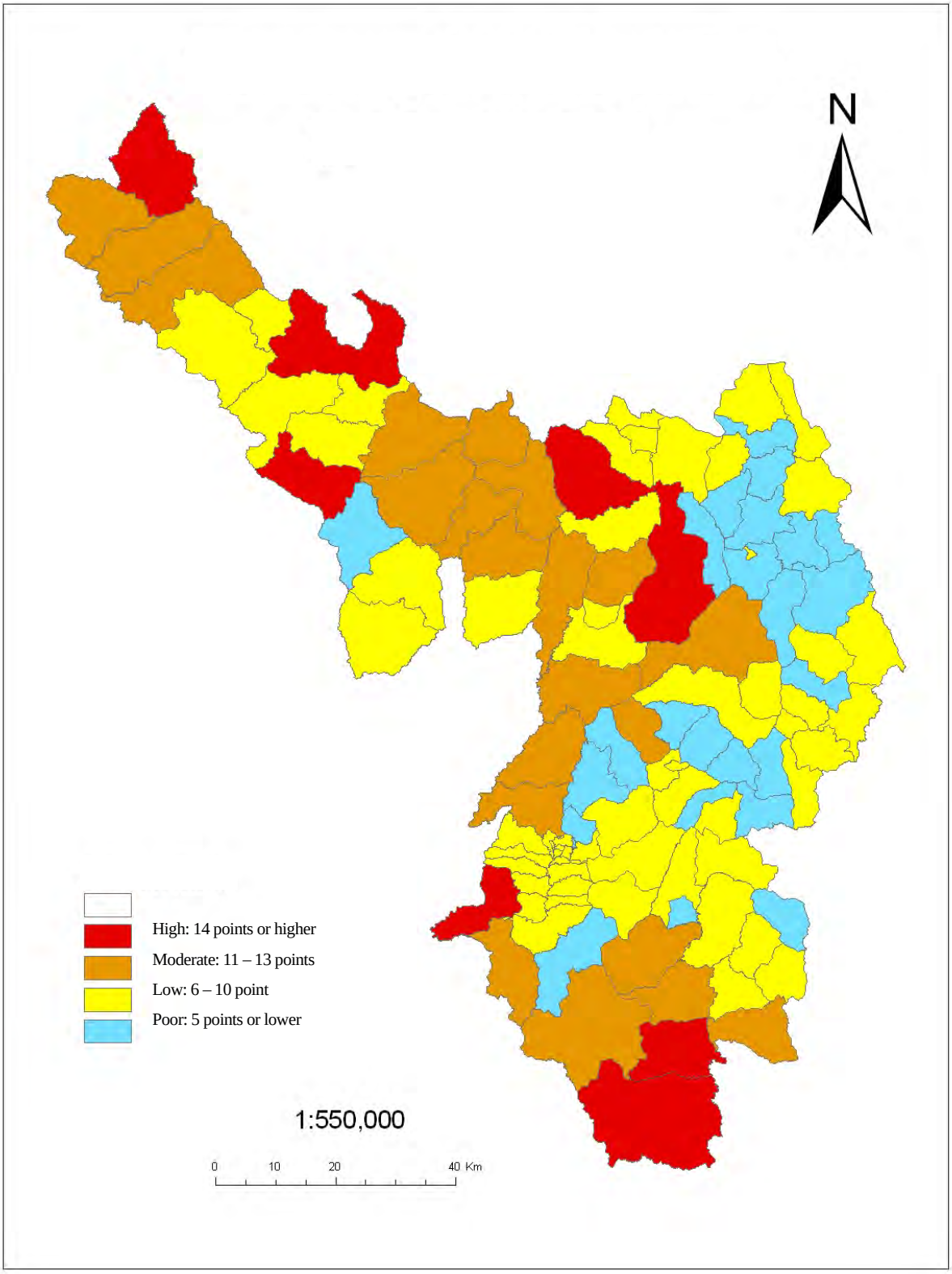
Result of the commune selection by the first class extraction method:



Result of the commune selection by the simple score method:



Result of the commune selection by the score with priority method:



6.2.4 Activity D: Restriction of rubber plantation development in degraded forest areas

The criteria applied to the selection of the prioritized communes for Activity D, and details regarding the three methods of rating are described in the following table.

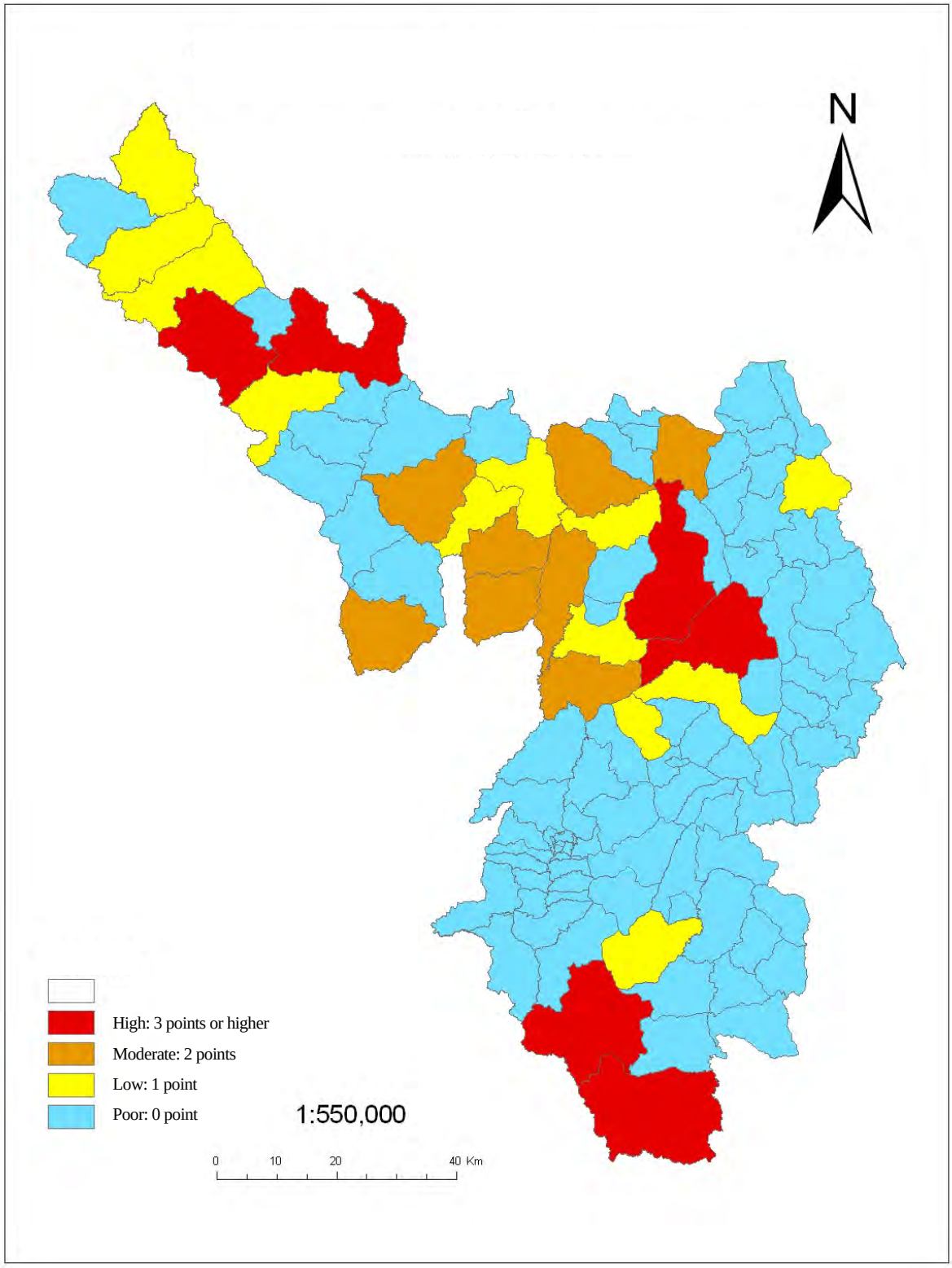
Criteria	Method 1by first class extraction	Method 2 by simple score	Method 3 by score with priority criteria
Large unused land area	Extracting only first class (red color)	three point to first class (red), two point to second (brown), one point to third (Yellow)	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large bare land area	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)
Large area of land with less than 25 degree	Same as above	Same as above	Same as above
Large area of forest lands where CPCs own	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)

High-ranking communes are shown below, based on the assessment results obtained using each of the above three methods for rating communes for the selected criteria. The outcomes are relatively similar, among the three methods. Hua Ngai Commune, Muong Loi commune, Muong Nha Commune, and Muong Toong Commune are selected by all of the methods. Muong Mun Commune and Muong Nhe Commune are selected by the "first class extraction" method and the "score with priority" method. Muong Mon Commune, Si Pa Phin Commune, Ma Thi Ho Commune, Phin Ho Commune, and Muong Tung Commune are selected by the "simple score" method and the "score with priority" method.

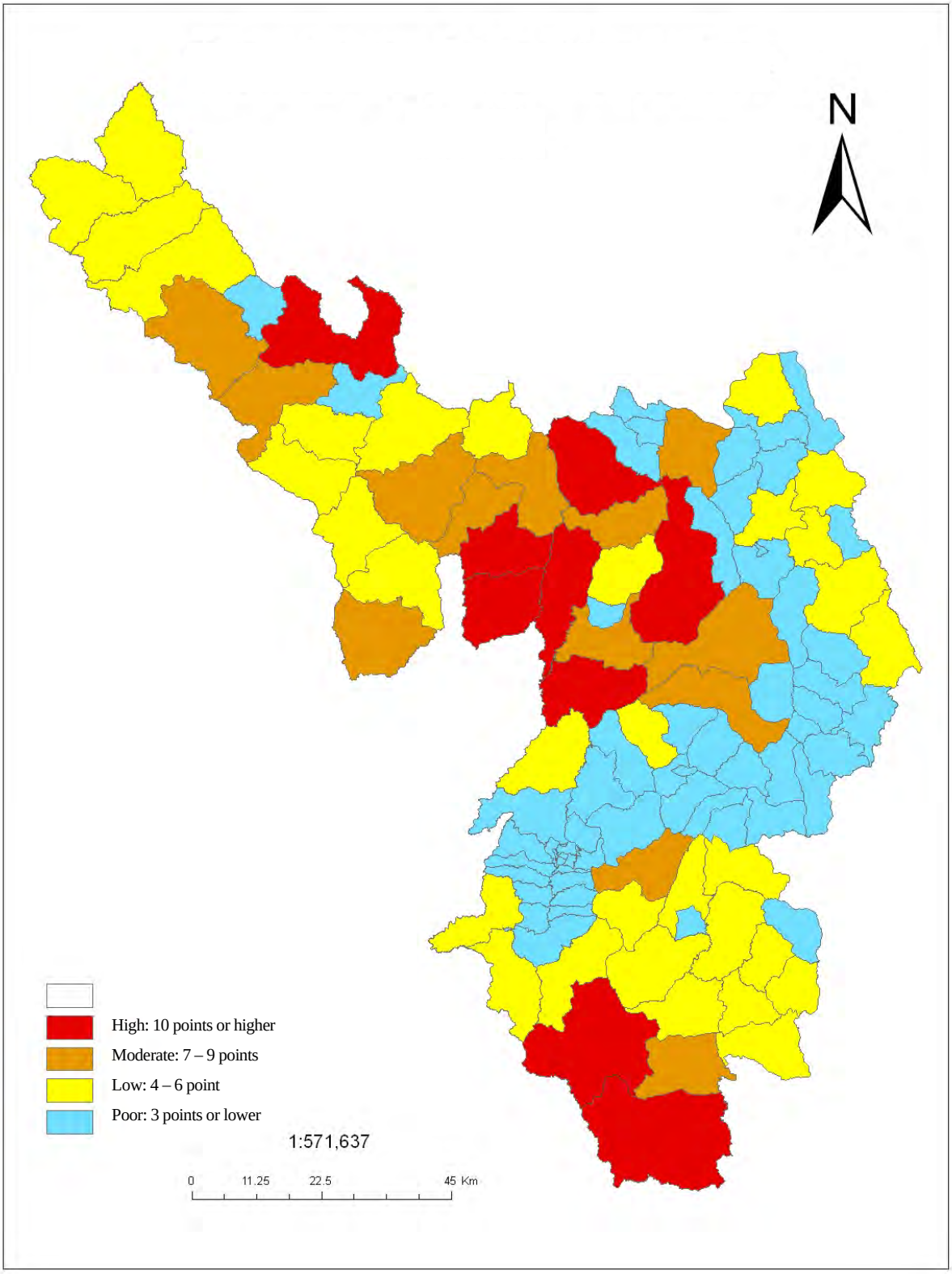
First Class Extraction			Simple Score			Score with Priority		
Commune	District	Pt.	Commune	District	Pt.	Commune	District	Pt.
Hua Ngai	MC	4	Hua Ngai	MC	12	Hua Ngai	MC	18
Muong Loi	DB	3	Muong Loi	DB	11	Muong Loi	DB	17
Muong Nha	DB	3	Muong Nha	DB	11	Muong Nha	DB	17
Muong Mun	TG	3	Muong Mon	MC	10	Muong Toong	MN	16
Muong Toong	MN	3	Si Pa Phin	MC	10	Muong Mon	MC	15
Muong Nhe	MN	3	Ma Thi Ho	MC	10	Muong Mun	TG	15
			Phin Ho	MC	10	Si Pa Phin	MC	15
			Muong Tung	MC	10	Ma Thi Ho	MC	15
			Muong Toong	MN	10	Phin Ho	MC	15
						Muong Tung	MC	15
						Muong Nhe	MN	15

Communes selected by all three methods are shown in red, while communes selected by two methods among the three methods are shown in brown and yellow. The results of commune selection by the three methods are depicted in the maps shown on the next three pages.

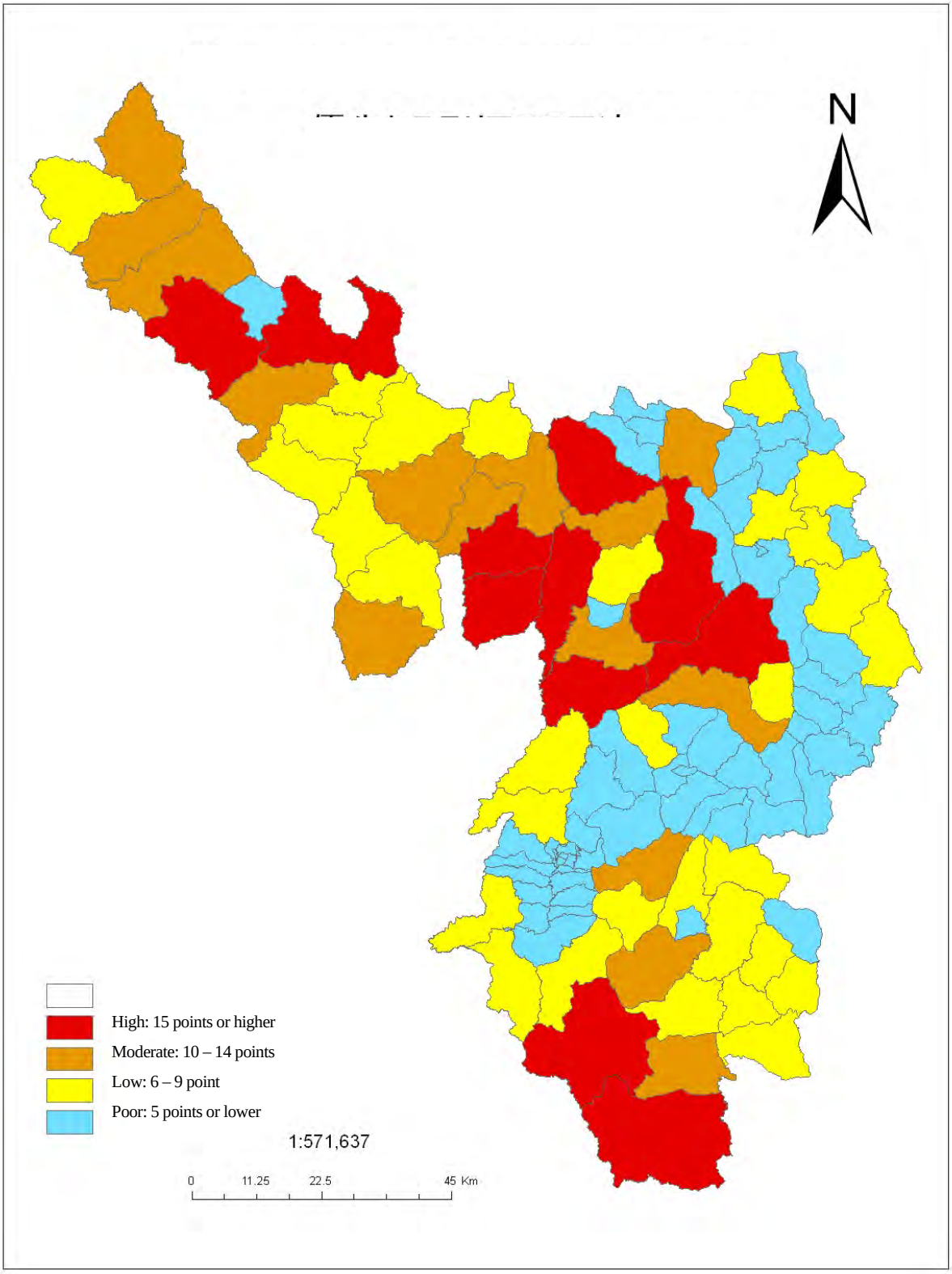
Result of the commune selection by the first class extraction method:



Result of the commune selection by the simple score method



Result of the commune selection by the score with priority method:



6.2.5 Activity E: Afforestation/reforestation

The criteria applied to the selection of the prioritized communes for Activity E, and details regarding the three methods of rating are described in the following table.

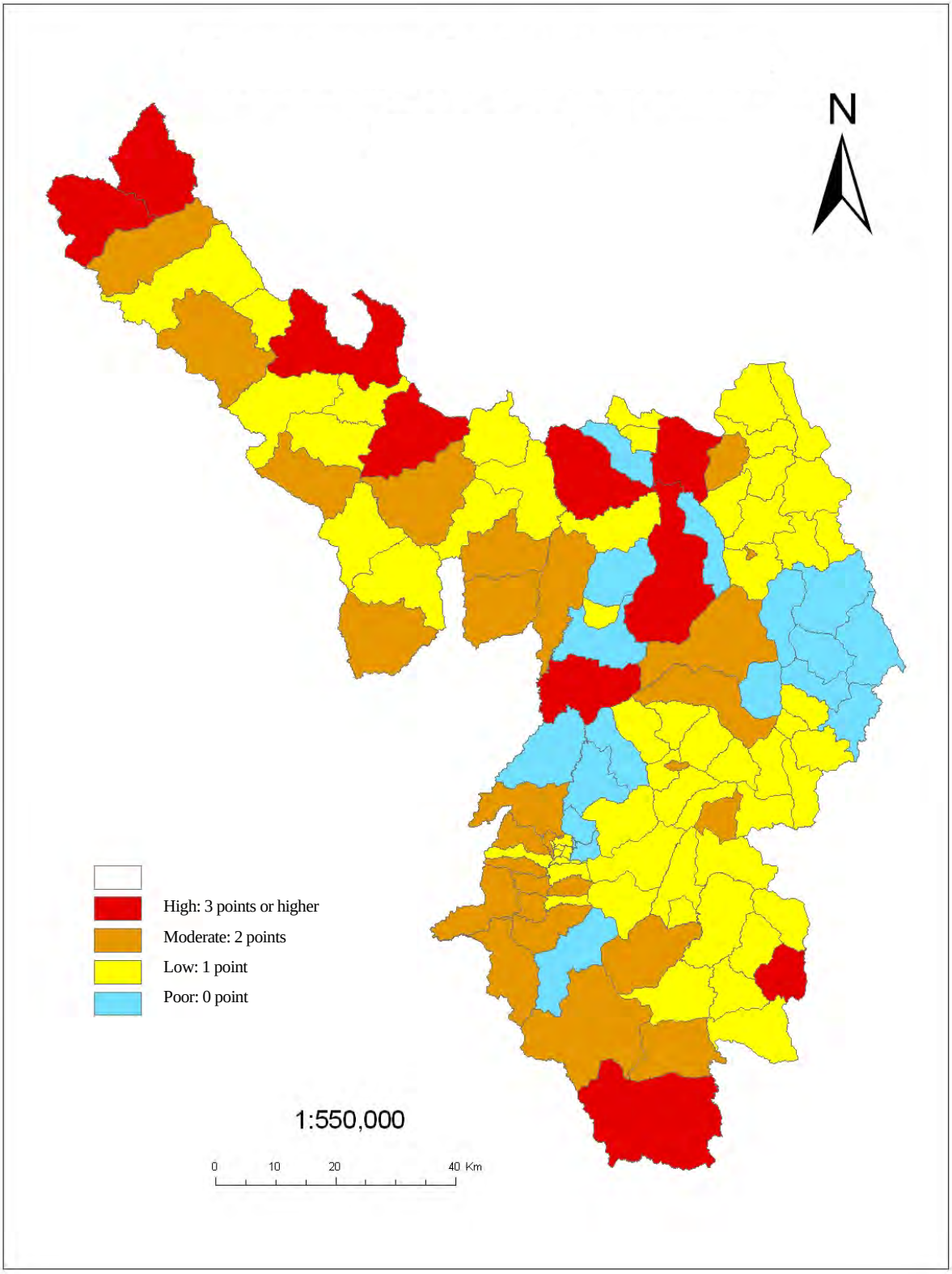
Criteria	Method 1by first class extraction	Method 2 by simple score	Method 3 by score with priority criteria
Large "protection forest" area	Extracting only first class (red color)	three point to first class (red), two point to second (brown), one point to third (Yellow)	six point to first class (red), four point to second (brown), two point to third (Yellow)
Large unused land area	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large bare land area	Same as above	Same as above	Same as above
Large low land productivity area per person (large area of slope land with more than 25 degree)	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)
Low population density	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large paddy area/person	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)
Less dependent on shifting cultivation (Less area/person of shifting cultivation)	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
High portion of Thai people	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)
Area supported by Decision 30A	Same as above	three point to first class (red)	three point to first class (red)

High-ranking communes are shown below, based on the assessment results obtained using each of the above three methods for rating communes for the selected criteria. The outcomes are relatively similar among the three methods. Muong Loi Commune, Muong Mon Commune, Hua Ngai Commune, Muong Tung Commune, Sin Thau Commune, and Sen Thuong Commune are selected by all of the methods. Luan Gioi Commune is selected by the "first class extraction" method and the "score with priority" method. Muong Toong Commune is selected by the "first class extraction" method and the "score with priority" method. Na Say Commune is selected by the "simple score" method and the "score with priority" method.

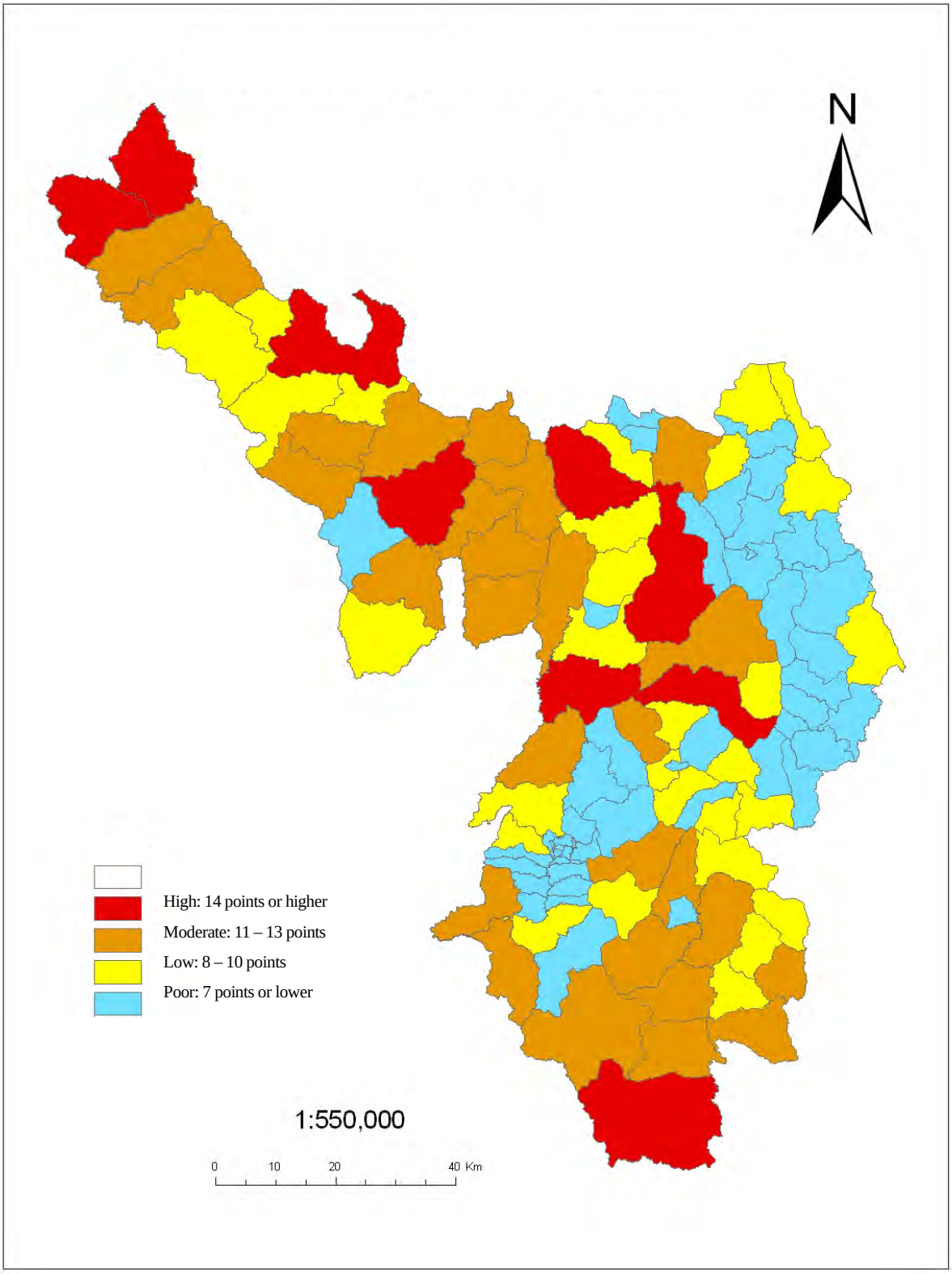
First Class Extraction			Simple Score			Score with Priority		
Commune	District	Pt.	Commune	District	Pt.	Commune	District	Pt.
Muong Loi	DB	5	Muong Loi	DB	16	Muong Tung	MC	24
Muong Mon	MC	4	Muong Tung	MC	16	Muong Loi	DB	23
Hua Ngai	MC	4	Muong Mon	MC	15	Muong Mon	MC	21
Muong Tung	MC	4	Sen Thuong	MN	15	Sen Thuong	MN	21
Sin Thau	MN	4	Hua Ngai	MC	14	Na Say	TG	21
Sen Thuong	MN	4	Cha Cang	MN	14	Luan Gioi	DD	20
Luan Gioi	DD	3	Muong Toong	MN	14	Hua Ngai	MC	20
Xa Tong	MC	3	Sin Thau	MN	14	Sin Thau	MN	20
Pa Tan	MN	3	Na Say	TG	14			
Muong Toong	MN	3						

Communes selected by all three methods are shown in red, while communes selected by two methods among the three methods are shown in brown, yellow, and pinkish colors. The results of commune selection by the three methods are depicted in the maps shown on the next three pages.

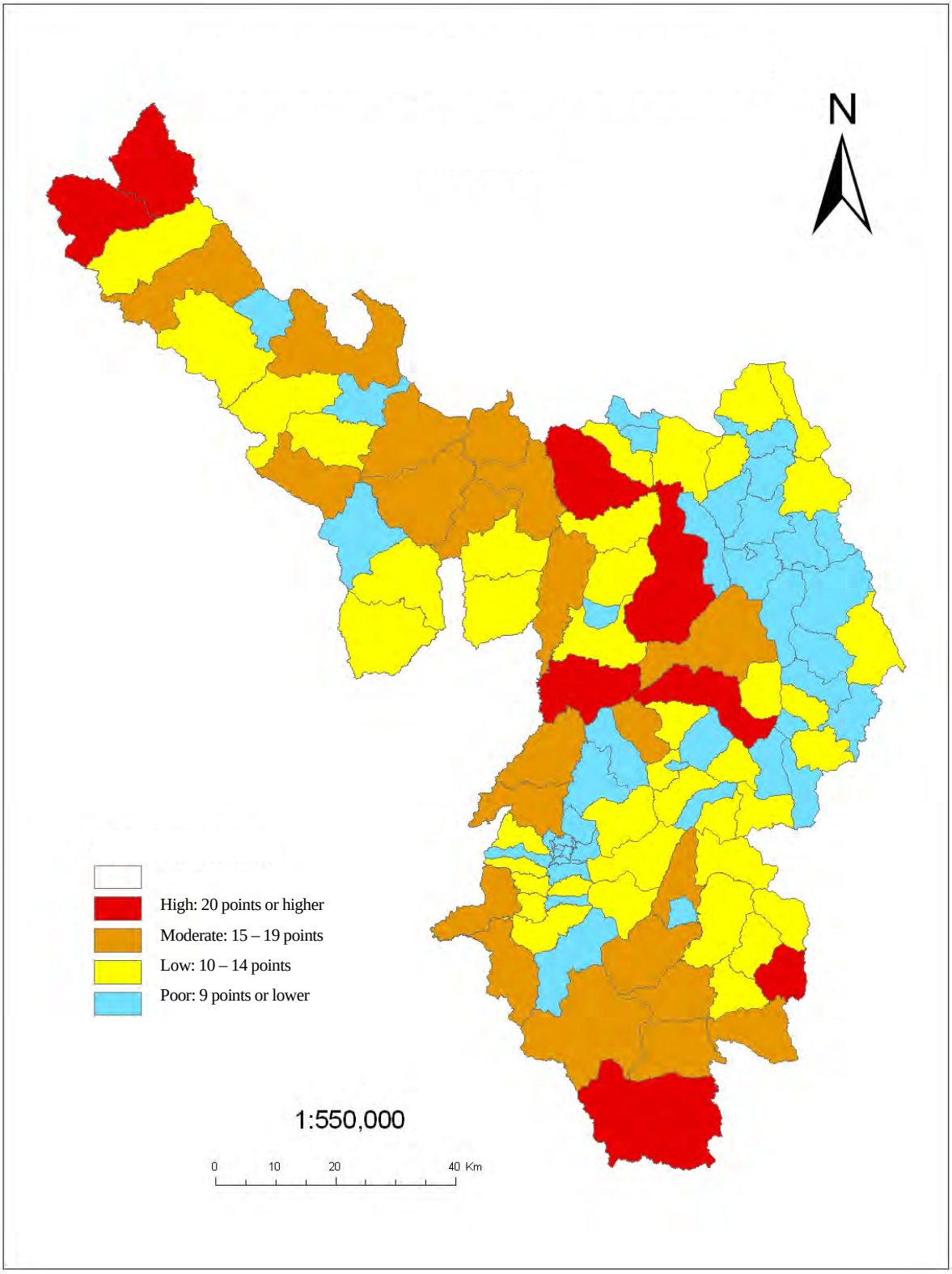
Result the commune selection by the first class extraction method:



Result of the commune selection by the simple score method:



Result of the commune selection by the score with priority method:



6.2.6 Activity F: Plantation with sustainable forest management

The criteria applied to the selection of the prioritized communes for Activity F, and details regarding the three methods of rating are described in the following table.

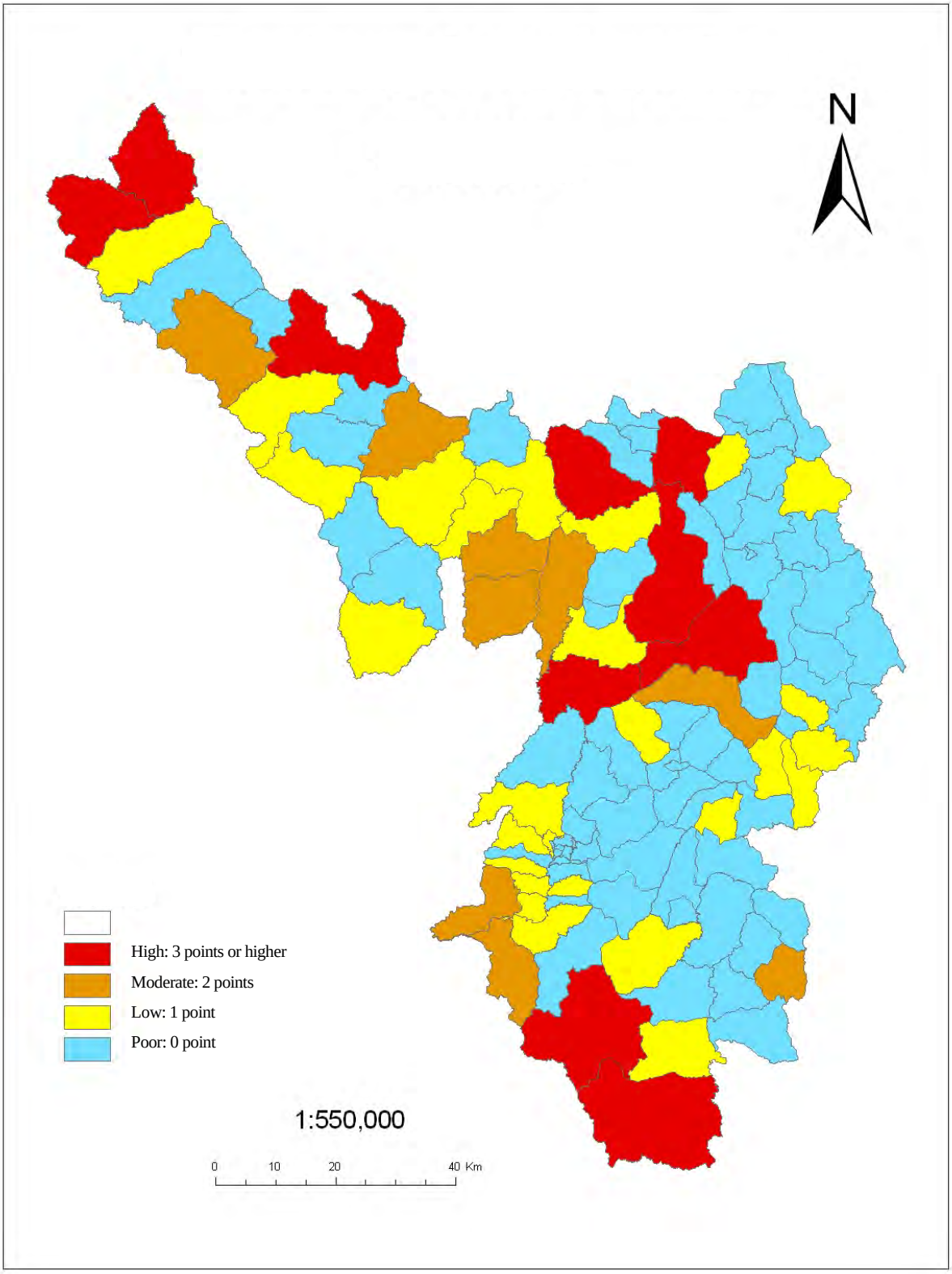
Criteria	Method 1by first class extraction	Method 2 by simple score	Method 3 by score with priority criteria
Large "protection forest" area	Extracting only first class (red color)	three point to first class (red), two point to second (brown), one point to third (Yellow)	six point to first class (red), four point to second (brown), two point to third (Yellow)
Large unused land area	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Large bare land area	Same as above	Same as above	Same as above
Large low land productivity area per person (large area of slope land with more than 25 degree)	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)
Large area of forest lands where CPCs own	Same as above	Same as above	three point to first class (red), two point to second (brown), one point to third (Yellow)
Low population density	Same as above	Same as above	Same as above
Large paddy area/person	Same as above	Same as above	Same as above
High portion of Thai people	Same as above	Same as above	six point to first class (red), four point to second (brown), two point to third (Yellow)

High-ranking communes are shown below, based on the assessment results obtained using each of the above three methods for rating communes for the selected criteria. The outcomes are relatively similar among the three methods. Muong Loi Commune, Hua Ngai Commune, Muong Tung Commune, Muong Mon Commune, Muong Nha Commune and Muong Mon Commune are selected by all of the methods. Muong Toong Commune is selected by the "first class extraction" method and the "simple score" method. Na Say Commune, Ma Thi Ho Commune and Pa Thom Commune are selected by the "simple score" method and the "score with priority" method.

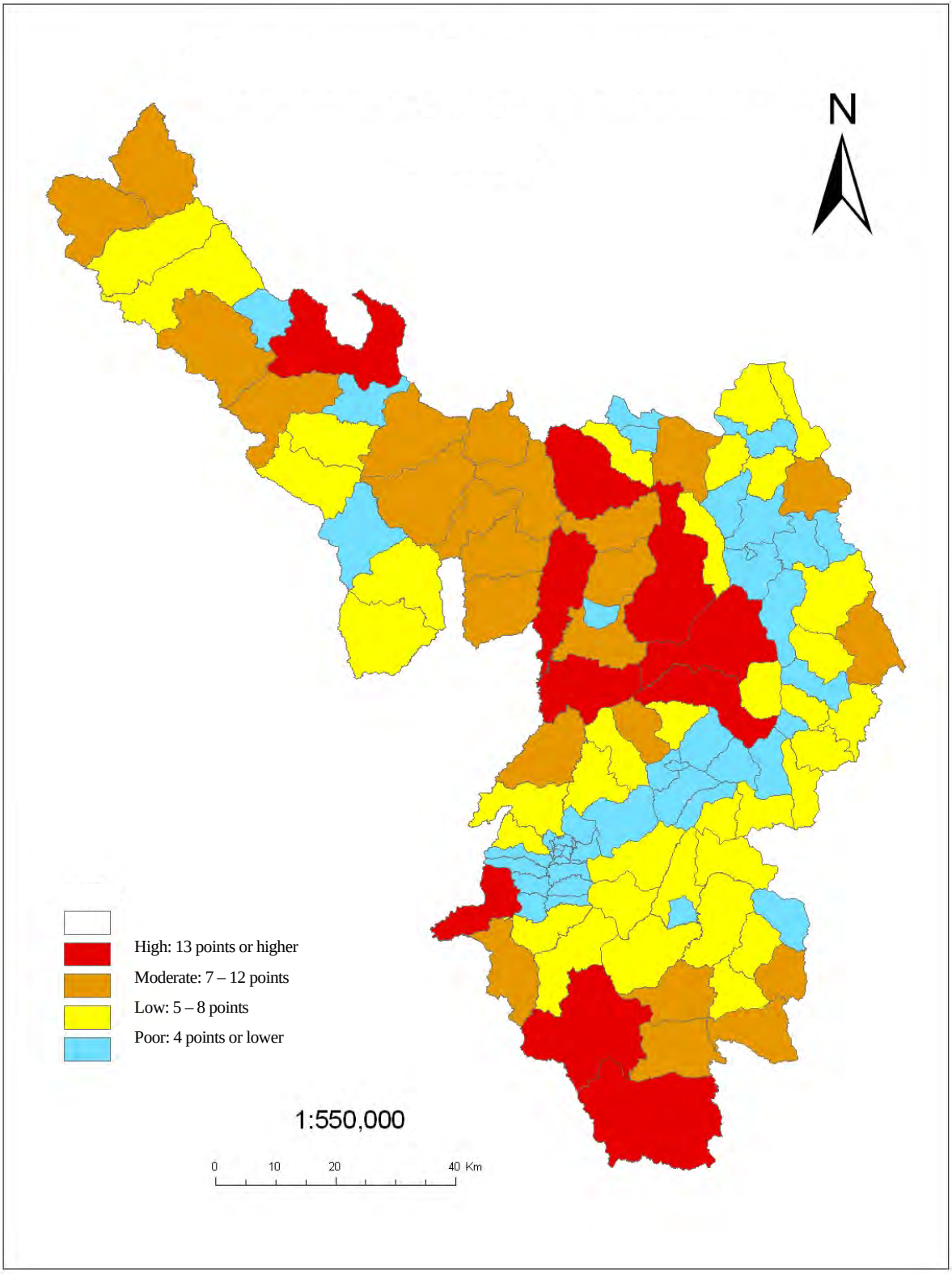
First Class Extraction			Simple Score			Score with Priority		
Commune	District	Pt.	Commune	District	Pt.	Commune	District	Pt.
Muong Loi	DB	5	Muong Tung	MC	19	Muong Tung	MC	26
Hua Ngai	MC	5	Muong Loi	DB	18	Muong Loi	DB	24
Muong Tung	MC	5	Muong Mon	MC	17	Hua Ngai	MC	23
Muong Mon	MC	4	Hua Ngai	MC	17	Na Say	TG	23
Muong Nha	DB	3	Na Say	TG	16	Muong Mon	MC	21
Xa Tong	MC	3	Muong Nha	DB	15	Muong Mun	TG	20
Muong Toong	MN	3	Ma Thi Ho	MC	14	Muong Nha	DB	19
Sin Thau	MN	3	Muong Mun	TG	14	Pa Thom	DB	18
Sen Thuong	MN	3	Pa Thom	DB	13	Ma Thi Ho	MC	18
Muong Mun	TG	3	Muong Toong	MN	13			

Communes selected by all three methods are shown in red, while communes selected by two methods among the three methods are shown in brown and yellow. The results of commune selection by the three methods are depicted in the maps on the next three pages.

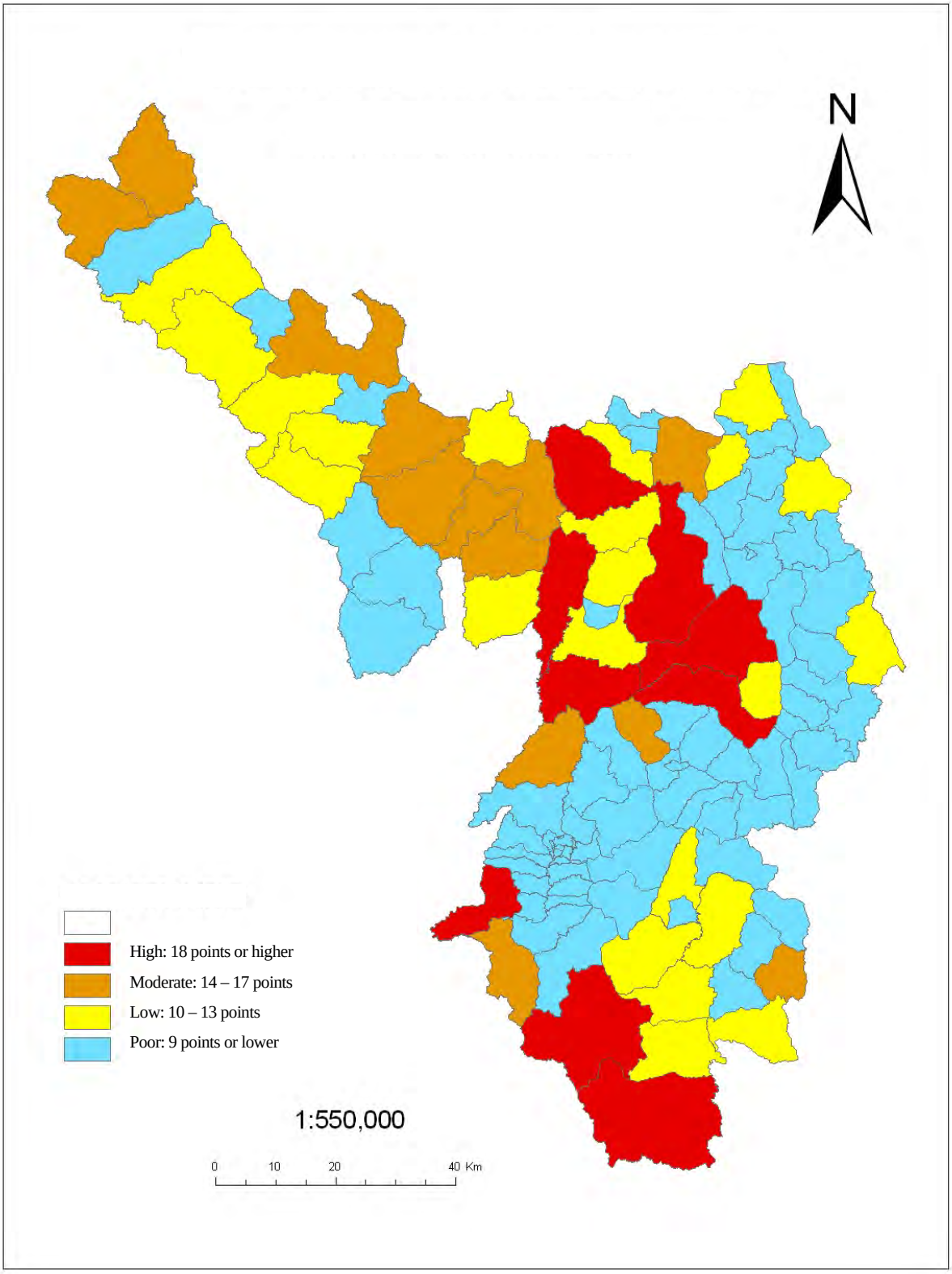
Result of the commune selection by the first class extraction method:



Result of the commune selection with the simple score method:



Result of the commune selection by the score with priority method:



6.3 Initial Conclusion of the Selection of Prioritized Areas

The results of the commune selection process can be summarized in table, below. The communes selected by all of the three applied methods are listed below for each potential REDD+ activity, and are highlighted in red. The communes selected by two of the three methods are highlighted in brown.

Several communes are selected for many activities. For example, Hua Ngai Commune is selected for all activities (by all methods, for each activity) except Activity B. Other communes selected for three or more activities (by all methods for each activity) are Sen Thuong, Sin Thau, Muong Loi, and Muong Tung.

	Activity 1		Activity 2		Activity 3		Activity 4		Activity 5		Activity 6	
	Commune	District	Commune	District	Commune	District	Commune	District	Commune	District	Commune	District
Communes selected by three methods	Hua Ngai	MC	Sin Thau	MN	Muong Loi	DB	Hua Ngai	MC	Muong Tung	MC	Muong Tung	MC
	Sen Thuong	MN			Muong	MC	Muong Loi	DB	Muong Loi	DB	Muong Loi	DB
	Sin Thau	MN			Sen Thuong	MN	Muong Nha	DB	Muong Mon	MC	Hua Ngai	MC
					Hua Ngai	MC	Muong Toong	MN	Sen Thuong	MN	Muong Mon	MC
									Hua Ngai	MC	Muong Mun	TG
									Sin Thau	MN	Muong Nha	DB
Communes selected by two methods	Chung Chai	MN	Chung Chai	MN	Pa Thom	DB	Muong Mon	MC	Na Say	TG	Na Say	TG
	Muong Nha	DB	Muong Nha	DB	Muong Mon	MC	Muong Mun	TG	Luan Gioi	DD	Pa Thom	DB
			Na Hy	MN	Sin Thau	MN	Si Pa Phin	MC	Muong Toong	MN	Ma Thi Ho	MC
			Pa Thom	DB			Ma Thi Ho	MC			Muong Toong	MN
			Leng Su Sin	MN			Phin Ho	MC				
							Muong Tung	MC				
							Muong Nhe	MN				

Although three methods were tested to select prioritized communes, only one should actually be adopted in the final selection process. Furthermore, the adopted method should be common to the selection for all six activities, rather than alternating use of the methods for different activities. Comparing the three methods, the results of the selections by the “simple score” method and “score with priority” method are more or less identical. Therefore, one of these methods should be applied to selection of the prioritized communes.

The difference between the uses of these two methods can be seen in the results for Activity A and Activity C. A point of concern associated with Activity A is whether or not Na Co Sa Commune and Na Say Commune should be treated as prioritized communes. If it is considered appropriate to prioritize these communes, the "score with priority" method could be more suitable. On the other hand, if it is considered to not be appropriate to prioritize these communes, the "simple score" method could be more suitable. Similarly, regarding Activity C, a point of concern is whether Na U Commune should be prioritized over Na Co Sa Commune, Pu Hong Commune, and Muong Toong Commune, or vice versa. If it is considered appropriate to prioritize Na U Commune, the "simple score" method could be more suitable. On the other hand, if it is considered appropriate to prioritize Na Co Sa Commune, Pu Hong Commune, and Muong Toong Commune, the "score with priority" method could be more suitable.

In these contexts, according to consultation with the local governmental parties related to REDD+ in the Dien Bien Province, the "score with priority" method has been selected, because it yields the most appropriate selection of prioritized areas. The high-ranked communes selected by the "score with priority" method for each potential activity are shown in the following table.

Activity A	Activity B	Activity C	Activity D	Activity E	Activity F
Hua Ngai	Pa Thom	Muong Loi	Hua Ngai	Muong Tung	Muong Tung
Chung Chai	Chung Chai	Muong Tung	Muong Loi	Muong Loi	Muong Loi
Muong Nha	Muong Nha	Sen Thuong	Muong Nha	Muong Mon	Hua Ngai
Sen Thuong	Leng Su Sin	Pa Thom	Muong Toong	Sen Thuong	Na Say
Sin Thau	Na Hy	Na Co Sa	Muong Mon	Na Say	Muong Mon
Na Co Sa	Sin Thau	Pu Hong	Muong Mun	Luan Gioi	Muong Mun
Na Say		Hua Ngai	Si Pa Phin	Hua Ngai	Muong Nha
		Muong Toong	Ma Thi Ho	Sin Thau	Pa Thom
			Phin Ho		Ma Thi Ho
			Muong Tung		
			Muong Nhe		

Communes highlighted in color in the table are communes selected as a prioritized area in more than two activities. A total of 22 communes are listed in the table, although the total number of communes obtained by simple addition of the number of prioritized communes in each activity is 49. This means that a commune is listed in more than two activities, according to the simple average calculation (49 divided by 22 is 2.2).

When pilot areas for trial implementation of the potential REDD+ activities are selected in the next sage, in case the communes colored in the above table are selected as pilot areas, more than two activities can be practiced in a commune. Such selections may enhance efficiency for trial practice.

7. Classification of the Districts for the Implementation of the Potential REDD + Activity

In this chapter, a discussion of what kind of classification is possible for each district is embarked on, with an eye toward the implementation of potential REDD+ activities.

First the Study Team tabulated by district the number of first- and second-priority communes for each potential

REDD+ activity extracted from the method 3 by score with priority criteria described in 6.3. Next the Study Team calculated what percentage of the total number of communes that number constituted for each district. The Study Team then classified those percentages as follows.

Group I (50% or more): Activities that should be actively engaged as a district
Group II (30% or more but less than 50%): Activities that could be engaged as a district
Group III (less than 30%): Activities which themselves could be implemented in the district but that would not be implemented en bloc as a district but rather as individual communes with high potential
Group IV (0%): Activities that are infeasible to implement within the district

The results of calculation and classification by the above method are shown in Table 7.1 below.

Table 7.1 Number and percentage of first- and second-priority communes

	Total No. of Communes	No. and Percentage of First- and Second-Priority Communes											
		Activity A		Activity B		Activity C		Activity D		Activity E		Activity F	
		No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
Dien Bien	19	2	10.5	5	26.3	6	31.6	2	10.5	6	31.6	5	26.3
Dien Bien Dong	14	2	14.3	2	14.3	4	28.6	3	21.4	6	42.9	1	7.1
Dien Bien Phu City	10	0	0	0	0	0	0	0	0	0	0	0	0
Muong Ang	10	0	0	0	0	1	10	0	0	1	10	1	10
Muong Cha	15	2	13.3	3	20	9	60	11	73.3	7	46.7	8	53.3
Muong Lay	3	0	0	0	0	0	0	0	0	0	0	0	0
Muong Nhe	16	9	56.3	10	62.5	8	50	8	50	7	43.8	5	31.3
Tua Chua	12	0	0	0	0	0	0	0	0	0	0	0	0
Tuan Giao	14	2	14.3	3	21.4	1	7.1	2	14.3	2	14.3	2	14.3
Total	113	17	15	23	20.4	29	25.7	26	23	29	25.7	22	19.5

50% or more
30% or more but less than 50%
Less than 30%
0%

Activity A: Forest protection in the area of large carbon stock and higher deforestation/forest degradation rate
Activity B: Protection of re-growth forest developed by the 661 program
Activity C: Restoration of the shifting cultivation areas to enhance natural regeneration
Activity D: Restriction of rubber plantation development in the degraded forest area
Activity E: Afforestation/reforestation
Activity F: Plantation with sustainable forest management

Below The Study Team have compiled these results and ranked the districts from the most implementable activities to the least.

Muong Nhe District: Conservation-related activities A through D were in Group I, while the afforestation-related activities E and F were in Group II. This means that all activities were in Group II or above, which makes this district recognized as the one with the highest potential for REDD+ activities in the province.

Muong Cha District: Activities C, D, and F were in Group I, while activity E was in Group II. The other activities were in Group III, so this district is recognized as the one with the next highest potential for REDD+ activities after the Muong Nhe District.

Dien Bien District: Activities C and E were in Group II, and the other activities were in Group III. However, activities B and F, although in Group III, were in the high 20th percentile, so were as close as possible to being in

Group II, which indicates that both activities have potential to be engaged in by the district going forward.

Dien Bien Don District: Activity E was in Group II, and the other activities were in Group III. Activity E, although in Group II, was near 50% so it has potential to be engaged in as a REDD+ afforestation activity by the district going forward.

Muong Ang District: Activities C, E, and F were in Group III, so the district seems to have low potential for engaging in REDD+ activities.

Dien Bien Phu City, Muong Lay District, and Tua Chua District were not in a position to implement any of the activities.

8. Legal intervention in REDD+ Activity

This section attempts to analyze the current legal issues, including policies, decisions, circulars, recommendations, programs, development plans, etc at both the national and provincial levels, in terms of their relevance to REDD+ implementation in Vietnam, regarding both positive and negative aspects. Under the UNFCCC definition, REDD+ can be broken down into the following five activity types:

(a) Reducing emissions from deforestation;
(b) Reducing emissions from forest degradation;
(c) Conservation of forest carbon stocks;
(d) Sustainable management of forest;
(e) Enhancement of forest carbon stocks.

Each legal item was analyzed regarding its association with each of the five activity types from the following perspectives:

- Relevance with the REDD+ activities;
- Conflict with the REDD+ activities.

(1) Legal framework and institutions at the national level for REED+ activities

Table 8.1 lists the legal items at the national level, and summarizes the relevance of each item with the five activity types of REDD+. Detailed descriptions of each legal item and its relevance with the REDD+ activities are provided in Appendix 2.

Table 8.1 Relevance of the legal items in the national level with the REDD+ activities

Legal items	Relevance with the REED+ activities				
	(A)	(B)	(C)	(D)	(E)
13/2003/QH: Law on Land (2003)	x				
29/2004/QH11: Law on Forest Protection and Development (2004)	x	x	x	x	x
Circular 38/2007/BNN: guideline on process and procedures for allocating and leasing forests to organizations, households, individuals and rural communities			x		x

Inter-ministry Circular 07/2011/TTLT: guideline of detailed activities on forest allocation, forest lease associated with land allocation and land lease					
Decree No 01/CP/1995 and 135/2005/NĐ-CP: regulation of forest allocation on contact in the period 1995-2005				x	x
Decision 186/2006/QĐ-TTg: decision of the prime minister on the regulation of forest management Circular 99/TT-BNN: guideline for implementing Decision 186/2006/QD-TTg Circular 35/2011/TT-BNNPTNT: guideline of exploitation of timber and NTFPs	x		x		x
Decision to close natural forests:		x		x	
Decree 117/2010/NĐ-CP: organization and management of the special-use forest				x	x
Decision 18/2007/QĐ-TTg: approval of the Forestry Development Strategy in the period 2006 – 2020	x	x	x	x	x
Decision No. 243/BC-CP: Final Report on the implementation of the project "new planting 5 million hectares of forests" and the plans for forest protection and development in 2011-2020 period.	x	x	x	x	x
Decision No. 57/2012/QD-TTg: Approval of the Plan for forest protection & development 2011-2020.	x	x	x	x	x
Decision 147/200QĐ-TTg: investment policy for development of the production forest	x				x
Decision 100/2007/QĐ-TTG: adjustment of objectives, tasks and policies for implementing the 661 program			x	X	x
45/2009/QH12: law on resource tax	x				
Decree 99/2010/NĐ-CP: payments for forest environmental services				X	
Decree 119/2006/NĐ-CP: organization of forest protection force	x	x	x	X	x
Decree 106/2006/QĐ-BNN: guideline for community forest management				X	
Decree 70/2007/TT-BNN: instruction on how to develop village regulations on community forest management				X	
Decree 245/QĐ-TTg: decentralization of management responsibilities upon forestland and forest resources				X	
Decree 75/2009/ND-CP: consolidating state agencies responsible for management of forest activities				X	
Law on Environmental Protection (2005)			x	X	x
Resolution 60/2007/NQ-CP: government resolution on response to the climate change Resolution 158/2008/QĐ-TTg: decision of the prime minister on response to the climate change			x	X	x
Resolution 2730/QĐ-BNN-KHCN: action plan framework for adaptation and mitigation of climate change of the agriculture and rural development sector period 2008 – 2020			x	X	x
Resolution 204/2006/QĐ-TTg: national action for anti-desertification			x	X	x
Decision No. 2139/QD-TTg: approval of the national strategy for climate change.	x	x	x	X	x
Decision No. 534/2011/QD-BNN-KHCN: Action Plan for responding to climate change in agriculture and rural development sector 2011-2015 and vision 2050.	x	x	x	X	x

Although all of the above listed legal items are related in some manner to REDD+ implementation, it is not easy to define the specific REDD+ activity type with which each legal item is related. Normally, the five activity types

are interconnected, so they can only be separated in a relative manner. Among the legal items analyzed, 20 items are related to "sustainable forest management", 17 items are related to "enhancement of forest carbon stocks", 14 items are related to "conservation of forest carbon stocks", 11 items are related to "reducing emissions from deforestation", and 8 items are related to "reducing emissions from forest degradation". However, these items refer to macro-level management at the macro level, rather than activities which cause deforestation and forest degradation, especially regarding the natural forests.

In particular, the "Law on Forest Protection and Development" (29/2004/QH11), "Strategy for Forest Development" (Decision 18/2007/QĐ-TTg), "New planting of 5 million hectares of forests and the plan for forest protection and development in the period of 2011 – 2020" (Decision No. 243/BC-CP), "Approval of the plan for forest protection and development in the period of 2011 – 2020" (Decision No. 57/2012/QD-TTg), "Organization of the Forest Protection Force" (Decree 119/2006/NĐ-CP), "Approval of the national strategy of climate change" (Decision No. 2139/QD-TTg), and "Action plan for responding to climate change in agriculture and rural development in the period of 2011 – 2015 and vision for 2050" (Decision No. 534/2011/QD-BNN-KHCN) are related to all of the five activity types of REDD+.

In addition, there are also some aspects of these legal items which may become barriers or obstacles to implementation of the REDD+ activities. Some of these obstacles are presented in the table, below. Detailed descriptions of the negative aspects of the legal items on implementation of the REDD+ activities are provided in Appendix 2.

Table 8.2 Negative aspects of the legal items on the REDD+ implementation

Legal items	Barrier or obstacle to the REDD+ implementation
Law on Land (2003)	- Although the forestry land covers the largest area in Dien Bien Province and is used for various purposes, it is still included in the agriculture land category. - Separation of the land allocation and the forest allocation: The natural forest always adheres to the land. However, when the land with natural forest cover is allocated, the land allocation certificate and the forest allocation certificate are issued separately. - The price of the land is also separated from that of the natural forest. - There is no unified administrative process of the land allocation and forest allocation. - Information on forests is not provided in the certificates so that the land-users cannot exactly know the property they receive. Forest status is surveyed without participation of individuals, households or communities to whom the land or forest is allocated.
Law on Forest protection and Development (2004)	**Land use right of economic organizations:** - It is not allowed to transfer, sell, present or rent out the forest use right. It is neither allowed to mortgage, bail or contribute the value of the allocated natural production forests, and the use right of plantation funded by state budget (Point 4, Article 63). - It is only allowed to mortgage, bail or contribute the increased value created by the land-users (Point 1, Article 64). **Forest use right of individuals and households:** - They have the right to harvest natural production forests as stipulated in Artcle 56. They are allowed to mortgage, bail or contribute fund equal to the value of the forest use right decided at the time of allocation (Point 5, Article 71). - Classification of the forest into three types, Protection, Production and Special Use, is not corresponding to the world criteria for forest management.
Decision No. 243/BC-CP	- The violation of forest protection regulations still complicatedly occurs. Illegal forest exploitation, forest fires, encroachment and opposing duty occurred seriously in some areas, pressing social opinions.

	- The process of allocating forest land was slow. The area which has not been allocated to the commune People's Committees is still over 2 million ha. The process of providing certificates of land use rights is still slow and only just focused on allocating forest land, not forests themselves. The allocation of land was just presented on the certificates. In practice, there is no defined boundary of the land. - Hundreds of thousands of hectares of poor natural forests have been approved for planting rubber trees.
Decision No. 57/2012/QD-TTg	- There are no clear criteria for determination of cultivated forest land in theory as well as in practice. There is confusion between cultivated forest land and cultivated agricultural land according to the analysis of the Ministry of Natural Resources and Environment (this confusion is also demonstrated in the cultivated forest land proposals of Department of Forestry as well as Dien Bien's People Committee). Due to the confusion in determining the lands, the policy cannot be implemented if only the forestry sector involves in the process. - The objective of renovating 350,000 ha degraded forest seems contrary to REED+ trend of anti-declining forest coverage, especially natural forests which have greater effects on environmental protection than artificial forest. Several hundreds of thousand hectares of natural forests which were considered poor forests have been changed to rubber tree plantations throughout the country, especially in Central Highlands and the South-East. Even in Dien Bien province although the natural forest area is very limited an area of 10,000 hectares has been used for cultivation of rubber trees.
Credit	- Due to limited fund, the state bank loan for pulp wood plantation is only accessible by the major state forest enterprises. - Although it stipulates that "the loan period follows the tree rotation; the debtor needs to pay back the loan only after harvesting without accumulated interest", it cannot be practiced in reality because the state banks want to protect their interests.
Decision 147/2007/QĐ-TTg	- Investment norm for state support is already outmoded and it has not been adjusted to be suitable again. - Procedures for setting up and approving a plantation project are complicated and time-consuming.
Decision No. 380/ QD-TTg, ngày 10/4/2008 on payment to environment service Decree 99/2010/ NĐ-CP on payment to environment service	- The K Factor that depends on types of forests (protection, production or special-use), forest status (rich, average, poor or regeneration forest), history of forests (natural or plantation forest) has been approved by the People's Committee of Lam Dong Province and Son La Province on the basis of pilot tests carried out and certified by responsible agency. - Payment of environment service is relatively fixed. Meanwhile, when area and quality of forests in watershed area are increased, payment of environment service per area and forest owner decreases. This does not motivate them to increase area and quality of forests.

(2) Legal framework and institutions of Dien Bien Province for REED+ activities

Under the Government's priorities, a number of forest development projects have been implemented in Dien Bien Province, such as the 327 Program, the 661 Program, and so on. The forestry sector of Dien Bien Province has achieved some positive results, including the protection and rehabilitation of the natural forest as well as afforestation/reforestation. Meanwhile, activities to produce forest products are still experiencing a period of weakness.

Regarding the management of forests and forest development activities, the provincial government bases its policies mainly on the forestry policies of the central government. The main contents of these policies are the

guidelines for implementing policies issued by the central government.

The following Tables contain an analysis of the key legal items of the provincial government that relate to REED+ activities. Detailed descriptions of the legal items at the province level, and their relevance to REDD+ implementation are provided in Appendix 2.

Table 8.3 Relevance of the legal items in the province level with the REDD+ implementations

Legal items	Relevance with REED+ activities				
	(a)	(b)	(c)	(d)	(e)
Decree No. 520/QD-UBND on participatory forest land allocation				X	
Resolution No. 07/NQ-TU for development of concentrated production of agriculture and forestry in order to provide products for exportation					x
Decision No. 76/QD-UBND about approval of checking results and planning of three types of forest of Dien Bien province for period of 2008-2020				X	
Decision No. 983/QD-UBND of approval plan of forest protection and forest development of Dien Bien province for period of 2008-2015 with vision to 2020	x	x	x	X	x
Decision No. 10/2011/QD-UBND of approval cost norm paid for activities on forest development and protection of the Dien Bien province during period of 2008-2015 with vision to 2020					x
Decision 1305/QD-UBND, approval of planning of development rubber in Dien Bien province in period of 2008-2020	x				
Decision 208/QD-UBND, approval of enviromental impact assessment of conversion 10,000 ha into rubber plantation	x				x
Decision 593/QD-UBND, approval of detail planning of Muong Nhe Natural Conservation area				X	x

Table 8.4 Negative aspects of the legal items in the province level on the REDD+ implementation

Legal items	Barrier or obstacle to the REDD+ implementation
Decree No. 520/QD-UBND on participatory forest land allocation	- The decree was issued before arrival of Land Law 2003 and Forest Protection and Development 2004. Moreover, socio-economic conditions has been largely changed. - Not sufficient human resource or budget is given for implementation, leading to poor implementation of the decree and not enabling practical activities to follow procedure stipulated in the decree.
Decision No. 983/QD-UBND of approval plan of forest protection and forest development of Dien Bien province for period of 2008-2015 with vision to 2020	- According to classification of MORE, upland rice cultivation area (LUN), area of long-term industrial plantation (LNC), area of fruit tree (LNQ) are not the forestry land but under category of agricultural productive land. - Area of shifting cultivation is not recognized in the forestry land classification. - There is confusion in forestry land classification. It needs to take area of shifting cultivation out of calculation of forest land in order to create a convenience of management. If the state perceives that shifting cultivation is suitable way in livelihood of the mountainous people, then it should has a policy on land allocation policy that provide suitable area for local people. However, activities of shifting cultivation and forest invasion for agricultural cultivation are not allowed.
Decision 1305/QD-UBND, approval of planning of development rubber in Dien Bien province in period of	- Area of rubber plantation in 2020 is planned to be 20,000 ha for every district. Most of area of rubber plantation is located in Muong Nhe, Muong Cha and Dien Bien. - Poor natural forests should be converted into rubber plantation: - Total area of production forest that is going to be converted is 20,796 ha. According to data in this decision, these are not poor natural forests. Actually,

2008-2020	32% of this area is natural forest in category of IIa and 36.9% of IIb and 3.4% of IIIa1.
Decision 208/QD-UBND, approval of environmental impact assessment of conversion 10,000 ha into rubber plantation	- According to Department of Recourse and Environment, most of areas planned for rubber plantation are bare land. According to DARD, however, more than 4,000 ha used for rubber plantation are being converted from natural forests classified as IIa and better statement. Moreover, the rubber company has cut down trees of the forests, where it has not received land use certificate. Sub-Department of Forest Protection reported it found logs harvested in the areas for rubber plantation to be transported on the road without legal documents. The Forest Ranger cannot do anything with those logs. - The Forest Ranger has no role in process of making planning for rubber conversion and it cannot make a voice about conversion of forest land into rubber plantation, either. The Forest Ranger is allowed to check the activities after forests are cleared. - According to a social survey, portion of people, who have an agreement with rubber plantation, is very small. Especially, very small number of people living in the forest area has agreed with development of rubber plantation.
Decision 593/QD-UBND, approval of detail planning of Muong Nhe Natural Conservation area	- There is lack of understanding about root cause of illegal migration of H'Mong households in the ecological regenerating zone. It is necessary to reanalyze the situation aiming at bringing solutions for those households. - The most serious challenges of the natural conservation are shifting cultivation and land invasion of local people (mainly H'Mong people) living in the buffer zone. Meanwhile, solutions to support socio-economic development of the buffer zone are not clear.

Although this section attempted to relate the existing legal items of Vietnam with the five activity types of REDD+, it will be necessary to analyze the relation of each legal item with specific activities, after the REDD+ activities which will be implemented have been specified.

9. Proposal of Option for Setting Interim REL/RL in Dien Bien Province

This chapter discusses options proposed toward the setting of REL/RL at the province level.

Even toward the setting of REL/RL at the province level, as with the setting of RELs/RLs at the national level, The Study Team use the forest change matrix method, and for REL The Study Team suggest estimating in terms of the amount of change in carbon emission of deforestation and forest degradation, while for RL the Study Team suggest estimating in terms of the change in carbon removal of re-growth, afforestation, enrichment, and so on.

The RELs/RLs using the forest change matrix method here are those that do not exceed the range of BAU. Accordingly, additional deliberation is required toward the setting of RELs/RLs in consideration of national circumstances.

In setting RELs/RLs in consideration of this national circumstance for Vietnam, a major perspective will be as to how to handle the effects of the 661 program. Also, in the case where the 661 program is considered in terms of the national circumstance, differing options would be likely to present themselves for methods of setting REL/RL in consideration of a carbon removal type of program, that is, afforestation and forest restoration programs in the 661 program, in terms of the national circumstance and methods of setting REL/RL in consideration of carbon emission mitigation type program, that is, forest protection programs within the 661 program, in terms of the national circumstance. In this chapter, the Study Team would like to suggest those

options and use them as a springboard for discussion. However, in order to handle the 661 program as the national circumstance, it is required to grasp policy effects of the 661 program in the robust and transparency method as much as possible. Through the process, it is indispensable to prove that 661 program is accepted as national circumstance.

9.1 Proposal for REL/RL Method that Considers 661 Afforestation and Forest Restoration Programs in terms of the National Circumstance

First of all, for the afforestation and forest restoration programs carried out under the 661 program, the following two methods could be proposed, predicated on the assumption that the protection of these afforested or re-grown forests is approved as a REDD+ activity going forward. One is the method of setting RL by subtracting the effects of the afforestation and forest restoration in the 661 program from the historical trend, and the other is the method of setting REL by assuming that the artificial and re-growth forest created in the 661 program will lead to deforestation in the future and making adjustments to any future extrapolations to that degree. The two proposed methods are described below.

(1) Proposal for Method of Setting RL by Subtracting the Effects of the 661 Program from the Historical Trend

A model of the proposal for the method of setting RL by subtracting the effects of the afforestation and forest restoration program in the 661 program from the historical trends as an early action is shown in Fig 9.1.

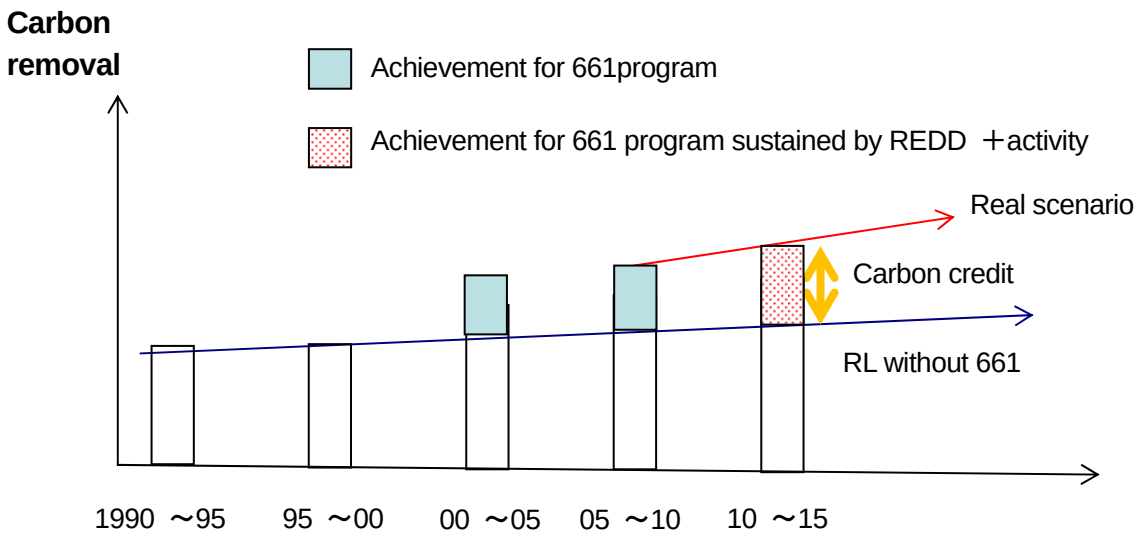


Fig. 9.1 Model figure in the case of setting RL subtracting effect of the 661 program as National circumstance from historical trend

In this chart, the vertical axis shows the amount of change in carbon removal, while the horizontal axis shows each five-year time period. The portions of the chart colored blue are assumed to be the achievements for the 661 program in terms of the amount of carbon removal. In this way, by subtracting the amount of carbon removal achieved in the 661 program from 2000 to 2005 and the amount of carbon removal achieved in the 661 program from 2005 to 2010, the amounts indicated by the remaining white portions all by themselves constitute the total amounts of carbon removal. If the RL model is set with the amount of carbon removal in this white portion as the

historical trend, the RL becomes the line indicated by the blue line.

On the other hand, regarding the real scenario, the portion indicated by red polka dots in 2010 to 2015 is the forest creation achieved in the 661 program, and if protection of those created forests is sustained by REDD+ activity, this will enable that portion to be acquired as carbon credits. However, the reader is asked to keep in mind that this chart is only a model and is not based on actual figures.

(2) Proposal for Method of Setting REL by Adjusting the Assumed Amount of Future Deforestation by Extrapolation

Next, a model of the proposal for the method of setting REL by assuming that the forests created by the 661 program that will be lost in the future due to its ending and adjusting by the future extrapolation is shown in Fig. 9.2.

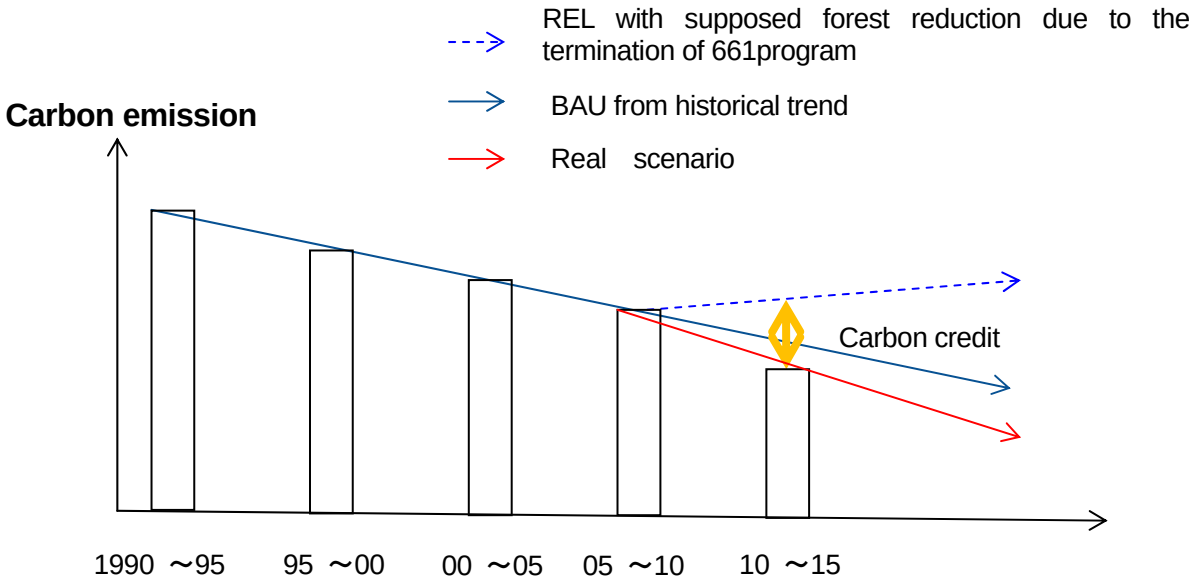


Figure 9.2 Model figure in the case of setting REL to be a loss of forests by 661 due to the termination of 661 program

In this chart, the vertical axis shows the amount of change in carbon emissions, while the horizontal axis shows each five-year time period, as with the model chart 9.1 shown a moment ago. The white portions of the chart are shown the historical trend in the amount of change in carbon emissions including outcomes of 661 program implemented, and the solid blue line is the BAU line based on the historical trend. On the other hand, the dotted blue line is the REL assuming that the forests created by the 661 program will be lost due to the program ending. The red line is the real scenario in which the protection of the forests created by the 661 program is added to the REDD+ activities. Accordingly, the disparity between the change in the actual amount of carbon emissions in 2010 to 2015 (red line) and this dotted blue line is the credits that are acquirable. However, as with the chart 9.1 shown a moment ago, the reader is asked to keep in mind that this chart is only a model and is not based on actual figures.

9.2 Proposal for REL/RL Method that Considers 661 Afforestation and Forest Restoration Programs in terms of the National Circumstance

First of all, for the forest protection program carried out under the 661 program, the following two methods could be proposed, predicated on the assumption that the sustained protection of these protected forests is approved as a REDD+ activity going forward. One is the method of setting REL by subtracting the effects of the forest protection achieved in the 661 program from the historical trend, and the other is the method of setting REL by assuming that the forest protected in the 661 program decline in the future and making adjustments to any future extrapolations to that degree. The two proposed methods are described below.

(1) Proposal for the Method of Setting REL by Subtracting the Effects of the 661 Program from the Historical Trend

A model of the proposal for the method of setting REL by subtracting the effects of the forest protection program in the 661 program from the historical trends as an early action is shown in Fig. 9.3.

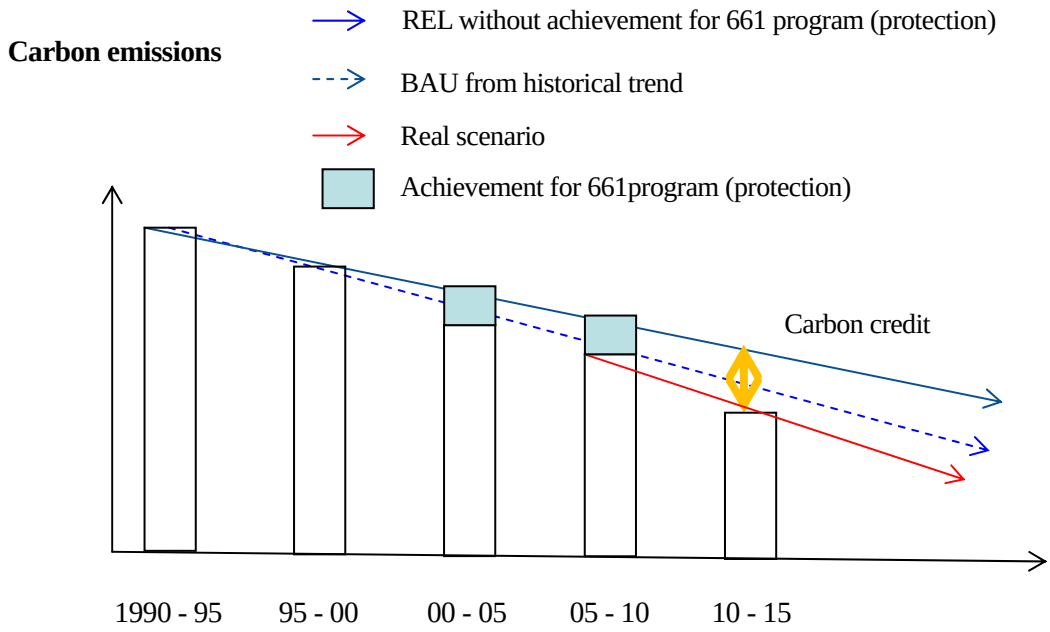


Figure 9.3 Model figure in the case of setting REL subtracting effect of the 661 program as National circumstance from historical trend

In this chart, the vertical axis shows the amount of change in carbon emissions, while the horizontal axis shows each five-year time period. The portions of the chart colored blue are assumed to be the achievements for the 661 program in terms of the amount of reduction of carbon emissions. In this way, by adding the amount of reduction of carbon emissions achieved in the 661 program from 2000 to 2005 and the amount of reduction of carbon emissions achieved in the 661 program from 2005 to 2010, indicated in blue, to the amount that would have been emitted in the absence of the 661 program, the amounts indicated by the white portions topped with the blue portions is the total amount of carbon emissions taking the national circumstance into account. If the REL model is set with these two added together as the historical trend, the REL becomes the line indicated by the solid blue line. The dotted blue line is the BAU line based on the historical trend when only looking at the amount of

carbon emissions shown by the white portion.

Next, the red line is the real scenario of the addition of protection of the forests created in the 661 program to the REDD+ activities, and the disparity between the actual change in the amount of carbon emissions in 2010 to 2015 (red line) and this solid blue line is the credits that are acquirable. However, as with the charts shown a moment ago, the reader is asked to keep in mind that this chart is only a model and is not based on actual figures.

(2) Proposal for Method of Setting REL by Adjusting the Assumed Amount of Future Deforestation by Extrapolation

Next, as a proposal for a method of setting REL by assuming that the forests protected in the 661 program will be lost in the future due to its ending and making adjustments using future extrapolations, this proposal is given by replacing only the part of 9.1 (2) that reads "assuming that the forests created by the 661 program that will be lost in the future" with "assuming that the forests protected by the 661 program that will be lost in the future," and the methodology of setting REL itself is exactly the same as in 9.1(2), so it is asked that the reader consult that sub-section.

9.3 A Comparison of the Two Proposals

Next, the Study Team will compare and analyze the proposals for the methods of setting REL/RL by subtracting the effect of the 661 program from the historical trend in (1) of 9.1 and 9.2 with the proposals for the methods of setting REL by making adjustments to the assumed amount of future deforestation by extrapolation as indicated in (2) of 9.1 and 9.2.

First, the activities under REDD+ predicated on the setting of REL/RL while taking into account these 661 programs in terms of the national circumstance are activities to protect the afforested and re-grown forests, or the preserved forests, based on the notion that the ending of public funding support through the 661 program will convert these forests into non-forest land. Accordingly, considering the compatibility of this 661 program and the REDD+ activities, it is thought that proposed method (2) is more suitable. It is, however, difficult to ascertain how much the forests would actually be reconverted to non-forest land quantitatively in the future if there is no REDD+ activity, which is the foundation of that proposed method. However, a method like the one below could be employed as a method for adjusting future extrapolations.

1) Identify the places where there is definite afforestation and re-growth in the 661 program that had ended by 2008, which was the year the Spot satellite images—which are the basis for the 2010 forest distribution maps of the Dien Bien Province—were taken.

2) Based on the satellite images taken in 2010 or 2011, create a forest distribution map of Dien Bien Province and confirm to what extent these afforested or re-grown places have returned to non-forested land as of the time the images were taken.

3) Adjust the future extrapolation based on the ratio of the area that has returned to non-forested land in 2).

Note that it is imaginable that the places in which the protection program was implemented have been under less pressure to return to non-forested land that the places in which afforestation or re-growth programs have been

implemented (though the places in which the protection program was implemented may be under pressure to be degraded). This is due to the differences between a program that protects natural forest where the forest conditions remain and a program that re-grows forests on bare land (mainly Ic). If the bare land had originally been a slash-and-burn site, it is imagined that the pressure to convert it to agriculture would be high. Accordingly, since conserving this natural forest requires considering degradation, it seems that the uncertainty would increase when future extrapolation is estimated.

Moreover, although it is certain that the 661 program ended (will end), it is being considered that contracts will be signed and payments made for protection, re-growth, and so on as with the 661 program via a successive forest protection development program, including intention that it will be operated in conjunction with PFES—that is, it will intensively allocate national funding into forest protection development programs in areas where PFES payments do not reach. In addition, PFES has a K coefficient according to the forest status, it is understood that this has the effect of restoring blighted land while conserving, and if the forest is in a watershed area it is eligible for payment whether it was covered in a past 661 program or not. Accordingly, it seems that the assumption that all places' re-grown in the 661 program will have their support cut is going to change.

In light of the above, the proposal for the method of setting REL in (2) based on the scenario in which the 661 program ends, government fiscal support is no longer available, and forest protection becomes difficult, which is what REL is predicated upon, could itself be a difficult scenario to explain.

On the other hand, in the method of subtracting from the past portion, the amounts invested in the past 661 program are ascertained, the amount of forest restoration in the 661 program can be possibly ascertained quantitatively to a degree based on the success rate, although the success rate also has a problem with uncertainty.

Taking the foregoing into account, rather than setting REL by adjusting future extrapolated portions based on a scenario in which the forests re-grown or protected under the 661 program are lost, Vietnam is a country that has taken early action via the 661 program, so it seems the possibility that it would be more easily accepted to set RL and REL by modifying the historical trend mentioned in 9.1 (1) and 9.2 (1) respectively, and then claim that the credits should be acknowledged in a form that considers that part in terms of the national circumstance.

However, it seems that for either method the issues of whether the 661 program will be acknowledged as a national circumstance, and whether the set REL or RL will be acknowledged as robust, will be a major factor in whether these methods can be adopted. Especially, as mentioned before, in order to handle the 661 program as the national circumstance, it is required to grasp policy effects of the 661 program in the robust and transparency method as much as possible. Through the process, it is indispensable to prove that 661 program is accepted as national circumstance.

10. Implementation Arrangements

10.1 Proposal of Methodology of MRV

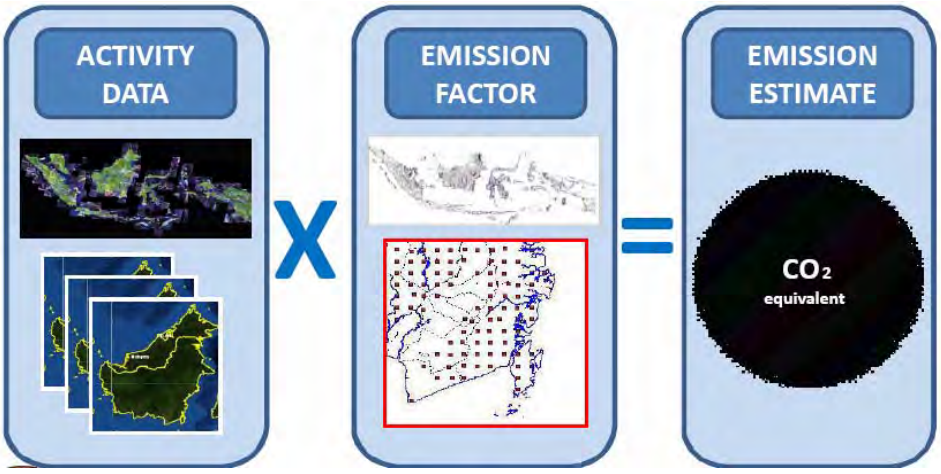
This section aims to propose the options to develop the methodology of MRV in Dien Bien Province, by integrating and improving the current situation regarding the forest monitoring system at the national and provincial levels, in order to implement REDD+ pilot activities in Dien Bien Province. Here, MRV refers to a

series of activities for “Measurement”, “Reporting”, and “Verification” performed by countries, and is also used as a concept for activities which should be implemented in a “Measurable, Reportable, and Verifiable” manner.

10.1.1 Defining MRV

Developing an MRV system is a key component in estimating GHG-I for REDD+ in developing countries, to address the anthropogenic emissions by sources and removals by sinks including those for the forestry sector, and for reporting to the UNFCCC in order to access the funds. Since REDD+ is a system for providing incentives to countries according to the amount of GHGs emission/reduction, a robust and transparent forest monitoring system is essential to determining the change in forest carbon stock change using a combination of remote sensing and ground-based forest carbon inventory approaches, and to following IPCC guidelines, as well[1]. However, the modalities are not indicated by the SBSTA (Appendix II (c), Decision1/CP.16); accordingly, the actual methodology of the monitoring system must be developed through the use of case studies in each country.

The primary objective of developing an MRV system is to comply with the international reporting rules, and also to contribute to the benefit distribution system at a scale smaller than the national level (*e.g.*, provincial level). The 2006 IPCC’s Guidelines provide a methodological basis which is fully consistent with the 2003 IPCC GPG for LULUCF currently adopted by the UNFCCC for reporting GHG-I. In the IPCC’s GPG, the most common methodological approach for estimating GHG Emissions is to combine activity data (AD) with an emission factor (EF). Figure 10.1 shows an image detailing the estimation of GHG emissions, and Table 10.1 shows each element of the accompanying MRV.



Reference: Reference Emission Levels Indonesia-Ruandha Sugardiman

Figure 10.1 Image of estimating GHG emissions

Table 10.1 Element of MRV

Measurement element	Activity Data (AD) and Emission Factor (EF) is used to estimate GHG-I. AD is generated by monitoring forestry and non-forestry land using remote sensing data with grand truth. EF is carbon stock of each forest types generated by ground-based national forest inventory. Allometric equations and conversion/expansion factors of biomass is needed as well.

[1] UNFCCC Decision 4/CP.15 Paragraph 1

Reporting element	A National GHG-I is typically divided into two parts: reporting tables (standardized data tables that contain mainly quantitative information) and an inventory report (comprehensive and transparent information about the inventory e.g. overview of trends, inventory compilation methodology and information on uncertainties.
Verification element	A process of independent review (checking the accuracy and reliability of data submitted), undertaken by the UNFCCC Secretariat of reported information and the procedures used to generate information. A process of checking inside of own country would be defined as QA/QC.

Developing the measurement element needs to implement robust and transparent forest monitoring in order to report to the UNFCCC to obtain funds at the national level, and implement BDS at a scale smaller than the national level (*e.g.*, at the provincial level) as an indicator of budget allocation, as well.

Since developed countries have been making great efforts towards establishing regulations and allocating human resources and budget in order to fulfill their duties for REDD+, the load on human resources in developing countries must be taken into consideration in developing the MRV system, such as simplifying reporting and easing data generation, based on existing and future planned capacities and systems. Developing countries are required to submit the REDD+ component of the national inventory report to the UNFCCC every two years, and to the National Communication (including a National GHG-I) every four years (Cancun Agreement). However, further guidance on the specifics of reporting to the UNFCCC still awaits further deliberation by the COP.

10.1.2 International Cooperation to Develop MRV in Vietnam

To meet the UNFCCC requirements, there are many related programs/projects which have been undertaken to develop MRV in Vietnam, along with international cooperation. The related main program/projects are the UN-REDD program and the NFA, founded by FAO, SNV, and FORMIS.

(1) Vietnam National REDD+ Program

Vietnam is currently at the end of Phase I[2] of REDD+, involving the development of the National REDD+ Program, PaMs, and capacity building with the cooperation of UN-REDD. Although the modalities of MRV are not clearly defined in the COP, the National REDD+ program has been attempting to state an MRV system in Vietnam, which is "the objective of the MRV system would be to enable the assessment of national GHG emissions and removals in the forestry sector, and to report this to the UNFCCC in a verifiable manner".
The Vietnam National REDD+ Program has just endorsed an MRV document, which states a framework for the MRV system, and discusses the technical requirements and existing capacity gap for operating the monitoring system in Vietnam.

(2) National Forest Assessment (NFA) project

The NFA project for Vietnam (under the FAO Finland Cooperation Project) will be operational for three years from March 2011, with the overall objective of assisting the government in developing and improving its NFIMAP (National Forestry Inventory Monitoring and Assessment Program)[3] for responding to emerging

[2] Phased approach contained in paragraph 73 of the Cancun Agreement. Following the three phases of REDD+, development and implementation of the MRV System, Information System and monitoring of PaMs will be undertaken in phases consistent with COP decisions, and in accordance with national capacity and support from international development partners (UNREDD,2011).
[3] In reality, not all four cycles of the FIPI forest inventory have applied the same name (NFIMAP), but for the purpose of the

national and international information needs. The NFA project is aiming to reach IPCC's Tier 3, using the NFIMAP together with other efforts targeted at establishing country-specific allometric equations. Specific areas of work include: 1) establishing a broad national consensus on the needs and approaches of the NFIMAP; 2) capacity building of VNFOREST and FIPI; 3) development of a harmonized basis for developing forest maps and an inventory database.

(3) SNV (Netherlands Development Organization)

SNV in Vietnam has been attempting to implement the REDD+ project at the district level, as a pilot project in Lam Dong Province, to estimate carbon through PFM (participatory forest monitoring), remote sensing data, and forest inventory, in order to meet the GHG-I at the national level. Monitoring maps at the district level are based on the land use planning map of FPD at the district level provided by DARD. In addition, a State Owned Company (SOC), which is one of the "forest owners", makes its own high quality maps. Regarding forest monitoring with remote sensing for Activity Data, SNV is trying to estimate carbon using maps from years 1995, 2000, 2005, and 2010 with satellite imaginary (SPOT 2, 3, and 5) provided by the Space Technology Institute. Forest stratification is following FIPI. As SNV is trying to estimate carbon at the district level, it is facing difficulties regarding how to contribute to and meet the provincial level.

The project in Lam Dong is still on the process of designing an operational framework, which is scheduled to be ready by January 2012. This framework will consist of: ① capacity development of FPD at the district level; ② engaging "forest owners" to monitor the project using consultants; ③ permitting households to collect the data through participatory monitoring. The collected data for households should be consistent with NFI stratification.

(4) FORMIS（Development of a Management Information System for the Forestry Sector）

FORMIS is a national level project under MARD that is attempting to establish a broad range of IT platforms, not only for MRV but also for the forestry sector in Vietnam. FORMIS is providing a resource database system for the forest portal in Vietnam; in other words, a gateway for people to distribute information regarding the forest. At the provincial level, FORMIS is planning to implement their pilot system in several districts in three provinces (Hue, Thanh Hoa, and Quan Ninh), which will be set by June 2012. FORMIS's approach is to integrate the FPD system, in order to establish a "management information standard" and a "reporting system" through use of the FORMIS platform. To do so, an improvement of technology will be necessary to meet requirements for verification.

10.1.3 Proposed Options for the MRV Monitoring System in Dien Bien

GHG-I for REDD+ is measured by estimating AD by interpreting satellite images (SPOT5; high resolution, greater than 2.5 m) and an EF, generated by the ground-based National Forest Inventory every five years. This activity is MRV at the national level (hereinafter, National MRV). Since GHG-I is associated with the provincial AD and EF, the province needs to make a contribution towards generating National MRV which is robust and transparent in a verifiable manner.

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document of UN-REDD, all cycles are consistently referred to as NFIMAP. The fifth cycle currently under preparation may also employ a different name, but in this document, will be referred to as the fifth cycle of the NFIMAP.

For this purpose, the development and production of a harmonized national land use map is necessary, and the province needs to assume responsibility for this activity. The associated roles of the province would include activities such as the following:
1) Contributing to the process of producing AD;
2) Contributing to the process of estimating the EF;
3) Developing a database for forest monitoring.

To carry out the above roles, the situation regarding the existing forest monitoring system, which is under preparation in "Forest change monitoring for 2012-2020" (see following sections for further details) as well as the constraints in Dien Bien Province should be discussed.

(1) Forest Monitoring System in Dien Bien

1) Existing System

Figure 10.2 shows the relationships between the management authorities within the forestry sector in Dien Bien Province. There is an established set of relationships between authorities/units, from the central to local levels, in forest management, protection and development. Data, including a forest status map, inventory data, and statistics, which represent the output of the NFI produced by FIPI, is submitted to DARD from MARD every five years. DARD contracts with the FIPI to establish the inventory and plan 3 types of forest maps (protection, production, and special use forest). These maps are to be output and submitted to DARD by FIPI, after which they are provided to lower-level specialized units, and used for specific purposes. Duty assignment is implemented from higher levels to lower levels, while lower levels make reports to higher levels.

On the other hand, it is generally known that a land-use map is provided to DARD by DONRE in Vietnam (not shown in the figure), and DARD has updated their own statistics and map, separately from FIPI and DONRE. Dien Bien Province is considered to be in a similar situation, and it is necessary to solve the problems regarding:
・Updated information that is not reported to FIPI and DONRE;
・Updated data collection from communal rangers in FPD is not sufficient, in terms of accuracy.

The following are the roles of each authority:

a. The central level is MARD, with VNFOREST in charge.
FIPI belongs to VNFOREST, and is a consultant unit as well as a forestry services provider. FIPI is mandated to produce NFI results and submit them to DARD, including forest distribution maps, forest inventory data, and forest statistics.

b. DARD is a provincial state management authority, which manages agricultural activities, including forestry. Beneath DARD are several units, as follows:

(a) Sub-DOF is a state management authority for forestry, which has the function of evaluating forestry projects, as well as advising the head of DARD in issuing decisions regarding project approval.

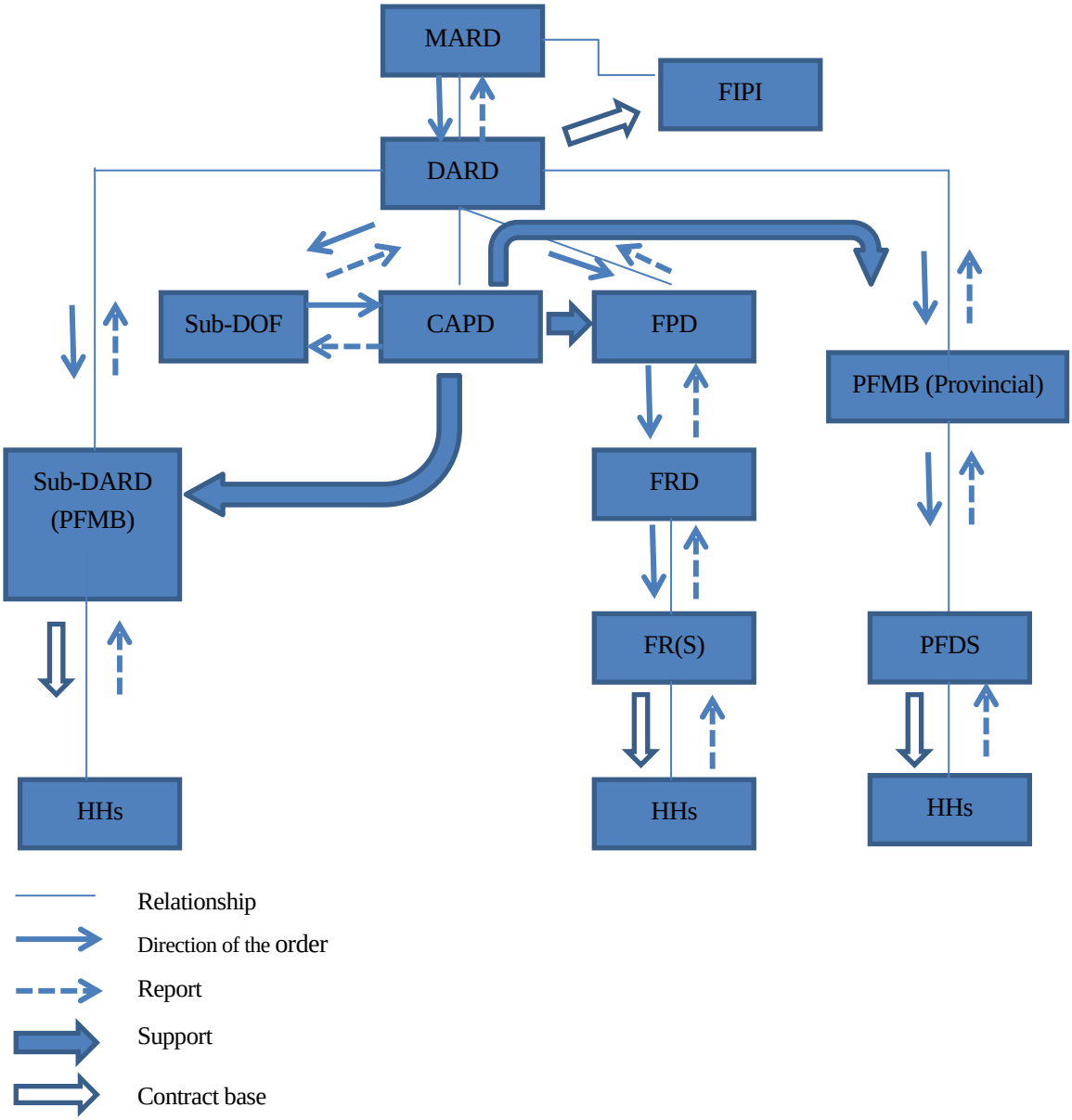


Figure 10.2 Mapping and forest monitoring system in Dien Bien province

(b) CAPD is a specialized unit which provides consultant functions and agro-forestry services. More precisely, CAPD makes master plans and designs for forest management projects, such as the 661 Program, as well as training courses. CAPD has been digitalizing maps since 2010, and provides these maps to other related authorities.

(c) FPD implements legal issues regarding forest protection, and is responsible for monitoring annual forest resource changes. Annual statistic data is reported to VNFOREST and MONRE/DONRE. Forest disturbances are reported from the Sub-FPDs in each district through forest rangers.

(d) Sub-DARD is a district level state management authority, which manages agricultural activities, including forestry.

(e) PFMB is a specialized unit which has had forest development functions (plantation, regeneration, and protection) for managing the 661 Program since 2006. Two forms of PFMB exist under DARD (in Dien Bien District, Muong Cha District, and Muong Nhe Nature Reserve), and under the Sub-DARD in each District, where the former implements the program full time, while the latter implements related tasks on a part time basis.

2) Capacity of the Department

Table 10.2 shows the capacity of the Department in Dien Bien Province, based on the interview. This table shows that although FPD is a key player in forest monitoring, it is not yet ready to computerize its data. CAPD has the most developed capacity, in terms of officer skill and equipment. CAPD has been trained for capacity development, and also obtained some equipment under the Agriculture and Rural Development Sector Programme Support (ARD SPS) 2007-2012[4] funded by DANIDA[5]. In addition, CAPD is in charge of planning training courses, and finished the first GPS and GIS training in October 2011. Thus far, 20 officers from FPDs and Sub-DARDs have finished the training. An advanced course in learning software for monitoring forest change was recently carried out by the Forest Ranger Department of FPD HQ, under VNFOREST from Dec 9th to Dec14th, and was funded by DANIDA.

Table 10.2 Capacity of the department /section in Dien Bien

Level	**Department/Section**	**Number of officers involving forestry inventory**	**Officer's GPS/GIS skill**	**GPS/GIS equipment**
Province	The Center of Agro-Forestry Designing and Planning	24 staff -Planning and designing, -Digitalizing maps -Training	All of them can manipulate GIS. 3-4 staff is certified as trainer of training.	GPS (6) PCs MapInfo, ArcGIS, AutCad 2 colour printer (A4, A0)
	FPD	3 staff 2 staff as "Mobile task force"	2 staff have just trained in Nov. 2011)	GPS(1) MapInfo
Dien Bien District	Sub-DARD (PFMB)	2 staff manage northern part of district for 661 program.	unknown	none
	PFMB	20 staff in total manage southern part of district for 661 program (7 in Head Office, 13 in commune)	2 staff has just trained in Nov. 2011.	GPS(2) PCs
Muong Cha District	Sub-DARD (PFMB under DPC)	4 staff manage 300 HHs in western part of district for 661 program	0 staff (staff will start training in 2012)	none
	FPD	24 (5 in Head Office, 19 in commune)	0 staff (2 staffs will start training soon)	GPS(1) PC(2)
	PFMB under DARD	18 in total manage 300 HHs in eastern part of district (8 in head office, 10 in commune)	All of them can manipulate GIS. Plan and design of 661 in detail instead of	GPS(2) PC(9) MapInfo

[4] ARD SPS aims to promote poverty reduction in uplands of Vietnam, especially among ethnic minorities through agricultural and rural development. There are two components, the central components and the provincial components. The provincial component supports the improvement of livelihood of five provinces including Dien Bien.

[5] Danish International Development Assistance

			CAPD	
Dien Bien Dong District	Sub-DARD (PFMB)	3 stuff manage whole district for 661 program.	0 staff (begins from 2012)	none
	FPD	23 staff in total (5 in Head Office, 18 in commune)	2 officers have just started trainig	GPS(1) PC(1)

3) Forest Change Monitoring for 2012-2020

A proposal for a Forest Change Monitoring System (2012-2020) has been submitted to PPC Dien Bien from DARD, and is in the process of approval. This proposal is focused on the capacity building and training of officers at the provincial and district levels, but not at the commune level due to a lack of budget.

This proposal is based on "*Instruction 32 of 2000 by MARD*"[6] for governing "forest change monitoring", as in the box below. All forest change monitoring activities are to follow this Instruction, which indicates the computerization of all forest inventory results, commune forest and forestry land maps, and statistics and relevant data, development of a database, and establishment of a network for annual monitoring. FPD is responsible as a key player for its implementation. If completely achieved, the monitoring system would be perfect in Dien Bien Province.

BOX 10.1 A part of Forest Change Monitoring in Instruction 32 of 2000 by the MARD

The provincial forestry management agency has the following activities:
In accordance with **Decision 245/1998/QĐ-TTg of December 21st, 1998 by the Prime Minister on the performance of State governance** tasks at different levels regarding forest and forestry, the monitoring of forest and forestry land is the responsibility resting with the authorities at different levels, it is recommended that the PPC work with MARD on the following things:
1. Establish a provincial steering committee comprising members from the FPD, DARD and related agencies and appoint the **FPD as the key player in implementing the project.** The provinces that have no FPD the DARD is the project implementing agency.
2. **Design a forest and forestry land change monitoring project** and **develop a provincial database on forest management and forestry land use** under the **guidance issued by the MARD**.
3. Perform the forest and forestry land change monitoring and **develop the database** with the following specific tasks:
- Gather and **computerize all forest inventory results**, including **commune forest and forestry land maps** and **statistics and relevant data**. Develop the **provincial database** on forest management and forestry land use.
- **Monitor forest and forestry land change bottom-up and regularly collect data on forestry activities for combination by commune**.
- Update and improve database and outcome processing. Regularly report the updated provincial data to the **industry database as regulated by the MARD**.
4. Establish **a network** of forest and forestry land change monitoring from commune to district and provincial level in cooperation with the following forces: **foresters at DPCs** and **CPCs**, **forest rangers**, **forest owners**, **forest planning staff** and **land use staff.**

※*Note: at this time, FPD was not under DARD.*

[6] No 32/2000/CT-BNN-KL, INSTRUCTION ON THE NATION-WIDE MONITORING OF FOREST AND FORESTRY LAND CHANGE. Followings are extracts of the role of the province from MARD

(3) Contributions from the Province

The following indicates the information locations of the data for measuring AD and EFs, in order to determine how DARD will be able to contribute to National MRV in the future.

1) Guidance on Information Location

Table 10.3 provides guidance regarding the location of information related to data for measuring AD and EFs among DARD, FIPI, and DONRE. At this moment, each organization has its limitations regarding implementation.

DONRE deals with only non-forestry land, and defines land use boundaries and land owners. DONRE is responsible for producing land use maps and distributing them to DARD. However, the information on land use and land ownership is not effectively used in the province. In particular, the land use maps which are used are not updated to reflect the forest distribution maps at DARD, and land owners are not clearly informed of land boundaries.

In case of FIPI, although remote sensing and GIS are used to measure forestry land, including non-forestry land with defining forest types, the boundaries of forestry land and non-forestry land are not shown in the forest distribution map. In addition, remote sensing has limitations for interpreting specific forest details, such as plantation and detailed rehabilitation.

At the province level, although DARD deals with almost all of the measurement data for AD, it remains inadequate. For example, although DARD used to update forestry data (areas of forest types, including plantation) annually, apart from FIPI, the specific boundary of activities (*e.g.*, the 661 Program) and of the three types of forest function are not yet clearly defined. In addition, information on forest disturbances (natural and anthropogenic) is inadequately reported by forest rangers.

Table 10.3 Implementation of measuring AD among DARD, FIPI and DONRE

	Natural resource data		Functional subdivision of forest	Forest management			Disturbance		Land tenure	
	Forestry	Non Forestry	Protection/ Production/ Special-use	Forest type	Plantation	activities (e.g.661)	Forest fire	anthropogenetics	Land use	Land owner
DONRE	×	○	×	×	×	×	×	×	○	△
FIPI	○	△	×	○	△	×	×	×	×	×
DARD	○	U	△	○	○	△	△	△	u	u

○: Dealing with measurement △:Dealing with measurement but limited

×:Not dealing with measurement u: Unknown

Table 10.4 indicates the lack of data regarding NFI and the 17 forest classifications of REDD+. The problem is that there is no data which clearly measures the growing stock of trees in both natural and plantation forest, for NFI and the large gap of forest carbon stock in rehabilitation forest of the 17 forest classifications of REDD+.

Table 10.4 Implementation of measuring EF among DARD, FIPI and DONRE

	Growing stock of trees (NFI)		17 classification of forest status map
	Natural Forest	Plantation	Rehabilitation
DARD	U	U	△
FIPI	×	×	△
DONRE	×	×	×

○: Dealing with measurement △:Dealing with measurement but limited
×:Not dealing with measurement u: Unknown

In conclusion, DARD has the potential to complement almost all of the data of FIPI and DONRE, if capacity development is sufficiently undertaken. The following describe ideas for possible contributions to AD and EFs.

2) Contribution to National MRV from DARD

The contribution to National MRV from DARD is considered to be proposed as follows in this study:
・Contribution to the Process of Producing AD
・Contribution to the Process of Estimating EFs
・Need and Importance of Developing a Database

a. Contribution to the Process of Producing AD

In order to improve the accuracy of the forest distribution map produced every five years by FIPI, DARD/FPD should update their maps annually to reflect the latest information of the province. This updated data should basically consist of that which cannot be interpreted by remote sensing, such as information regarding:
・afforestation (plantation) in forestry and non-forestry land;
・cutting of trees in natural forest (including illegal), in order to understand how the degradation of forest is occuring;
・boundaries among rich/medium/poor areas in evergreen forest, in order to check the latest map;
・changes in forest area due to particular activities which are similar to the 661 Program;
・boundaries of natural and anthropogenic disturbances.

b. Contribution to the Process of Estimating EFs

In order to improve the NFI every five years, DARD should carry out its QA/QC process. Data which is not covered in the NFI should be collected to estimate EFs, such as:
・Stand volume in each stand age of man-made forest, as well as naturally restored forest (re-growth forest).

To achieve this goal, the capacity development of DARD officers is essential to meet the required ability for verification (a QA/QC process should be carried out by a capable third party for verifying NFI data).

c. Need and Importance of Developing a Database

Data management by the province is a key to its contribution to MRV while forest data is not harmonized among FIPI, DONRE, and the provincial organizations (*e.g.*, three kinds of forest maps exist), a problem which must

surely be solved. The province should collect all forest-related data for unification, to contribute to MRV in the future, in order to produce the required AD and EFs. DARD should develop a database center in the province (*e.g.*, an FPD under DARD engaged in the development of computing infrastructure as a database center in Dien Bien). The roles of this database center are considered as:

・Compiling data from district offices;
・Integrating multiple maps into a single database (*e.g.*, forest status map);
・Complementing missing information and adding new information for integration.

The capacity of DARD should be improved to promote database development, as well as its awareness of contributing to the MRV system at the national level.

10.2 Options for a BDS Methodology

This section addresses the issues and proposes the options on developing a BDS methodology at the province level, after the distribution of benefit from the national level. The options proposed here, with further discussion, will be selected in the future in the BDS planning and design process.

The following two issues are the contents addressed here for developing the BDS methodology in 10.3.1 and 10.3.2:

1） The adoption of result-based payment, which is related to payment timing; and,
2） Estimation of monetary payment amounts.

Remarks: There are other aspects which must be discussed further in developing a BDS methodology, which are not addressed here, such as how to deal with transaction costs and money flow. Transaction costs need to be clearly specified, regarding their relationship with the stratification of money flow, because a greater level of money flow stratification results in larger transaction costs, and leads to a lack of transparency. In addition, the NRP draft version has been discussing the money flow, in that the REDD+ Trust Fund, which was established under the Forest Protection and Developing Fund, subtracts management costs and MRV costs from the fund, and then distributes the remaining funds to forest owners. Consistency with the NRP should be taken in consideration, to further development of the BDS methodology.

10.2.1 Result-based Payments, related to the Timing of Payments

The following three aspects are considered as options of result-based payment, which is related to the timing of payments:

1） result-based payments;
2） participation based payments (equivalent to a performance basis);
3） combination of result-based and participation-based payments.

Each of these payment methods is described, as follows:

(1) Result-based Payments

Result-based payments are a method of distributing REDD credit after confirmation of the actual results. In this method, credit is paid at every monitoring, or at every distribution of credit to the province, based on the monitoring results. The advantages and disadvantages of this method are considered, as follows:

Advantage: Payments based on actual results reduce inequality among the final benefit recipients (*e.g.*, forest owners).

Disadvantage: Payments to the final benefit recipients are delayed, which may decrease their motivation to implement the activities properly, since they need to wait until the completion of monitoring.

(2) Participation-based Payments

Participation-based payment is a method of distributing REDD+ credit when the final benefit recipients participate in REDD+ activities. In this case, the frequency and timing of the payments do not depend on the timing of monitoring. Therefore, the frequency and timing of payments could be flexible (*e.g.*, every year or every two years). The amount of the payments should be suitable to provide enhanced incentives for protecting forest. The advantage and disadvantage of this method are considered as the opposite of those of result-based payments, as follows:

Advantage: Payments distributed soon after participating in activities move forward the date for receiving payments to the final benefit recipients. This may increase their motivation to implement the activities properly.

Disadvantage: Participation-based payments are not influenced by the outcome of the activities (*i.e.*, whether or not they succeed). This may increase inequalities among the final benefit recipients, due to a decrease in motivation.

(3) Combination of Result-based and Participation-based Payments

This is method is a combination of result-based and participation-based payments. Therefore, the timing of the payments can be a combination of the two methods. If result-based payments have been selected, credit would be paid at every monitoring, or at every distribution of credit to the province, based on the monitoring results. On the other hand, if participation-based payments have been selected, the frequency and timing of payment could be flexible (not dependent on the monitoring).

While participation-based payments may result in an incentive to implement activities arising from such payment, result-based payments may result in a lack of a sense of responsibility, if only a small amount of money is distributed depending on the results. Therefore, the proportion of the two forms of payment must be decided through further discussion among the stake holders, taking into account the above aspects of each payment.

The advantage and disadvantage of this method are considered, as follows:

Advantage: The stated advantages of both result-based and participation-based payments remain, while the levels of both disadvantages are decreased.

Disadvantage: The method of payment becomes complicated, increasing the necessary implementation work for fund providers/managers.

10.2.2 Estimation of Monetary Payment Amounts

Payment amounts are estimated in consideration of the following two options:
1) Fixed payments;
2) Payments based on an increase or decrease of carbon emissions, in accordance with RELs/RLs.
Each of the methods of payment is described, as follows:

(1) Fixed Payments

Fixed payments are the same mechanism as used by the current 661 Program. Therefore, payments are fixed depending on the area per ha, based on the REDD+ activities. The amount of payments of protection-related activities may be estimated based on 200,000VND/ha/year adopted by the 661 Program (for protection forest), along with a consideration of environmental circumstances. The amount of payments of afforestation-related activities may be estimated based on the actual costs of plantation, provision of seedlings, etc. The advantages and disadvantages of this method are considered, as follows:

Advantages:
1) Estimation of payments will be simple if the forest area is measured;
2) Final benefit recipients can easily understand an area measurement-based payment system, which is the same mechanism used in the 661 Project; and,
3) Final benefit recipients who are not enhanced in their understanding of REDD+ may feel that equality exists among the recipients.

Disadvantages:
1) The payment amounts, which are not estimated by the carbon stock, may exclude a portion of the total amount of payments distributed to the PPC from the national level, which is estimated by the carbon stock;
2) A real understanding of REDD+ activities may not be engendered among the final benefit recipients;
3) Final benefit recipients who are enhanced in their understanding of REDD+ may feel that an inequality exists among the recipients.

Regarding above disadvantage 1), the policy can state an amount of payment necessary for subsistence, for the amount of payments distributed to the PPC from the national government, while the actual amount would fluctuate at every payment. In such a case, the final benefit recipients may find the system difficult to understand, and feel discontented with REDD+ activities.

(2) Payments based on an Increase or Decrease of Carbon Emission in accordance with RELs/RLs

A system of payment based on an increase / decrease of carbon emission, in accordance with RELs/RLs encompases the original meaning of REDD+. The advantages and disadvantages of this system are considered, as follows:

Advantages:
1) The amount of payment is estimated by the carbon stock within the total amount distributed to the PPC from the national level; and
2) Final benefit recipients who are enhanced in their understanding of REDD+ may feel that equality exists

among the the recipients.

Disadvantages:
1) The estimation of the payment amounts will depend on how RELs/RLs are established, and the estimation method would be complicated; and,
2) Final benefit recipients who are not enhanced in their understanding of REDD+ may very well feel that inequality exists among those who have the same areas of forest protection, but receive different payments.

10.3 Proposal of a Methodology for a Forest Monitoring System for BDS

This chapter aims to propose options for developing a methodology for forest monitoring for BDS in Dien Bien Province, the so-called Provincial MRV in the Basic Plan, through integrating and improving the existing/future capacity of the forest monitoring system, in order to implement REDD+ pilot activities in Dien Bien Province. This chapter assumes "result-based payments" and "payments based on increase/decrease of carbon emission", which are proposed in 10.2, as these are two options that require systematic data collection, such as data on forest area and types. Although other BDS options ("participation-based payments", "combination of result-based and participation-based payments" and "fixed payments") should also be discussed, it will be more straightforward and clear to investigate how the Forest Monitoring System will collect detailed field data in a concrete manner.

As the national forest carbon stock is associated with the sum of the forest carbon stock of 63 provinces, provincial MRV should not aim to estimate their own forest carbon stock. The primary objective of developing a methodology for provincial MRV is to contribute to the benefit distribution system at a level lower than the national level (*e.g.*, province). It should be an indicator of BDS, regardless of whether a forest area or forest carbon stock base is adopted. For this purpose, the forest area should be measured in a proper manner to ensure equality throughout Dien Bien Province.

Figure 10.3 shows the three elements of the Forest Monitoring System, summarized as its essence, each of which is discussed in the sections, below.

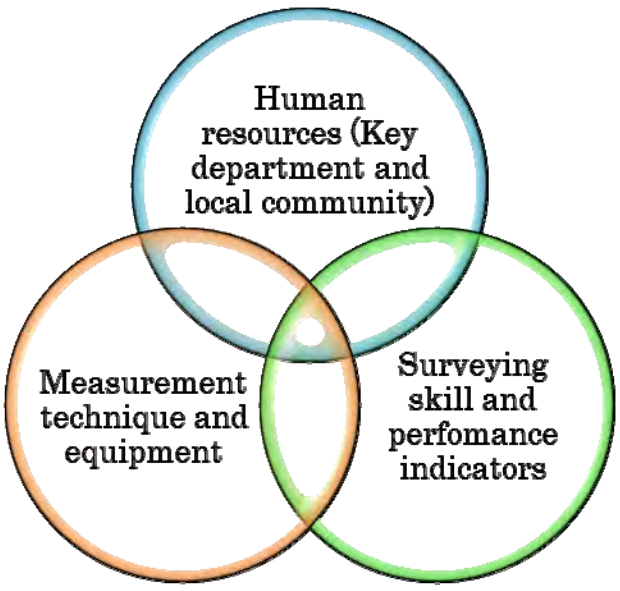


Figure 10.3 Elements of the Forest Monitoring System

10.3.1 Measurement Techniques and Equipment

Monitoring the increase/decrease of forest carbon stock requires information on the increase/decrease of the area (ha) of each forest type, as well as the average carbon stock (CO2t/ha) as subordinate data of the forest area. These data are called Activity Data (AD) and the Emission Factor (EF), and are essential for developing RELs/RLs. On the other hand, implementing MRV is equivalent to making an indicator of BDS. In this regard, considering developed RELs/RLs as a benchmark, MRV could be understood as monitoring an actuality base. Therefore, the fundamental measurement elements of MRV are measurements of the AD and EF, which are used to develop RELs/RLs. The following describes the feasible technology/techniques for measurement below the provincial scale.

(1) Measurement of Activity Data

There are two methods of measuring AD: satellite imagery-based and ground based. The former method requires a base map scale of from 1:500,000-1:250,000 at the province level, 1:100,000-1:25,000 at the district level, and 1:10,000-1:5,000 at the commune level. In order to cover those base map scales at each administrative level, the necessary satellite ground resolution is 30 m - 10 m at the province level, 10 m - 2.5 m at the district level, and 1.0 m at the commune level. On the other hand, the area of each scene taken via satellite imagery becomes narrower as the satellite ground resolution is increased. In this regard, high-resolution satellite imagery requires more scenes for one particular area, and results in longer period of data reduction, which is a demerit of high-resolution satellites. Although the timing of monitoring MRV must be established through discussions including many perspectives, a point to notice in terms of the data reduction of satellite imaginary is that monitoring MRV will be lengthened as the resolution of the satellite imaginary is increased.

Table 10.5 Map Scale and Satellite Imagery in Each Administrative Level for AD

Administrative level	Base map scale	Ground resolution of satellite
Province	1:500,000-1:250,000	30m-10m
District	1:100,000-1:25,000	10m-2.5m
Commune	1:10,000-1:5,000	1.0m-

The second method for obtaining AD is by ground-based inventory. In this case, the essential activities are distinguishing the forest type and surveying the forest boundary. Distinguishing forest type requires the identification of the tree species structuring the forest, and is expected to receive assistance from communities living around the forest. Surveying forest boundaries is expected to be an important element of REDD+ activities. In the case of implementing the survey at the regional level, or assistance from communities around the forest, measurement with high technology is not feasible. Therefore, a measurement technology must be selected for such Participatory Carbon Monitoring with communities, in terms of the desired accuracy to be achieved, costs, and required technology. The level of the techniques, experience, and cost of equipment are shown in table, below.

Table 10.6 Level of Technics, Experience, and Cost of Equipment

	Level of Technics	Level of experience required	Cost of equipment
compass surveying	high	Advanced experience	US$ 2,000-1,000
Laser measuring	medium	Advanced experience of dealing with the equipment	US$ 5,000-2,000
GPS measurement （high precision）	medium		
GPS measurement （cheap edition）	low	Basic experience	

Compass surveying results in high precision data and accumulated experience, but requires a specific forest survey technique. However, equipment costs are cheap, in terms of both initial and running costs, due to equipment simplicity, with no high level electronics. On the other hand, laser measuring results in high precision data, but equipment costs are expensive in terms both initial and running costs, with requirements for special care.

There are two main types of GPS measurement, in terms of the grade of equipment: high precision and inexpensive. The high precision version results in high precision data, with a function for eliminating errors through several GPS numbers and GPS base station services, while specific knowledge is required. In contrast, the inexpensive version results in low precision data in terms of length accuracy (dozens of meters compared with only a few meters provided by the other method), while only basic knowledge is required, such as how to switch the device on and off.

Forest survey experts at the province and district levels are able to deal with compass surveying and high-precision GPS, while communities with no knowledge of forest surveying are able to deal with the cheap version of GPS. Obtaining an understanding of the character of the inexpensive version of GPS, which produces a range of errors, is necessary for its use.

(2) Measurement of the Emission Factor

In developing RELs/RLs at a national scale, the EF is calculated with the NFI in each Bio-ecoregion. At the province scale, the calculation of the EF must be discussed further, in terms of how to monitor the EF. However, considering the capacity of the province level, assisting the NFI implemented by the national organization is the most feasible method. From a different point of view, the REDD+ activities implemented at the project level still present the possibility of measure the carbon directly, by monitoring forest growth with the assistance of communities. In this case, communities need to carry out the above-ground biomass surveys, and the measurement should be simplified due to the required high level of experience.

10.3.2 Human resources (Key departments and local communities)

The essential aspects of developing a Forest Monitoring System using GIS and GPS are:

- Developing an operational system to avoid human error (*e.g.*, a logical check program, to prevent mistyping of forest types or Latitude and Longitude information.)
- Determination of forest or non-forest areas through pre-processing with satellite images in an efficient manner.

In order to address the above aspects, the role of the FPD at each level, satellite images, and the participation of

communities (*e.g.*, groups or individual households) should be considered, as follows:

FPD is responsible for monitoring forest change, annually. To develop a Forest Monitoring System using GIS and GPS, each province, district, and commune office also have their own tasks.

(1) Province level

With the support of CAPD, the mobile task force in the FPD, which is in charge of forest monitoring with GIS and GPS, should have following roles:
1) Create and distribute an original standardized format for GIS and GPS data;
2) Summarize and integrate district level data, and use it to calculate standardized data for the province; and
3) Develop a logical check program.

(2) District level

Each district office needs to have sufficient capacity to deal with transferring raw data to the GIS database, in accordance with the given standardized format of the province, as well as checking field data using satellite images (*e.g.*, logical checks and pre-processing of imagery). The use of remote sensing is discussed, below.

(3) Commune level

Each ranger should be capable of carrying out GPS to measure the forest area and define the forest types of the forest registered to REDD+. They will also need to be able to deal with transferring raw data (latitude, longitude, forest type) to the district office. Registration may be required for community participation, and each ranger will also be responsible for checking community information in the field.

10.3.3 Use of Remote Sensing

The purpose of using remote sensing is to improve accuracy and reduce mistakes in measuring forest area and forest type, at least at the commune level. Thus, high-resolution satellite imagery is considered to meet the quality of checking. The frequency of use of remote sensing should be consistent with that of BDS. If BDS is planned on an annual basis, checking via remote sensing should be peformed annually. Use of remote sensing is required for both district and province officers, if the district officers and offices are capable of handling this task.

However, as indicated in a previous section, the frequency of satellite imagery and ground resolution are closely related. Accordingly, higher frequency monitoring using a high-resolution satellite is considered to be infeasible.

10.3.4 Community Involvement

The involvement of communities (*e.g.*, groups or individual households) is considered as important not only for enhancing their ownership, but also for improving the accuracy of field data due to a shortage in the number of rangers. Registration is the first step for people to start REDD+ activities, while continued monitoring is the second.

The following steps are one of the options to be considered for implementing registration:

(1) Registration with REDD+

1) Registration Method

Registration requires the data of the forest area and forest type of each forest owner (*e.g.*, village, group of households, individual households, organization, governmental organization, etc.) The forest carbon stock can then be estimated using the BEF of Dien Bien or the NFI.
The procedure for registration may be considered as the following:
1. Receipt of a registration request by a forest owner, with an abstract forest area and forest type;
2. Determination of GPS data for the registered information by a ranger;
3. Determination of GIS data with satellite images by the district office;
4. Field visit to confirm the forest area and type, if any confusion exists;
5. Registration confirmation.

2) Incentive for Registration

For pilot activity, it must be considered to begin registration in the simplest way, and to develop it gradually. Therefore, registration could initially limit the types of forest owners. Technically, the registration system requires either a measurement of forest area or forest carbon by the forest owner, as well as verification, if possible.

In Dien Bien District, forest owners include the CPC, groups of HHs (with/without a clear boundary), and individual HHs (with/without a clear boundary), who together comprise the candidates for registration. Incentives for registration may be considered, as follows. One option to propose is the selection of forest owners.

Table 10.7 Incentives of Registration

Forest owners	Incentive to register
CPC	The land is under control of FPD. Shortage of ranger may require communities participation for its monitoring with contract base as 661.
Individual HHs (boundary is clear)	HHs have an incentive to register their own land to get fund by managing forest in good manner. However, protecting the forest from the disturbance would be difficult if the land is far from the HH and so less incentive to register.
Land owned by individual HH (boundary is not clear)	HH have less incentive to register.
Group of HHs (individual allocated boundary is clear)	The group leader may register. If their land are closed each other, protection and measurement is easier than individual.
Group of HHs (boundary is not clear)	The group leader will register. Less incentive for individual HH.

(2) Monitoring forest area

1) Registration
- At registration, forest information, forest area, and forest type should be registered together.

- In order to be registered, a ranger or FPMB is required to measure the forest area to confirm its boundary with the forest owner.
- The original map is based on the digitalized map provided by CARD.

2) Update the data

- Any change of the forest is shared with central FPD and DARD on at least a monthly basis, to comply with the "forest change monitoring system" under Decision 245 in 1998.
- Large disturbances must be reported quickly by the forest owner; a ranger is responsible for confirmation.

3) Verification

The frequency of verification depends on the period of BDS. There are four options for carrying out verification: the use of RS, the involvement of communities, the involvement of officers, or a combination of these three methods.

Table 10.8 Merit and Demerit of the methodology of verification

Methodology	Merit	Demerit
RS	Large area can be checked at once. Skills of the officers are required.	Requires budget to obtain[7] Limitation of life(5 to 7 years in ALOS) Next launching timing of ALOS is 2010 for example. Communities incentive is not enhanced.
Communities involvement	Communities incentive and awareness is enhanced to manage forest properly.	Result is not reliable. Require to teach people about measurement skill.
Officer's involvement	GPS equipment is acquired.	Their task may be heavy load.
Combination of all	Reliable result is expected	Management will be complicated.

(2) Capacity development

Capacity development of local authorities is essential in terms GIS and GPS skills and data management. DARD, SARD, and FPDs are already aware of the role of the database and digitalization, but are not yet ready to promote the capacity development of officers and equipment.
- promote training of all officers at the province and district levels, and at the ranger level of at least one district.
- promote the pilot system from top to bottom using GPS and GIS, in a selected commune or group of communes as a model system.
- Officers of the central FPD must be trained and capable of carrying out database management.

10.4 Proposal of a Framework for the Implementation of REDD+ Activities in Pilot Areas

Although they have not yet been selected, in the process of preparation of the Provincial REDD+ Program in the next phase of the JICA project, pilot areas will be selected primarily from among the prioritized areas mentioned

in Chapter 6, and action plans for the selected pilot areas will be prepared. This section discusses the kind of implementation framework that will need to be formulated for REDD+ activities, when the action plans are prepared for the pilot areas.

First of all, regarding matters to be considered concerning the implementation framework, the following seem relevant. It is true that various other new matters may come up for consideration when the action plan is being created, either at the pilot areas or during the actual execution of the activities. However, with the final methodology still not established, even at UNFCCC, the REDD+ activities include portions that require the methodology of the activities themselves to be solidified, while running through repeated trial and error cycles. Accordingly, the Study Team considers it to be sufficient to handle such additional matters for consideration, when the issues actually arise.

1) Implementation activities
2) Activity participants
3) Implementation structure
4) Inputs
5) Monitoring method
6) BDS method

Each of these matters is discussed below.

(1) Implementation Activities

Initially, it will be necessary to deliberate on and determine what manner of REDD+ activities to implement. This will require a review and confirmation of the natural and socio-economic conditions of each commune and selection of activities that are a good match for those conditions. In actually selecting these activities, deliberations will be conducted and a final decision will be reached using FPIC, in discussion with the commune and the activity participation candidates.

(2) Activity Participants

First, it will be necessary to identify the people who are interested in participating in the REDD+ activities decided in (1). From there, it will also be necessary to confirm whether the activity participation candidates have both resources, including land, and labor abilities which are suited to the conditions of the actual implementation of the activities.

(3) Implementation Structure

Regarding the implementation structure, the following items for consideration must be kept in mind when the structure is established:

- The necessity of establishing an implementation structure in which all stakeholders for the REDD+ activities are involved, including those at the province, district, commune, village, and activity participant levels;
- Consistency with the National REDD+ Program (NRP);
- Harmonization with existing implementation structures in the management system, such as the 661

Program and the PFES Program (future);

- Consideration of promoting cooperation with the NGO and other citizen organizations.

(4) Inputs

Regarding the necessary inputs for activity implementation, consideration and decisions will have to be made regarding both internal inputs (inputs from within the main actors in implementing the REDD+ activities; here, the main actors exist at the CPC, village, and individual activity participant levels) and external inputs (inputs from those other than the main actors).

(5) Monitoring Method

The monitoring method will need to be determined based on suggestions for concept and methodology, such as those presented in Section 10.2.

(6) BDS Method

The BDS method will need to be debated, and the main implementation group will need to assemble a proposal based on suggestions for concept and methodology, such as those given in Section 10.3.

Ultimately, it is desirable for the foregoing points to be summarized within the action plan created by the commune.

11. Safeguards

11.1 Safeguards and current status

The term, “Safeguard” refers to the need to prevent and mitigate undue harm to people and their environment in the development process, as stated by The World Bank Safeguard Policies. Safeguards can serve as effective risk management tools, and can be evaluated in the decision making process in terms of environmental and social issues, to help assess, reduce, and mitigate risks in conducting a project, as has been reported by the UN-REDD PROGRAMME. This term is often used in reference to measures including policies or procedures and designed actions or programs to prevent undesirable outcomes.

The argument regarding REDD+ safeguards started during COP15 in Copenhagen, in December, 2009. Accordingly, safeguards must be followed in any REDD+ activities carried out under the UNFCCC. Safeguards were officially adopted in REDD+ during COP16 in Cancun, in December, 2010. Currently, the agreed REDD+ safeguards are still under discussion, which cover a range of issues including the conservation of natural forests and biological diversity, transparent and effective national forest governance structures, respect for the knowledge and rights of indigenous peoples and local communities, and the full and effective participation of stakeholders. In Cancun, the parties agreed on important requirements to promote and support REDD+ activities, in the following 7 topics:

(a) That actions complement or are consistent with the objectives of national Forest programs and the relevant international conventions and agreements;

(b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;
(c) Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account the relevant international obligations, national circumstances, and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;
(d) The full and effective participation of relevant stakeholders, in particular, indigenous peoples and local communities, in the actions referred to in paragraphs 70 and 72 of this decision;
(e) That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;
(f) Actions to address the risks of reversals;
(g) Actions to reduce the displacement of emissions.

11.2 Points to be assessed regarding each topic in terms of Safeguards in Dien Bien Province

Safeguards are fully considered in the conduct of REDD+ activities in Dien Bien Province, as shown in Table 11.1.

Table 11.1 Safeguard Checklist for REDD+ Activities in Dien Bien Province

Safeguard topics based on UNFCCC	Subjects	Checklist	Methods of the assessment
(a)	Consistency with the International agreements	Check of consistency with the following possible International agreements; - Ramsar Convention. Non-existence with areas designated in the Ramsar list as Article 8. - Convention Concerning the Protection of the World Cultural and Natural Heritage. Non-existence with areas listed world Heritage under the UNESCO - Biological resources as threatened species listed by Red data in IUCN (International Union for Conservation of Nature and Natural Resources) - The ASEAN Declaration on Heritage Parks - The Cartagena Protocol on Biosafety - GMS（Greater Mekong Sub-region）	①Document use
	Consistency with National policies and regulations	Check of consistency with the following possible national and provincial forest policies and regulations; -Providing Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Commitment(No.29/2011/ND-CP) -Decision of the Prime Minister on the regulation of forest management(No.186/2006/QD-TTg) -Forestry Development Strategy in the period 2006-2020(No.18/2007/QD-TTg) -Dien Bien Forest Protection and development plan(2009～2020) -Criteria for forest classification(No.34/2009/TT-BNNPTNT) -Organization and management of special-use forest(No.117/2010/ND-CP) -The approval of the National Target Program to cope with Climate Change(No.158/2008/QD-TTg) -The management of endangered, precious, and rare forest wildlife(No.32/2006/ND-CP)	①Document use

(b)		Check of securing the following possible issues; -Development of the procedure to report current status of the activities to the related agencies through monitoring system -Communication flow among relevant stakeholders -Establishment of proper management system for REDD+ implementation including budgets, equipment, and personnel to support and to conduct the REDD+ activities	①Interpersonal communication with authorities, stakeholders and locals involving ethnic minority
(c)	The relationship with rights of ethnic minority and indigenous people	How the REDD+ activities affect the indigenous people`s rights? Check of securing the following possible rights; -to use common-forest in the project site -to use forest land and use forest products -to maintain and strengthen their own institutions, cultures, and traditions.	①Interpersonal communication with locals involving ethnic minority and stakeholders
	The relationship with knowledge of ethnic minority and indigenous people	How the REDD+ activities affect the indigenous people`s knowledge? Check of the following possible issues ; -Efficient use for local knowledge for forest and forest products utilization -Inheritance of the local knowledge for forest and forest products utilization traditional customs	①Interpersonal communication with locals involving ethnic minority and stakeholders
	The relationship with traditional culture of ethnic minority and indigenous people	How the REDD+ activities affect the indigenous people`s culture? Check of the following possible issues ; -Conservation and respect for their own traditional custom. -No effects on historical and cultural heritage sites under the REDD+ activities.	①Interpersonal communication with locals involving ethnic minority and stakeholders. ②Document use
(d)	Sufficient explanation to stakeholders	Check of the following possible issues ; -Proper understanding in terms of REDD+ and the related REDD+ activities for stakeholders to reach a consensus on the matter of the activities. -Reflecting the comments from stakeholders into REDD+ activities plan -Promoting their full and effective participation in all matters that concern the REDD+ activities	①Interpersonal communication with stakeholders
	Residents removal	Check of the following possible actions ; -Prevention and countermeasures against involuntary removals of stakeholders involving indigenous people	①Interpersonal communication with stakeholders and authorities

(e)		Check of the avoidance of the following possible issues ; -Cutting trees down in steep slope areas involving mountain ridge and riverside -Single species forestation after the deforestation of natural forests -Clear-cutting of the forests at large-scale areas -Excessive gathering of NTFPs -Planting exotic species with high propagation ability adjacent to natural forest areas -Work piece such as dam construction to disturb wildlife habitat -Road construction to increase accessibility to natural forest areas -Abuse of the pesticides -Overuse of chemical fertilizers	①Interpersonal communication with stakeholders ②Document use ③Consultation with university or other academic organization
(f)	Forest management	Check of the avoidance of the following possible issues -Inappropriate afforestation technology (Land unsuitability and planting unsuitable plant species) -Insufficient preparation of budgets, personnel, and equipment for sustainable forest management -Inadequate reaction against illegally digging up plants in the pilot sites -Large-scale single species forestation in the grassland	①Interpersonal communication with stakeholders and authorities ②Document use ③Consultation with University or other academic organizations
	Livelihood	Check of the following possible measures; -to support for forest dependent people to develop their economy. -to avoid occurring intrusions from other areas due to the road construction	①Interpersonal communication with stakeholders ②Document use
(g)	Leakage	Check of the following possible actions; -Monitoring emissions activities involving burnt field and illegal logging -Avoidance of the road construction to increase accessibility to natural forest -Environmental awareness education in terms of REDD+ to conserve forests to mitigate climate change	①Interpersonal communication with stakeholders and authorities

Note ; Safeguard topics from (a) to (g) are in line with "11.1 Safeguard and its current status" in the context.

Supplementary explanations regarding the above topics, from (a) to (g), are contained in the following:

(a) In particular, there are no areas with treaties registered at the international level, including RAMSR and World Heritage sites in Dien Bien Province. Muong Nhe Nature Reserve is registered as a Nature Reserve at the National level. The zone of this nature reserve borders China to the north and Laos to the west. Forest resources are still relatively intact with rare plant and animal species, typical of the high mountain Northwest. Additionally, Muong Phang is specified as a landscape protected area, and involves cultural forest concerning the old battlefield area of Dien Bien Phu in 1954. In the case of working REDD+ activities in this area, it is necessary to cooperate with the related authorities.

(b) Strengthening of the related governance capacity is indispensable while implementing REDD+ activities. Furthermore, a monitoring system which includes local involvement is required through these activities, and the transparency of the flow of this system should be promoted.

(c) According to the "Master Plan Study on Improvement of Rural Living Conditions in Northwestern Mountainous Region in Vietnam (2008)" reported by JICA, 22 ethnic minority groups exist in Dien Bien Province. The groups in the Province are represented by Thai (40% of the provincial population), followed by Hmong (31%), Khomu (4%), and Lao (1%). Since REDD+ activity sites include the residences of ethnic minorities, it is necessary to discern how these activities affect their rights and lives. For example, the right to use their forest and forest products is precious, and must be protected. Additionally, it is crucial to practice the activities with utilization of the local traditional knowledge.

(d) It is crucial to promote the local understanding of the activities in advance, by the application of FPIC (Free and Prior Informed Consent). According to "Household Living Standards Survey: 2004", the literacy rate of the northwestern region of Vietnam is the lowest; in particular, female literacy is at 71.2%. For this reason, it is necessary to take notice to ensure that neither women nor those people who are less favored among the minorities are eliminated from related REDD+ activities involving workshops and seminars.

(e) When working in the Nature Reserve or in the adjacent areas, the greatest consideration must be given to ensure that no influence on the environment results. In fact, the Nature Reserve is a treasury of species, as indicated by the following. In terms of bio-diversity, the reserve now has 23 flora dominions, with two layers of vegetation, and is one of the few concentrated and intact eco-systems typical of Northwest mountain vegetation. The regional flora includes 740 higher plants belonging to 500 genera and 156 families. The regional fauna has 133 species, including 31 mammals, 72 birds, 20 reptiles, and 10 amphibians. In addition, according to interpersonal communication with the SUB-DoF in DARD, *Fokienia hodginsii*, and *Burretiodendron tonkinensis* are mentioned as wildlife prohibited from harvesting and use for commercial purposes, under the list of endangered, precious, and rare wild life in Decree (32/2006/N-CP) by the Government. Furthermore, *Manis javanica*, *Manis pentadactyla*, *Indotestudo elongata*, and *Panthera pardus* are also indicated as wildlife prohibited from harvesting and use for commercial purposes. Accordingly, it is necessary to carry out REDD+ activities in cooperation with the Nature Reserve Management Board and DPC, before activity implementation.

(f) It is necessary to avoid the regression of land areas to their original states under REDD+ activities. For example, assessing the suitability of land for planting is significant in the case of placing seedlings, to avoid having them die out. The selection of planting species with high-utility value is also a key leading to the improvement of livelihood.

(g) REDD+ activities must encourage social and economic development to both the overall areas involved in project activities and adjacent areas, carrying out livelihood improvement activities, simultaneously. In is important to note that monitoring should be carried out along the entire circumference of the activity areas, so that negative impacts on other areas will not occur.

In addition, EIA may be required on conditions in the conduct of REDD+ activities, regarding the following. According to the list of projects subject to environmental impact assessment reporting (Government Decree No. 29/2011/ND-CP, dated April 18, 2011), EIA is needed under the following conditions: projects to grow and exploit forest, with forestation areas of 1,000 ha or larger; and, exploitation of forest areas 200 ha or larger for planted forests, 50 ha or larger for natural production forests, and 10 ha or larger for natural protection forests.

In conclusion, safeguards are essential for REDD+ activities to be effective, and require further and detailed elaboration, based on the local circumstances in each area, before the project can be launched.

12. Issues and Recommendation on Implementation for REDD (+) Activities

Finally, important key issues and recommendations for the successful implementation of REDD+ are described. Although there are many other important issues for successful REDD+ implementation, four main issues are pointed out in this chapter.

(1) Ownership of the provincial REDD+ program

Firstly, ownership of the implementation of the provincial REDD+ program, which the local governmental organizations and people in DB province should own, is essential to the success of the REDD+ activities in Dien Bien. To mature this ownership which the organizations and people should possess, these entities should be involved in the REDD+ activities, with an awareness of the necessity of REDD+ implementation in the whole process from planning, and should not feel that REDD+ is something that has been developed from the outside.

(2) Governance of BDS (Benefit Distribution System)

Secondly, the governance of the Benefit Distribution System (BDS) is important. To have a fair and proper BDS, the local governmental organizations in the province should establish a proper methodology for carbon monitoring, as benefits should be distributed based on the monitoring results. The organizations should have more strict system than that of the 661 Program.

(3) Necessity of incorporating livelihood improvement into REDD+ scheme

Thirdly, the importance of incorporating livelihood improvement into the REDD+ scheme should be emphasized. Local people may not have motivation for only forestry activities towards protection, conservation, and plantation as REDD+ activities. Therefore, some activities towards livelihood improvement should be combined

with such forestry activities, as REDD+ activity.

(4) Assessment of safeguards

Lastly, regarding safeguard issues, all of the organizers of REDD+ activities will be unable to avoid the safeguard requirements for REDD+. For instance, the knowledge, rights, and participation of the indigenous people (regardless of gender) and local communities in the process of project formulation, and conservation of biological diversity in natural forests area are considered as safeguards for REDD+ implementation. Therefore, without an assessment of the safeguards and satisfaction of the safeguard requirements, REDD+ activities cannot be launched.

Appendices

Appendix 1. The results of the rating for each criterion

Each criterion applied to the selection is briefly described below. The criteria are divided into three groups (forest and land resources, socio-economic conditions and relevant policy/program) on the basis of the subjects into which each criterion fall.

1. Criteria on the forest and land resources:

1.1 Volume of the rich and medium forests in 2010: as the forest gets stocked with larger volume, the more carbon credit can be potentially earned by saving it (criterion for the Activity A).

1.2 Area of the protection forest: the natural forest and the plantation set inside of the protection forest are more likely protected as compared to those in the production forest (criterion for the Activities A, B, C, E, F).

1.3 Area of the unused land: the unused land can be planted with trees more easily than the used land (criterion for the Activities D, E, F).

1.4 Area of the bare land in 2010: the bare land can be restored by natural regeneration or planted with trees (criterion for the Activities C, D, E, F).

1.5 Area of the low-productivity land per person (area of the slope steeper than 25^{o} per person): the low productivity land can be given up by the local people more easily to convert it to the forest through natural regeneration or afforestation/reforestation (criterion for the Activities C, E, F).

1.6 Area of the slope gentler than 25^{o}: the land on gentle slope is more suitable for the rubber plantation development (criterion for the Activity D).

2. Criteria on the socio-economic conditions:

2.1 Area of the forestry land owned by the CPC: the land owned by the CPC can by more suitable to develop large-scale plantations (criterion for the Activities D and F).

2.2 Population density: the lower population density put less pressure of the shifting cultivation on the forest and hence the forest can be protected more easily (criterion for the Activities A, B, C, E, F).

2.3 Area of the paddy field per person: people who can supply themselves with sufficient amount of the paddy rice are less likely to exploit the forest to seek for food production (criterion for the Activities A, B, C, E, F).

2.4 Area of shifting cultivation per person: the natural forests and plantations set in the area with less pressure of shifting cultivation are less likely damaged by the shifting cultivation (criterion for the Activities A, B, C, E).

2.5 Composition of the Thai people: the Thai people relatively reside in the low land and practice rice production in the paddy field rather than the upland cultivation. The Thai people also relatively accept forest-related activities as compared to the other ethnic groups in accordance with the result of interviews (criterion for the Activities E and F).

3. Criteria associated with relevant policy/program:

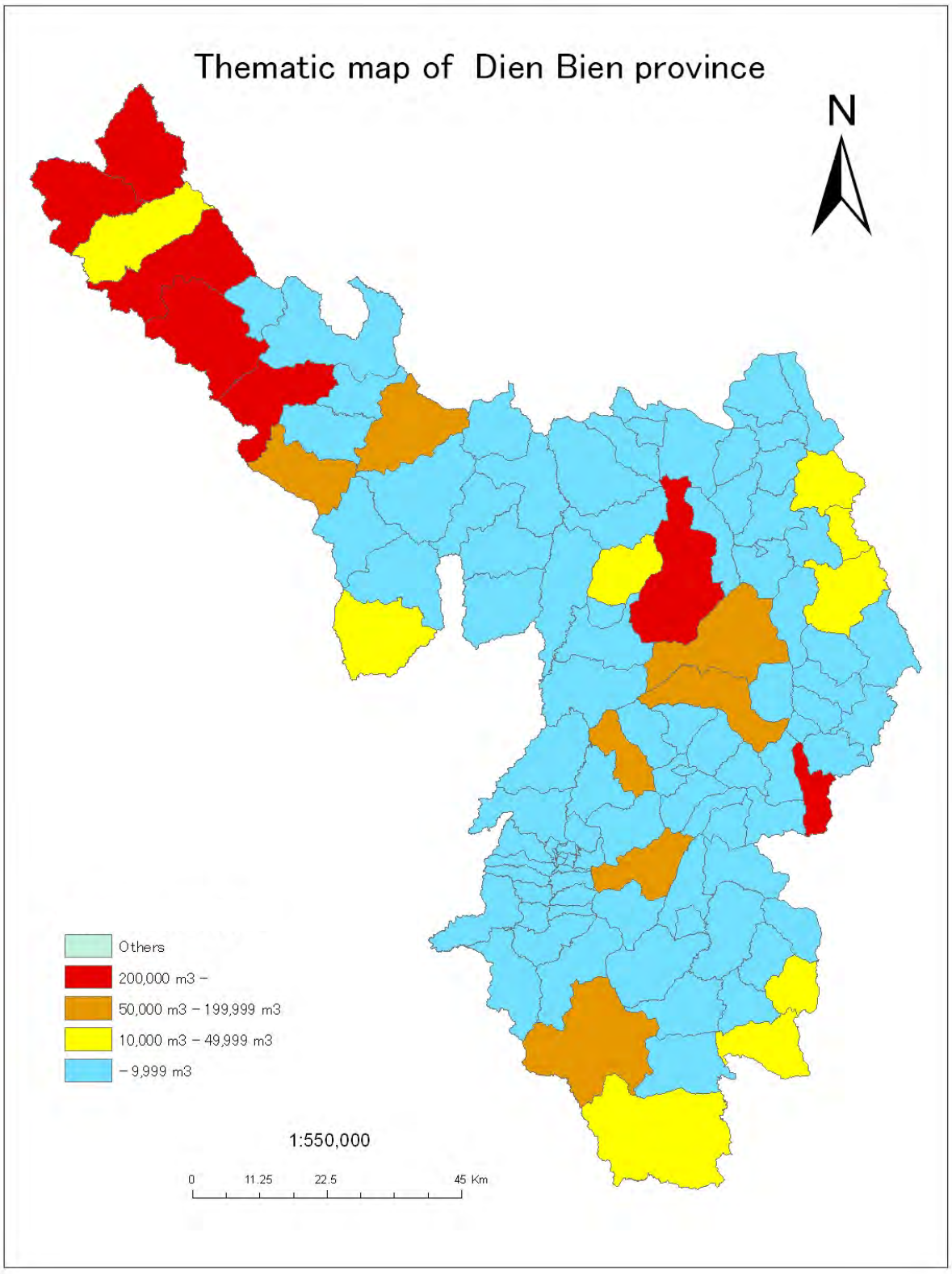
3.1 Area of the implementation of the natural forest protection under the 661 program: the natural forest protected under the 661 will be protected by the potential REDD+ activity (criterion for the Activity A).

3.2 Area of the implementation of the restoration under the 661 program: the area restored under the 661 program will be maintained by the potential REDD+ activity (criterion for the Activity B).

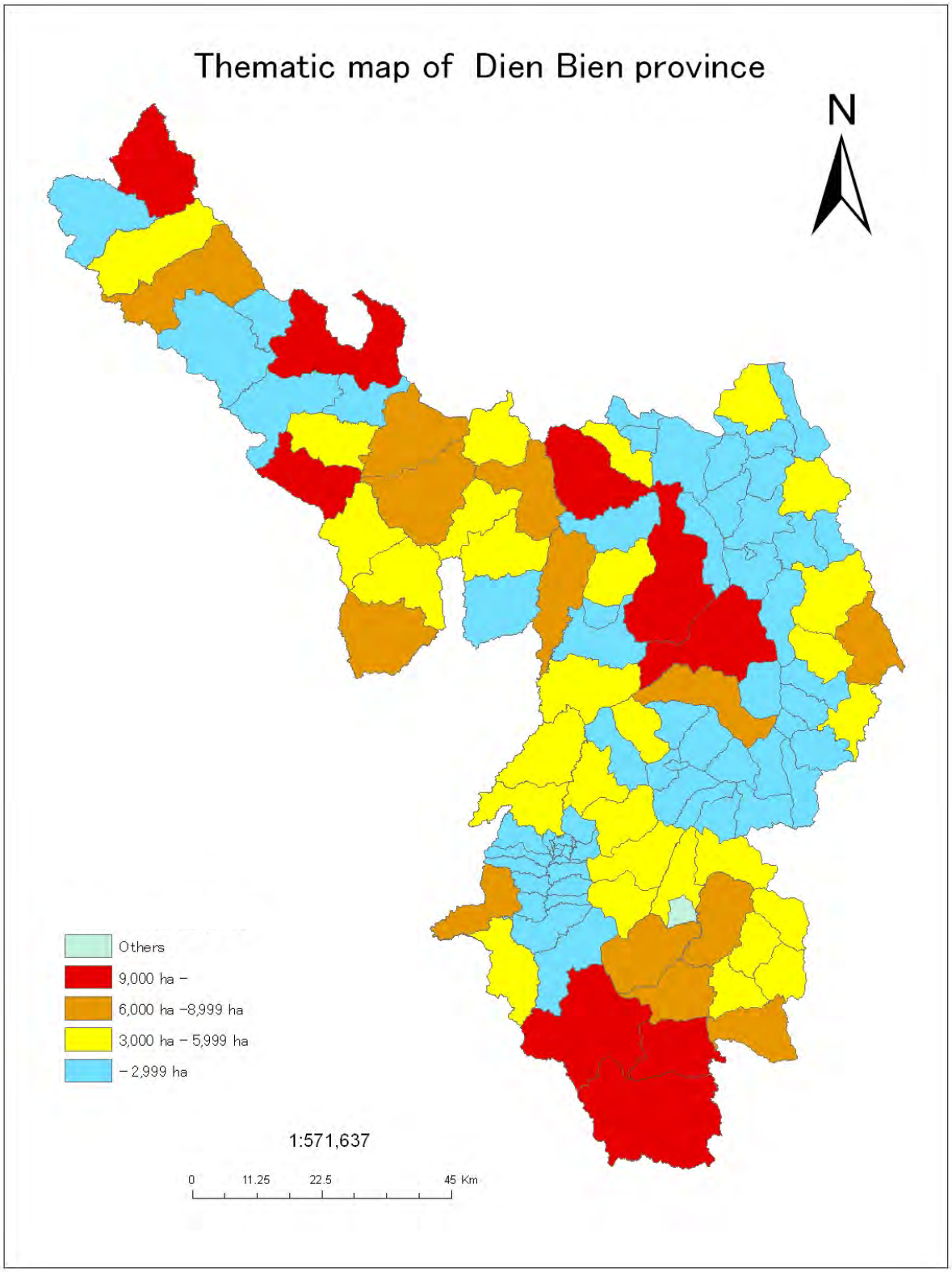
3.3 Support of the Decision 30A: the Decision 30A is expected to provide people with incentives to plant trees (criterion for the Activity E).

The thematic maps for each criterion as results of the rating are provided in the following pages.

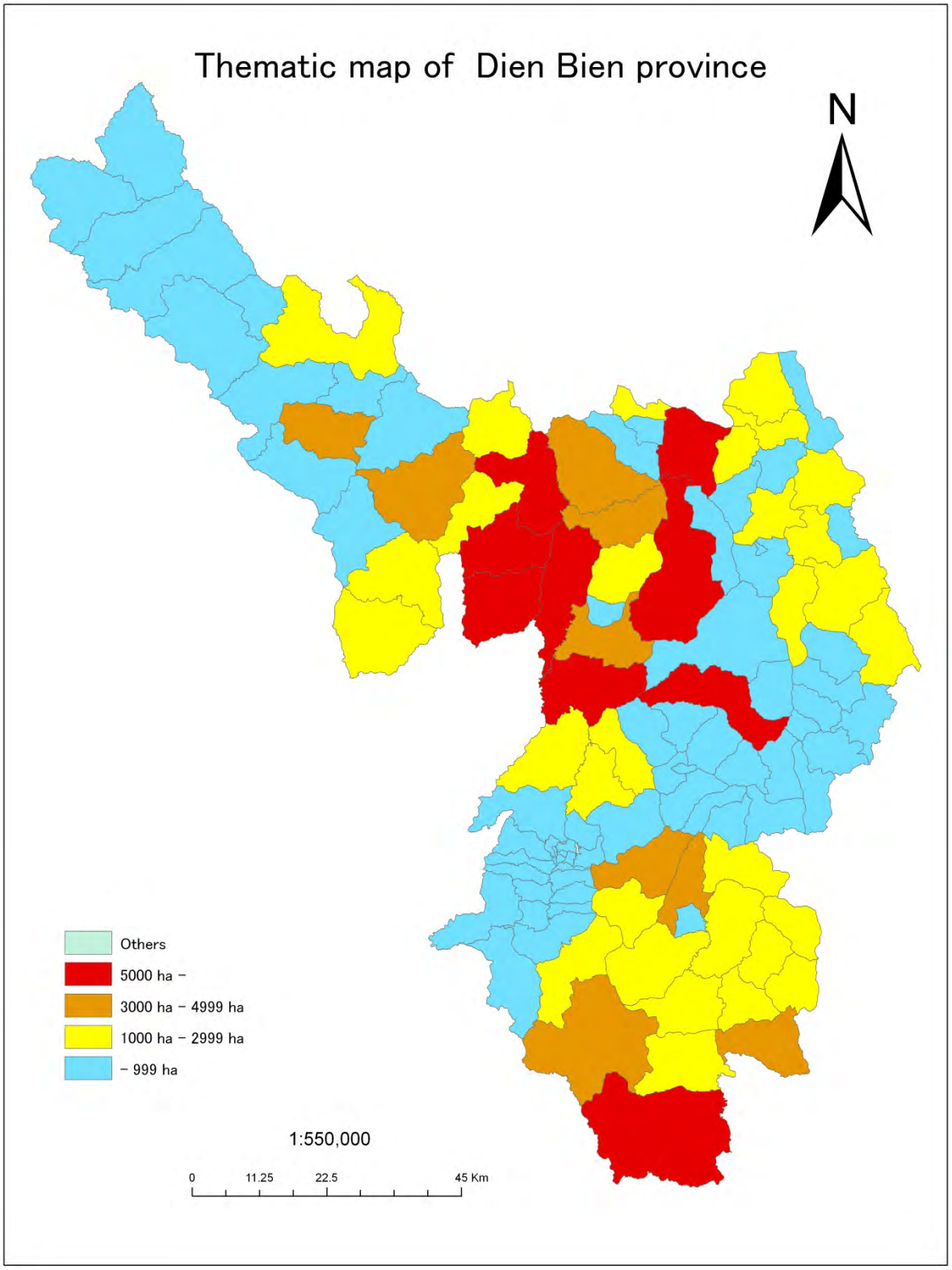
1.1 Volume of the rich and medium forests for 2010:



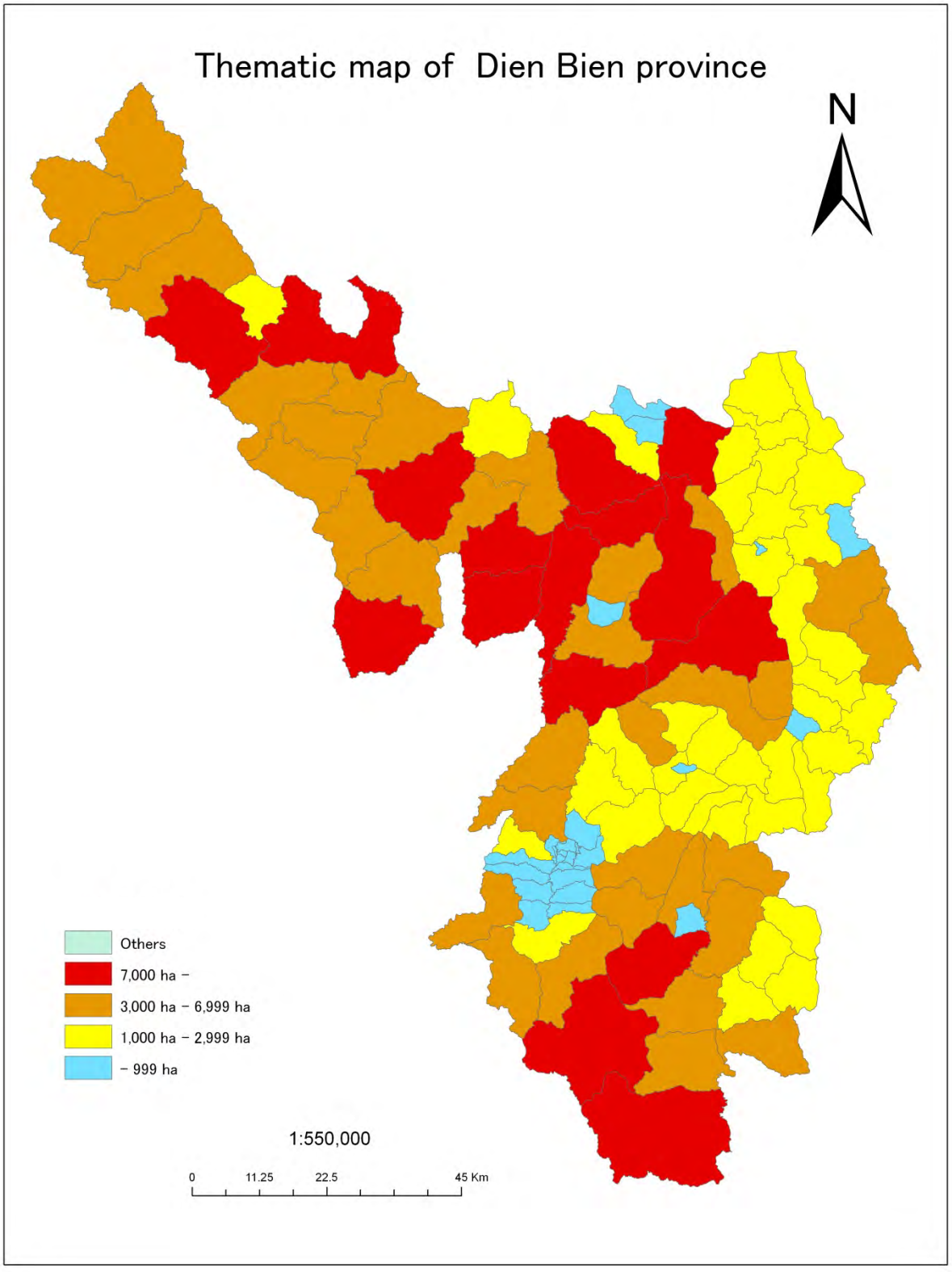
1.2 Area of the protection forest:



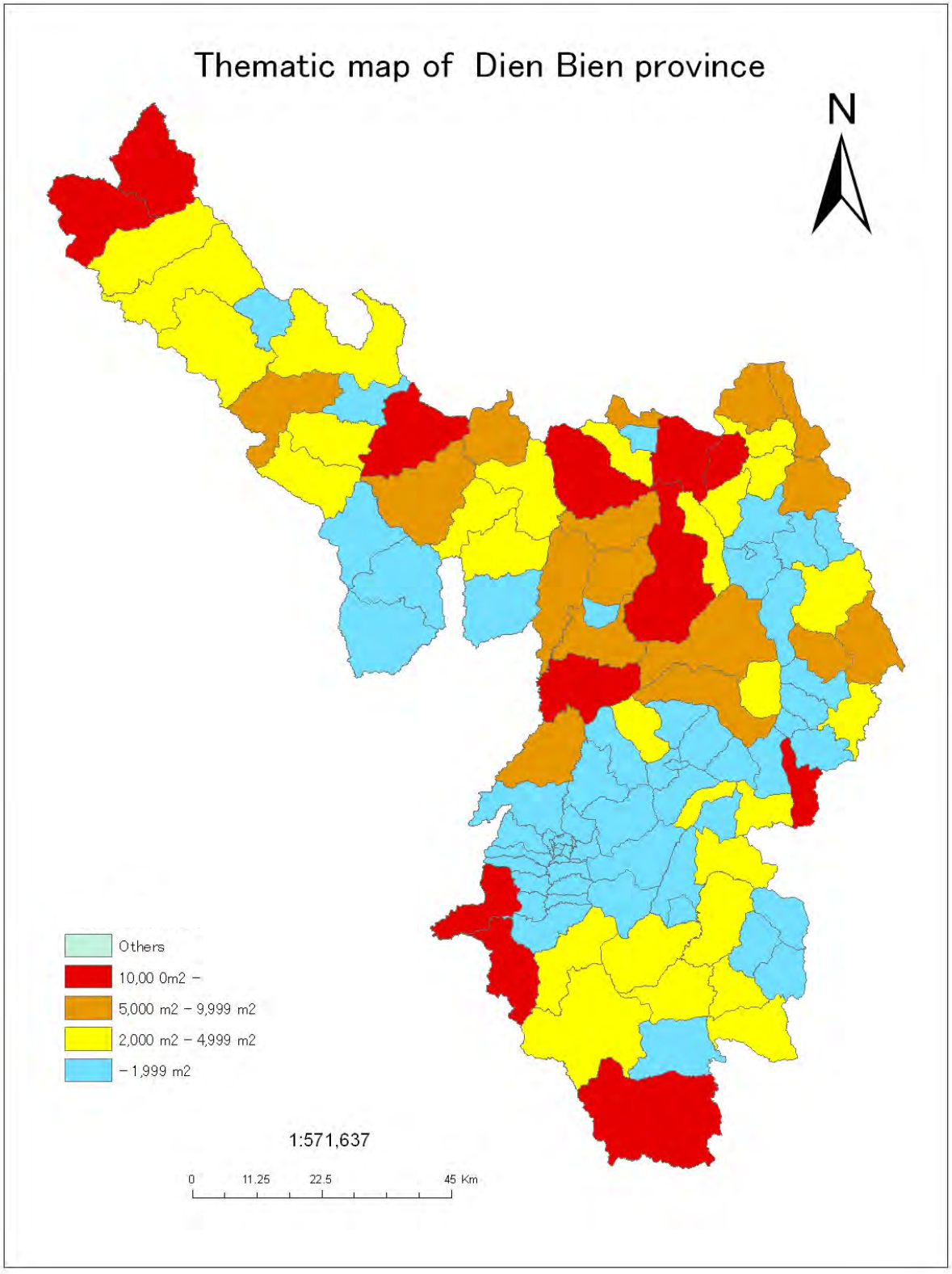
1.3 Area of the unused land:



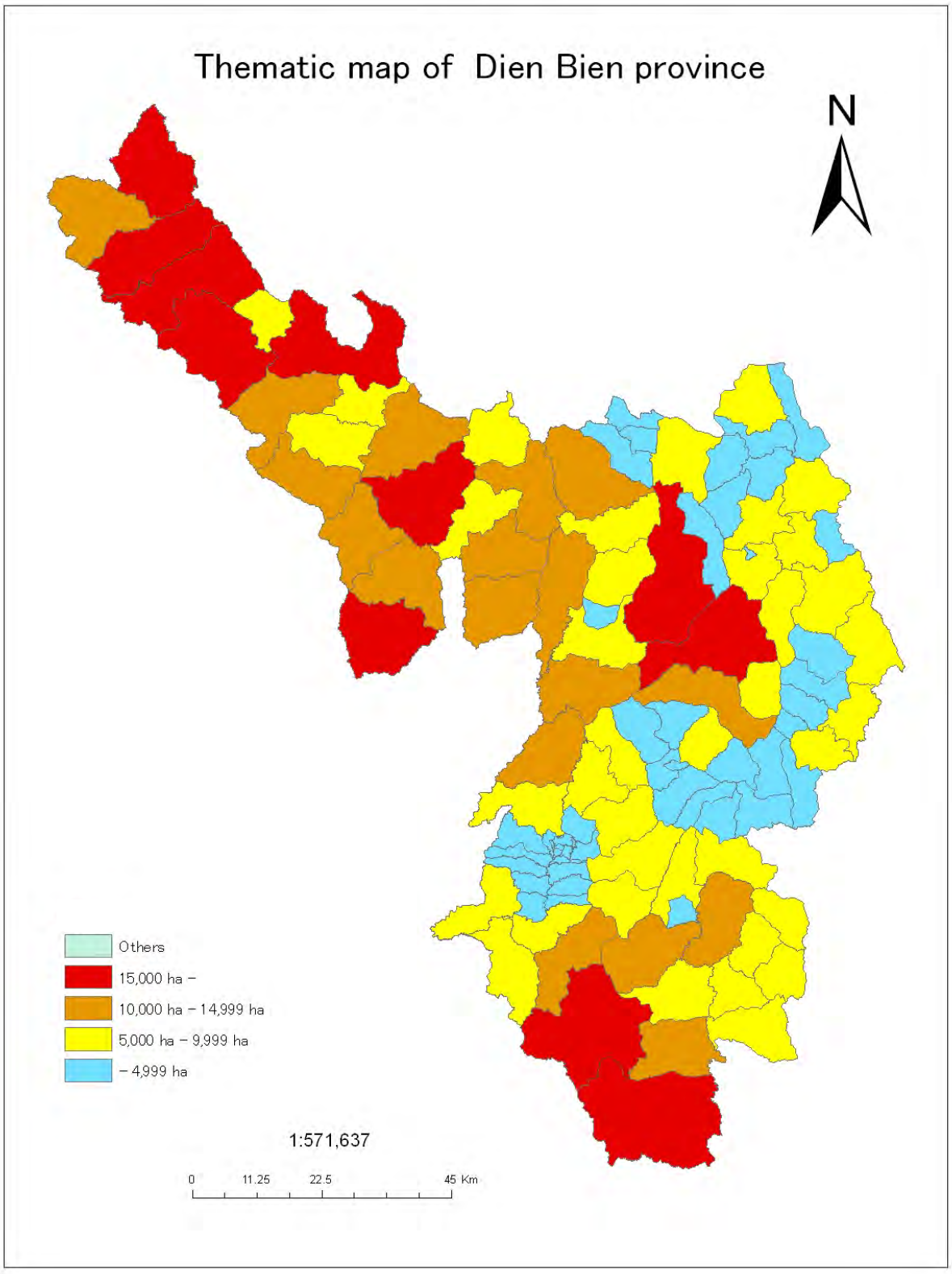
1.4 Area of the bare land for 2010:



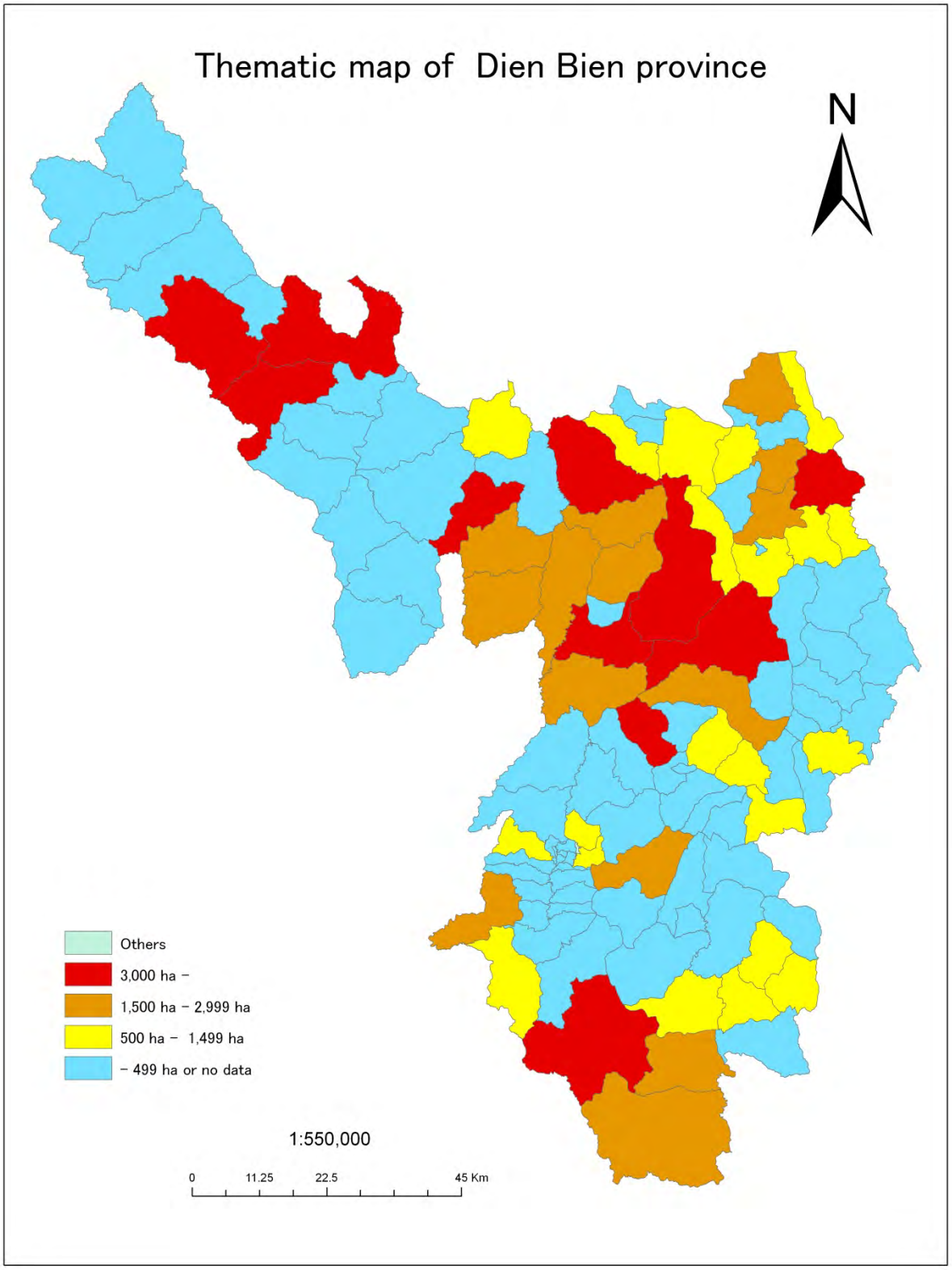
1.5 Area of the low-productivity land per person (area of the slope steeper than 25^{o} per person):



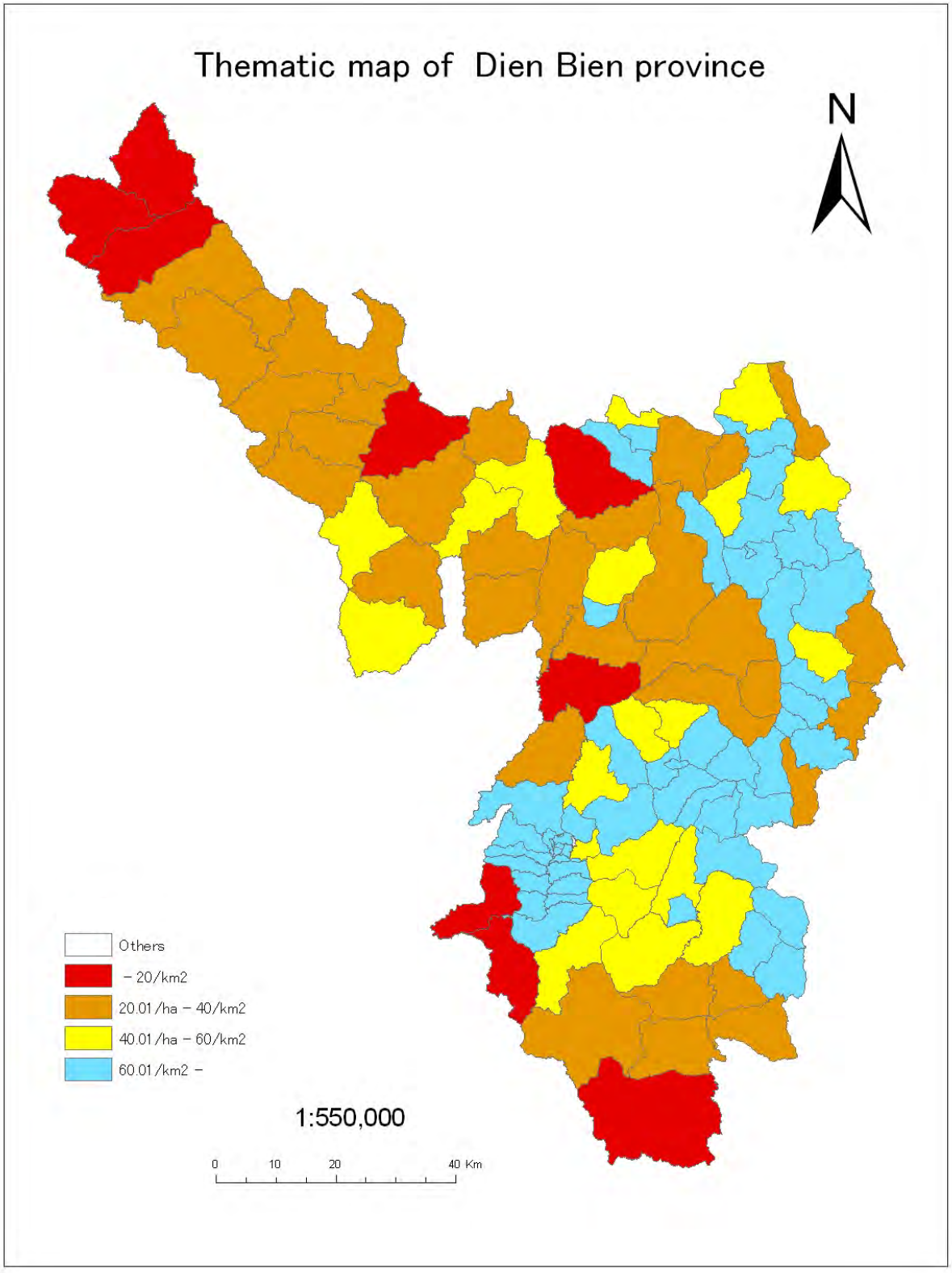
1.6 Area of the slope gentler than 25^{o}:



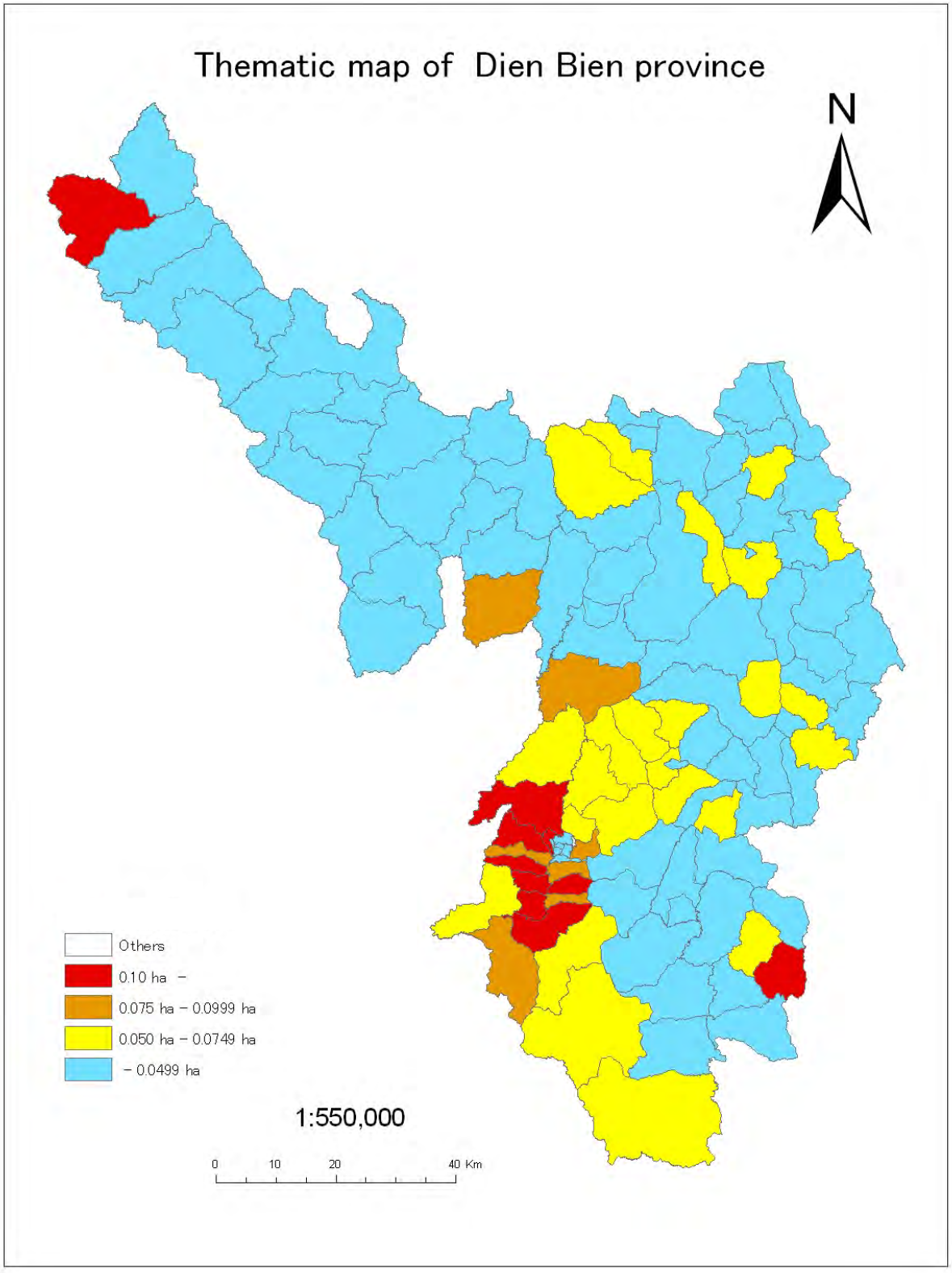
2.1 Area of the land owned by the CPC:



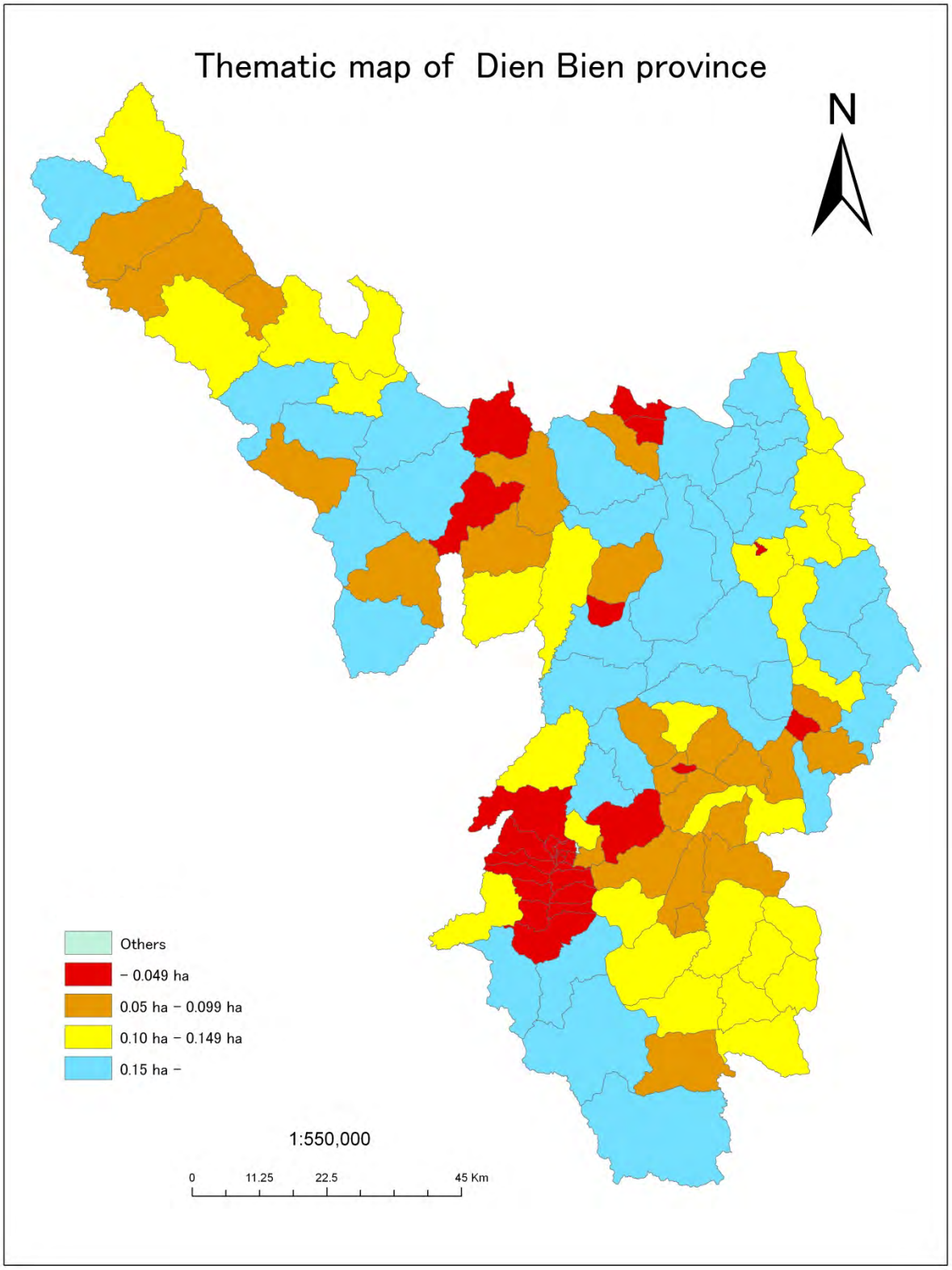
2.2 Population density:



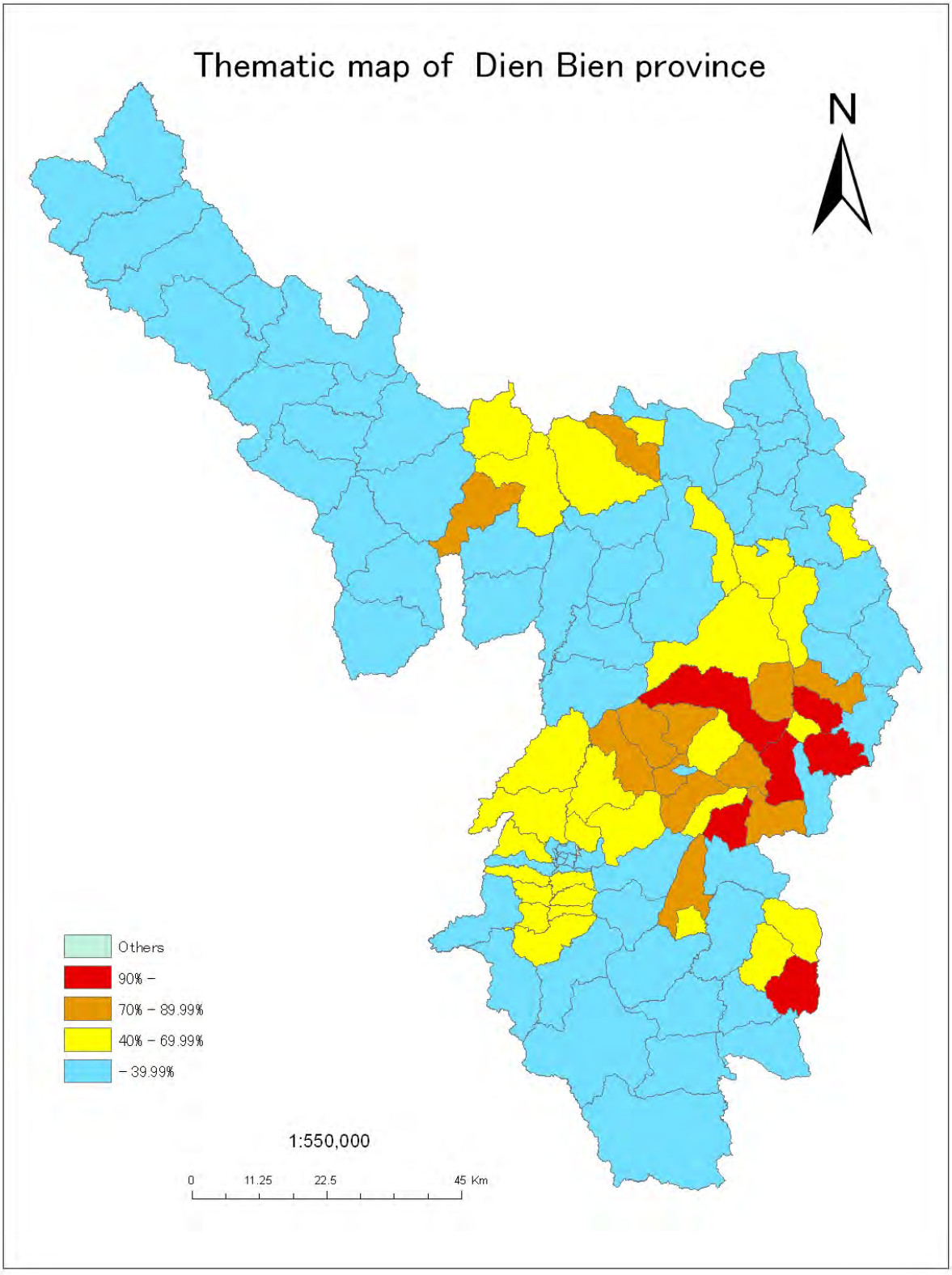
2.3 Area of the paddy field per person:



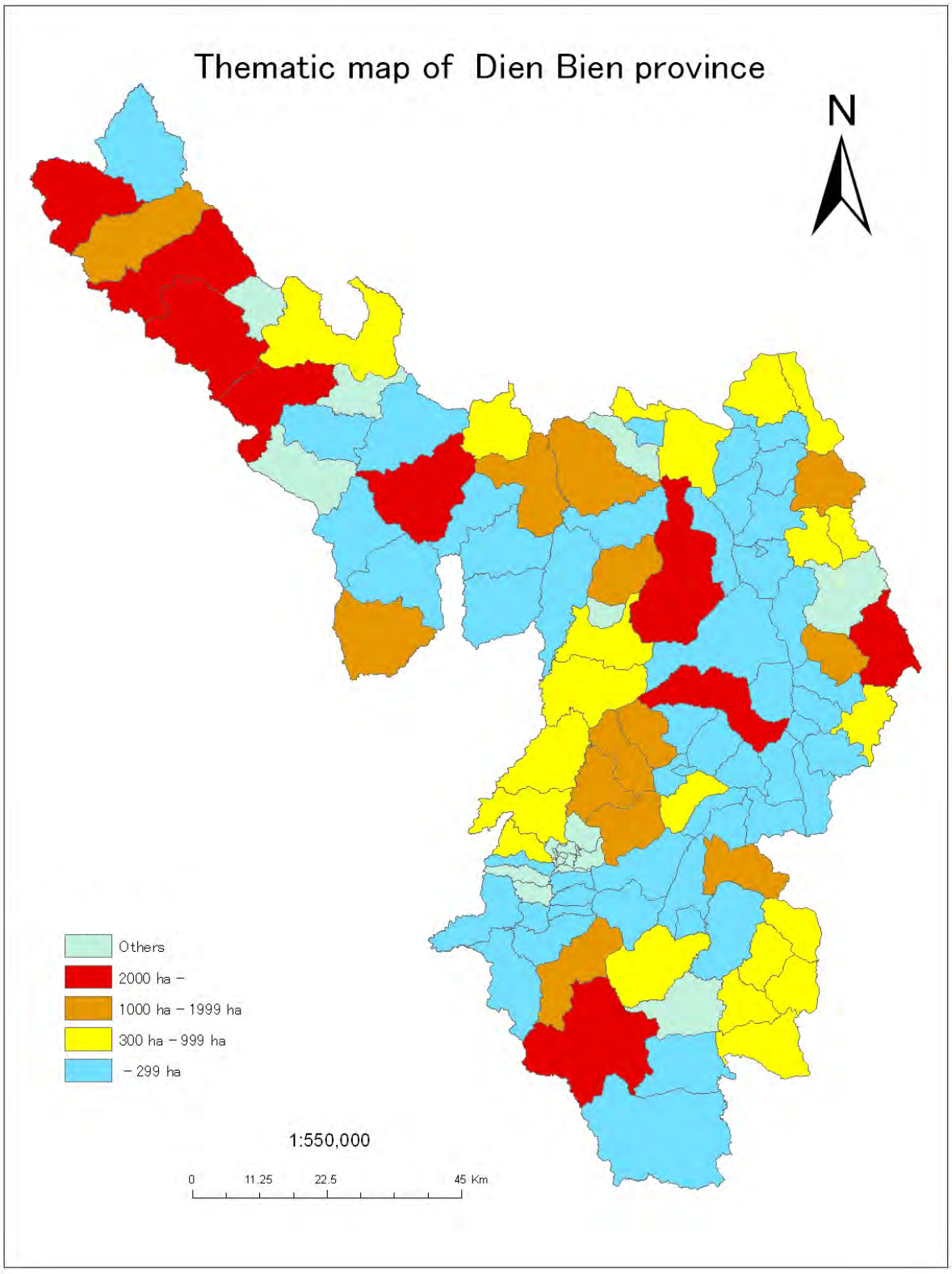
2.4 Area of shifting cultivation per person:



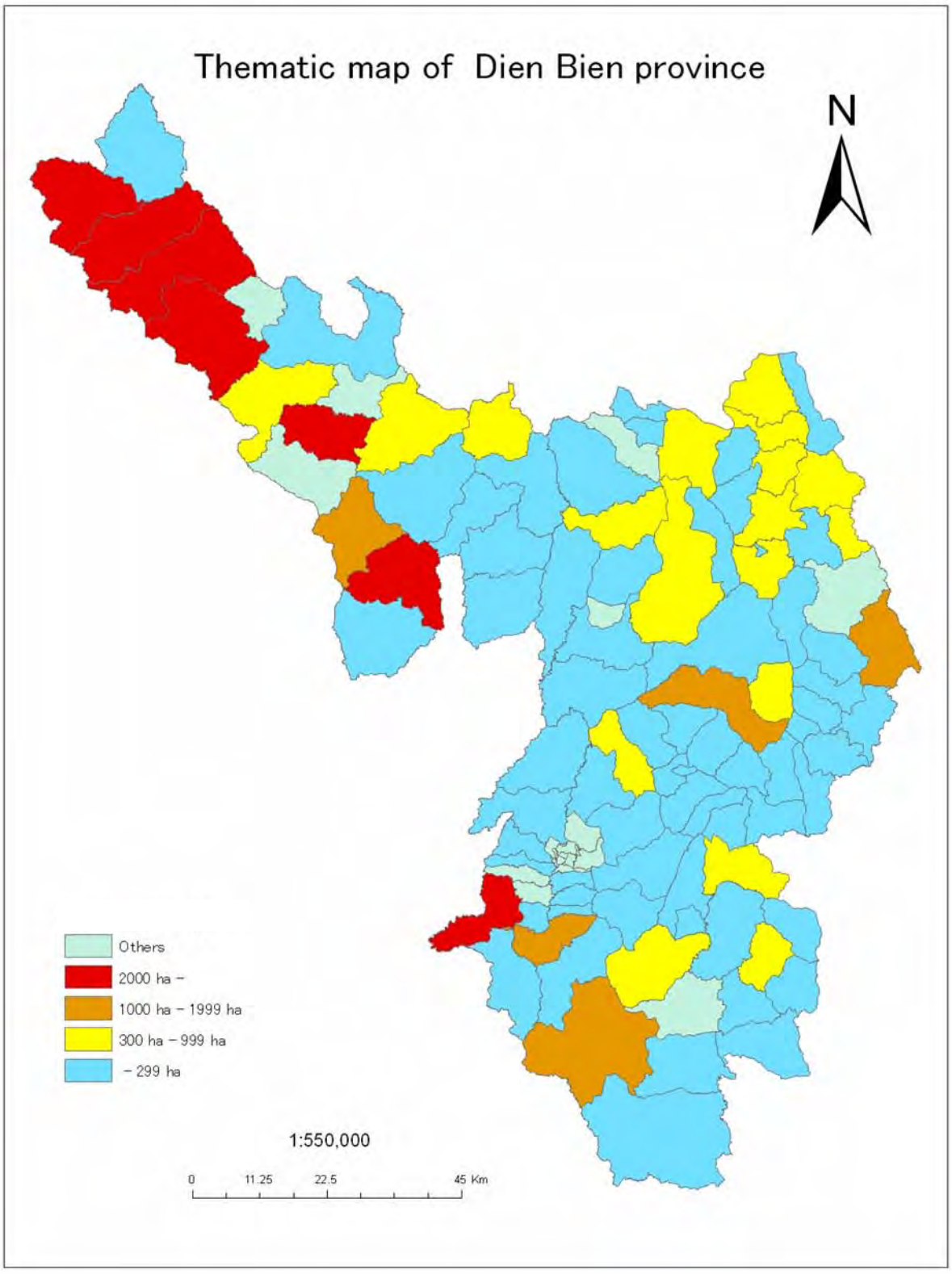
2.5 Composition of the Thai people:



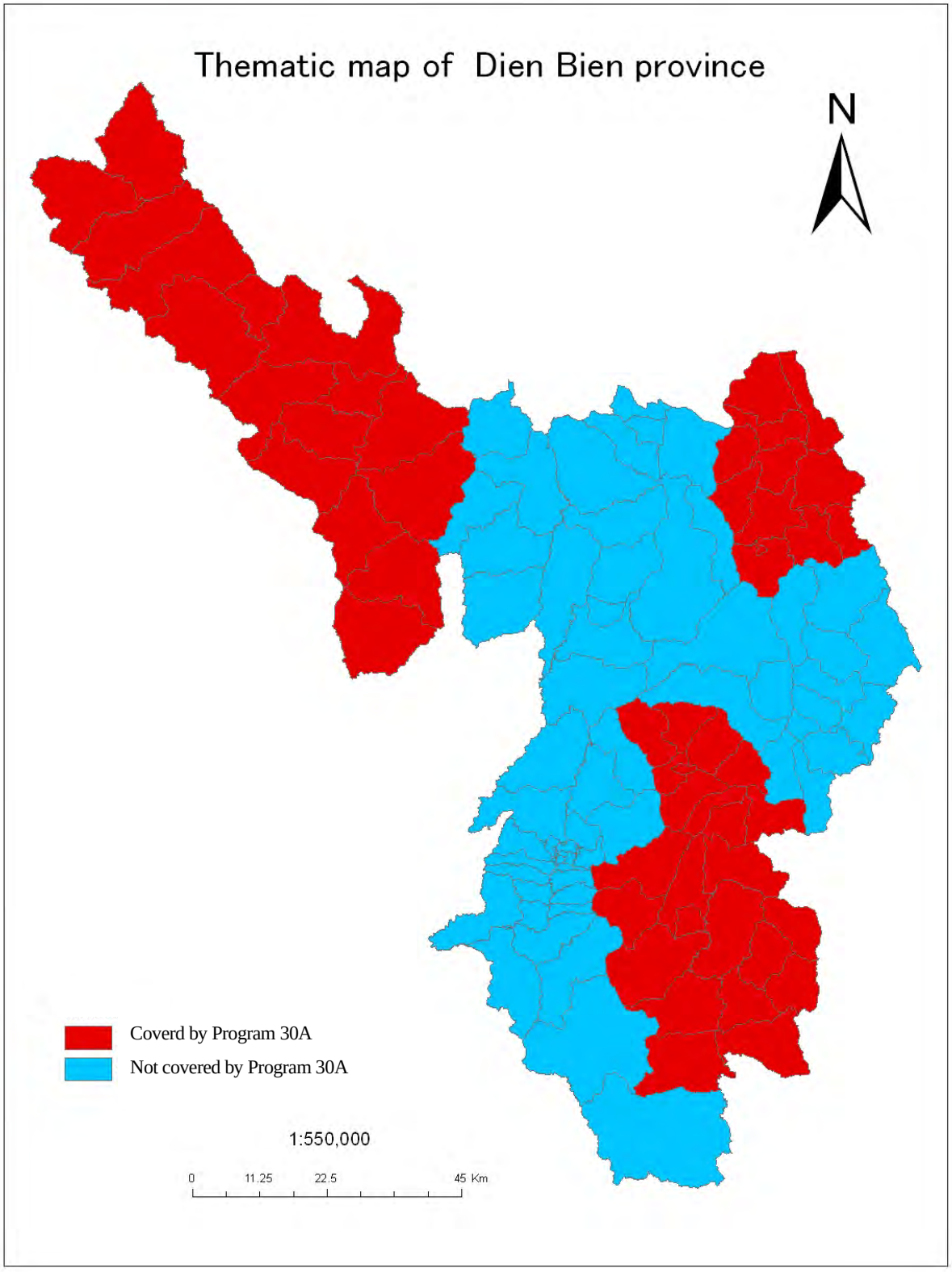
3.1 Area of implementation of the natural forest protection under the 661 program:



3.2 Area of the implementation of the restoration under the 661 program:



3.3 Support of the Decision 30A:



Appendix 2. Detailed description of the legal items relevant with REDD+

1. Analysis of current legal framework and state's policies

1.1 Systematization of legal framework and state's policies

Laws, policies and implementation guidelines that are related to activities of REED+ can be arranged in one of the six groups as given below.

- Land and forest
- Forest management
- Planning and strategy for forest development
- Finance, credit and tax
- Environment protection
- Other related policies

1.2 Result of analyzing current legal framework and state's policies

1.2.1 Result of analyzing laws and policies on land and forest

(1) Land Law and implementation guideline

- Land Law is coded 13/2003/QH, approved by Legislature XI of the National Assembly on 26th November 2003, and to be full force and effect on 1st July 2004.
- Government's implementation guideline: Decree No. 181/2004/NĐ-CP (normally called Decree 181) issued on 29th September 2004, full force and effect on 13th October 2004.

Land Law and its implementation guideline play an important role with activity on "sustainable forest management", because they contain terms identifying stakeholders to be given (allocated or contracted) land use rights with specific benefits and obligations.

Table 1. Summary and analysis of land law and implementation guideline

Aspects	Summary and analysis
Support	- The State grants land use rights to land users via the form of allocation of land, lease of land, and recognition of land use rights for persons currently using the land stably; shall regulate the rights and obligations of land users (Item 4, Art. 5). - Stakeholders to be given land use rights (Art. 9). - Identification of land use principles (Art.11): 1. Correct with land use planning and land use purposes; 2. Savings, efficiency, environmental protection and must not cause loss to the lawful interests of surrounding land users. - The division of forest land into three categories: forest land for production, protective forest land, specialized use forest land (Art.13). - Regulations on planning and land use plan (Art. 21-30, Section 2) – detail guideline for constructing land use planning of a commune is mentioned in Article 14 of Decree 181/2004/ND-CP - The provisions on land allocation, land lease, conversion of land use purpose (Art. 31-37, Section 3). - Land registration, establishment and management of cadastral profile, grant of land use right certificate, land inventory (Art. 46-53, Section 5).

	- Duration of use of protective forest land, specialized use forest land: stable and long-term (Art. 66). - Duration of use of forest land for production by households and individuals is not exceeded more than fifty years. Upon expiry of the duration, the State shall consider extension of the duration of land use if the land user wishes to continue using the land and has strictly observed the laws on land during the period of use, and such land use conforms with the approved land use zoning (Art. 67). - The quota on allocation to each family household or individual of protective forest land and forest land for production shall be no more than thirty (30) hectares of each type of land (Item 3, Art. 70). - Organizations managing protective forest land allocate on contract their watershed forest and land to households and individuals living in the area to protect and develop forests (Item. 3, Art. 76) - Organizations managing specialized use forest land shall contract out their forest land which is within the category of ecological restoration area to family households and individuals living stably in such area for the purpose of forest protection and development; shall contract out on a short term basis their forest land which is within the category of core zone to family households and individuals having not been able to move away for the purpose of protection (Item 2 and 3, Art. 77). - The rights and obligations of organizations, households, individuals and communities on land use mentioned in the Art. 109 - 117.
Conflict	- Although area of forest land is the largest amount and its use purposes are totally different from agricultural land, the forest land is put under category of agricultural land. - Land allocation is separated from forest allocation: the natural forest is always attached to land, but in the regulation land allocation is separated from the natural forest land - Price of land is separated from price of the natural forest attached to the land (Art. 55).
Gap	Nil

(2) Law on Forest Protection and Development and implementation guideline

- Law on Forest Protection and Development is coded 29/2004/QH11, approved by Legislature XI of the National Assembly on 3rd December 2004, and to be full force and effect on 1st April 2005.
- Government's implementation guideline: Decree No. 23/2006/ND-CP, dated 3rd March 2006, and to be full force and effect on 18 March 2006.

This Law and its implementation guideline are meaningful to five activities of REED+, especially activity of "sustainable forest management" as they provide clearer regulations of forest owners, rights and obligations; clearer classification of three types of forest and management mechanism for each type of forest. Summary of contents related to each activity of REED+ are presented in the table below.
- "Reducing emissions from deforestation" - regulations of forest management, forest exploitation and transportation forest products

Table 2. Summary and analysis of Law on Forest Protection and Development and implementation guideline from aspect of reducing emissions from deforestation

Aspects	Summary and analysis
Support	• Prohibited activities (Art. 12): Illegal logging and forest exploitation; illegal destruction of forest resources, forest ecosystems; violation of the regulations on fire prevention and firefighting; encroaching forest, occupying and conversing forest use purpose illegally; damaging the forest resources and forest ecosystem. • Conversion of forest use purpose: - The conversion of protective forest land, specialized use forests and forest land for production

	into other purposes or conversion from certain type of forest into other purposes must be compatible with the planning, plan of forest protection and development that has been approved, or must be permitted by the state agencies. - The conversion of natural forests to other use purpose should be based on criteria and conditions of government regulations (Art. 27). • Responsibility of forest protection (Art. 36-39) • Principles of forest development and use of protective forests, special use forest and production forest (Art. 45-57)
Conflict	Nil
Gap	Nil

- "Reducing emissions from forest degradation" - regulations prohibit illegal exploitation, transportation and consumption of illegal forest products

Table 3. Summary and analysis of Law on Forest Protection and Development and implementation guideline from aspect of reducing emissions from forest degradation

Aspects	Summary and analysis
Support	- Responsibility of forest protection (Art. 36-39) - The exploitation of forest plants must comply with regulations on forest management issued by the Prime Minister, procedures and exploitation guideline issued by the Ministry of Agriculture and Rural Development issued (Item. 1, Art. 31) - Regulations on forest firefighting (Art. 42) - Regulations on business, transportation, export, import, temporary import and re-export, temporary export and re-import, transition of forest plants and animals (Art. 44)
Conflict	Nil
Gap	Nil

- "Sustainable forest management" – Classification of three types of forest and management mechanism for each type of forest

Table 4. Summary and analysis of Law on Forest Protection and Development and implementation guideline from aspect of sustainable forest management

Aspects	Summary and analysis
Support	- Forest land is divided into 3 types of forests according to three purposes (protection, special use and production) and detailed classification of protective forest land and specialized use forest land (Art. 4). - Identify the specific types of forest owners (Art. 5) - The government has right to make decisions of forest land allocation, recovery of leased forest land, conversion of purpose of forest land use, valuation of forest (Art. 6) - Principle for protection and development of forest: Activities to protect and develop forests must ensure sustainable forest development in terms of economic, social and environmental aspects; harmonize benefits between State and forest owners, economic value and protection value, environmental protection and nature conservation, short-term benefits and long-term benefits; ensure the people working in forestry maintaining with income from forestry activities (Art. 9) - State's policy of forest protection and development (Art. 10) - Plan, plan to protect and to develop forests (Art.13-21) - Allocating, leasing and recovering the forests, conversing purpose of forests (Art 22-28); - General rights and obligations of forest owners (Art. 59 & 60) - Rights and obligations of each type of forest owner (Art. 61 & 73)
Conflict	• Rights to use forests of economic organizations: - The organizations are allowed to make deposit, guarantee or to use their incremental value of forest use rights produced by their owned investment as capital for cooperation activities

	(Item. 1, Art. 64). - The organizations are not allowed to convert, transfer, donate, lease their use rights; to make deposit, guarantee or to use their forest use rights of natural forests and plantation forests invested by the state's budget as capital in cooperation activities (Item. 4, Art. 64). • Rights to use forests of households and individuals: - For natural forests in the category of production forest, forest owners are allowed to harvest in accordance with Article 56 of this Law; they are allowed to mortgage, guarantee or to use their incremental value of forest use rights produced by their owned investment as capital for cooperation activities (b, Item. 5, Art. 71) • The classification of three forest types (protective forest, specialized use forest and production forest) is different from international classification for forest management
Gap	Nil

- "Conservation of forest carbon stocks" and "enhancement of forest carbon stocks" – supports for enriching natural forests and encouraging tree plantation

Table 5. Summary and analysis of Law on Forest Protection and Development and implementation guideline from aspects of "conservation of forest carbon stocks" and "enhancement of forest carbon stocks".

Aspects	Summary and analysis
Support	- State implements policy to support for protection and enrichment of poor natural forests in the category of production forest, plantation of production forest for large diameter timber, high value woods, specialty plants (Item. 3, Art. 10). - The State encourages organizations, households and individuals to receive and to develop the forests in areas of bare land, bare hills; to give priority to development of forest providing raw material for economic sectors; to enlarge forms of land leasing, land use bidding for development of tree plantation; to create policy with reduction of tax for tree planters; to establish policy on credit and loans with suitable interest rate, grace period, loan duration matched with specific species, and ecological characteristics of each region (Item. 4, Art. 10). - State investment its budget into activities of forest protection and development; to establish Fund for Forest protection and Development and to mobilize money from different financial sources, such as donors, international organizations, households, individuals and other sources (as legal regulations) that are directly and indirectly benefited from the forest and then to invest into activities of forest development (Art. 11).
Conflict	Nil
Gap	Nil

(3) Guideline on process and procedures for allocating and leasing forests to organizations, households, individuals and rural communities

i) Name of document: Circular No. 38/2007/BNN
ii) Responsible: Ministry of Agriculture and Rural Development
iii) Date of issue: 25 months 4 year 2007
iv) Effective date:

Related activities "Conservation of forest carbon stocks" and "enhancement of forest carbon stocks"
Reason: To clarify clearly quality of forests (especially natural forest) when they are allocated to forest owners. This statement of quality of forest can also serve as baseline for calculating incremental value of the forests.

Table 6. Summary and analysis of Circular No. 38/2007/BNN

Aspects	Summary and analysis
Support	- Characteristics of forests where are allocated, leased or recovered must be expressed by the

	following factors: location, boundaries, forest type, area, status of forest and quality of forest. - After People's Committee of district issues decision of forest allocation, executive people's committee of commune has to organize activities of forest handover to the households and individuals in the fields, these activities have to be witnessed by surrounding land users or forest owners; a handover minute should be constructed and signed by representatives of the people's committee, households and individuals, and related people. - Data recorded from process and procedure of forest allocation can be used for calculating increment of carbon stocks. - Circular No. 07/2011/TTL has been added in order to carry out forest allocation and to issue certificate of land use rights.
Conflict	- Lack of regulations on coordination with agencies in change with resource management in implementing activities on forest allocation. - Lack of regulations on the participation of households, individuals and communities in identifying characteristics of the forests
Gap	Nil

(4) Guideline of detail activities on forest allocation, forest lease associated with land allocation and land lease

i) Name of document: Circular No. 07/2011/TTLT-BNNPTNT-BTNMT

ii) Responsible: Ministry of Agriculture and Rural Development, and Ministry of Natural Resources and Environment (MONRE)

iii) Issued date: 29/01/2011

iv) Effective date: February 13, 2011

Related activities: "sustainable forest management"

Reason: To unify forest allocation at the same time with forest land allocation, and the coordination between agencies of MARD and MONRE

Table 7. Summary and analysis of Inter-ministries Circular No. 07/2011/TTLT-BNNPTNT-BTNMT

Aspects	Summary and analysis
Support	- Provide a guideline of co-ordinations between the agencies of (MONRE) and units of Forest Protection Department of MARD in performing the following activities: a) forest allocation, forest lease in associated with land allocation and lease of forest land at the first time; b) Modifying profiles of forest allocation and forest lease for the cases including: Stakeholders have been allocated or leased forest land, forests and received land use rights certificates, but their profiles of forest allocation or forest lease are not completed yet; c) Completion of cadastral documents for the cases that stakeholders have been allocated or leased the forests, but these people have not been given certificates of land use rights. - Maps of forest allocation, forest lease, forest land allocation and lease of forest land have to use VN-2000 reference system with the basic scale is 1/10.000 or 1/5.000. Where the local authorities have completed their local cadastral maps, maps with basic scales must be used for allocating and leasing forests and forest land. - Provide a unified form of land use rights certificate and content written in the certificate. - Identify responsibilities of MARD, MONRE and provincial governments and district governments in order to overcome the lack of coordination in the FLA in the previous time.
Conflict	Nil
Gap	Nil

(5) Regulation of forest allocation on contract in the period 1995-2005

i) Name of document: Decree No. 01/CP, dated 01/04/1995, for allocation on contract of agricultural land, forest land for production, and water surface for aquaculture production managing by the management boards of

protection forest or special-use forest.
ii) Responsible: Government
iii) Date of issue: 4/1/1995
iv) Effective date:

(6) Regulations on allocation on contract with agricultural land, forest land for production, water surface for aquaculture production managing by state-run farms or state forest enterprises.

i) Name of document: Decree No. 135/2005/ND-CP
ii) Responsible: Government
iii) Date of issue: 12/10/2005
iv) Effective date:
Related activities: "Sustainable forest management" and "conservation of forest carbon stocks"
Reason: To enhance forest protection force and development of forests, where belong to state own forestry organizations, based on contracts of forest protection with local households or forest communities, common known as "particular forest owners".

Table 8. Summary and analysis of Decree No. 135/2005/ND-CP

Aspects	Summary and analysis
Support	- Forest owners are state organizations (management board of protection forest, special-use forest, state own forestry companies, project management board), to be called A side, and have to allocate on contract their forest land to local households, individuals and communities, to be called B side, in order to create direct participatory of these stakeholders in activities of forest protection and forest development - Contract documents (A-B) - The contractors is allow to have a portion of amount of environmental service payment (according to Circular guiding the implementation of Decree 99) – creation of incentive for contracting households
Conflict	- The contract document does not have high legality, content of the contract is not coherence, the contractors are always in the losing side. - State budget for protecting forest is very small; payment is made within period of the project (normally lasted within 3-5 years), and this lead to short-term contracts only – long-term contracts cannot be made. State forest companies without annual revenue cannot make contracts with local people or communities. - Annual payment for activities of forest protection is very small, then it does not attract laocal people (practically, it ranges from 50,000, to 100,000 or 200,000 or 300,000 VND/ha/year)
Gap	Nil

1.2.2 Policies on forest management

(1) Forest management regulation

Currently there are three legal documents containing forest management regulations, which are:
- Decision of the Prime Minister on the regulation of forest management
i) Name of legal document: Decision 186/2006/QD-TTg
ii) Responsible: Government
iii) Issue date: 14/08/2006
iv) Effective date:

- Guideline for implementing Decision 186/2006/QD-TTg

i) Name of legal document: Circular No. 99/TT-BNN

ii) Responsible: Ministry of Agriculture and Rural Development

iii) Issue date: 06/11/2006

iv) Effective date:

- Guideline of exploitation of timber and NTFPs

i) Name of legal document: Circular No. 35/2011/TT-BNNPTNT

ii) Responsible: Ministry of Agriculture and Rural Development

iii) Issued date: 05/20/2011

iv) Effective date:

Three mentioned legal documents are all related to activities on "reducing emissions from deforestation", "reducing emissions from forest degradation" and "sustainable forest management".

Reason: Regulating activities of forest owners towards sustainable forest management.

Table 9. Summary and analysis of Decision 186/2006/QD-TTg

Aspects	Summary and analysis
Support	• This legal document contains regulations on organization, management, protection, development and use of special-use forests, protection forests and forests for production, that includes land with forest cover or land without forest cover and the state have allocated, leased or made planning to use for purpose of forest development. This Regulation applies to state agencies, organizations and rural communities ... • The special-use forests, protection forests and production forests have to be managed, protected and developed in a sustainable way; compatibility with forest planning and plan of forest management development. Management of forests must be suitable with intended use purpose of each forest type. At the same time, all value of the forests must be used effectively in order to obtain economic development in combination with protection of environment and bio-diversity… • Conversion of forest land into land for other purposes should be made in accordance with approved plan and planning of socio-economic development and permission given by management authorities that are written Article 29 of Decree No. 23/2006/ND-CP - "Reducing emissions from deforestation". • Exploitation of timber and NTFPs in the protection forests (Art. 32) 1. Principles for harvesting forest product in the protection forest - To do harvesting activities without damaging protection function of the forests. - Harvested volume does not exceed over the incremental growth. 2. Harvesting forest products in the protection forests a) For natural forests in the watershed protection area: - Allow to gather timber and NTFPs. - Allow to cut the trees when the forests growth up to requirement of protection function, but the canopy of forest after cutting must be more than 0.6. - Forbid to cut endangered species that are written in Decree No. 32/2006/ND-CP, issued on 30 March 2006. b) For plantation forests in the watershed protection area, protection forests against waves, strong wind, sand movement, environmental protection or sea encroachment. - Allow to harvest inter-planted trees, supporting trees; to do thinning, to gather timber and non-timber forest products. - Allow to harvest some main trees when the forests growth up to requirement of protection function and the main trees reach harvesting criteria, but the canopy of forest after cutting must be more than 0.6.

	3. Authority given permission to do harvesting in protection forests a) To do logging in the natural forest or plantation forest planted with state budget under category of protection forest, forest owners have to obtain harvesting plan approved by state agencies. Authority to approve harvesting plan of a number of agencies are given below. - Department of Agriculture and Rural Development has right to approve harvesting plan and to give harvesting license to forest owners that are economic organizations. - Executive people's committee of district has right to approve harvesting plan and to give harvesting license to forest owners that are households, individuals and rural communities. b) Forest owners have right to make decision and to do harvesting protection forests planted with their own investment, but the harvesting activities should follow regulations written in the Clause 2 of this Article. 4. Forest owners have to follow order, procedure, harvesting technique guided by MARD. • Exploitation of forest products in natural forests under category of production forest (Art. 39) must ensure the principles of sustainable forest management. a) Forests are qualified with standard of major harvesting b) Trees for doing harvesting must meet standards of diameter with timber and age with bamboo. c) Harvesting volume must be less than incremental growth d) Make no negative effect to environment and protection function during harvesting process. State implements policy providing investment supports for forest protection and development in the following cases: a) protecting poor natural forests; b) planting trees with cycle over 15 years or more; c) planting trees in places with difficulties and poor socio-economic conditions or extreme difficulty (Item. 3, Art. 40).
Conflict	Regulations allow to convert natural forests, particularly content of the policy has following statements: 1. Types of natural forests can be converted a) Poor natural forests under category of production forest that the State has allocated or leased, without target tree or with target tree but the numbers of tree do not meet the requirements of business. b) Poor natural forests under category of protection forest that the State has allocated or leased, without target tree or with target tree but the numbers of tree do not meet protection requirements c) Poor natural forests under category of specialized use forest can be converted if they are in following cases - Forests are planned to use for research purpose or experimentation but they are not appropriate or do not meet the requirement of research purpose or experimentation; Areas are planned to use for landscape protection, but they not suitable or do not meet the purpose of protecting the landscape. - Forests in service-administration zone of national parks and natural reserve areas. 2. Authority allow to convert the natural forests a) MARD has right to give permissions of conversion to forest owners who are organizations under its management. b) People's Committee of provinces has right to give permissions of conversion to forest owners who are organizations under its management or under management of other ministries or sectors. c) People's Committees of districts, provincial cities or equal level have right to give permissions conversion to forest owners who are households, individuals and village-based communities. - Before they carry out activities of conversion of natural forests, forest owners suitable with Clause a and b in Item 2 of this Article should project document, and forest owners suitable with Clause c in Item 2 of this Article should have specific technical design, which all are approved by the competent authorities. - The order and procedures for conversing natural forest: MARD issues guideline of criteria of poor natural forests and types of poor natural forests that are allowed to converse; also provides method, order and procedures for conversion.

Gap	Nil

(2) Criteria for forest classification

i) Name of legal document: Circular No. 34/2009/TT-BNNPTNT

ii) Responsible: Ministry of Agriculture and Rural Development

iii) Issued date: 06/10/2009

iv) Effective date:

Related to: "Reducing emissions from forest degradation" and "conservation of forest carbon stocks"

Reason: To replace the previous regulations on forest classification that are not consistent with sustainable forest management; to give clearer criteria for identifying and classifying forests, that can be base-ground to analyze degradation/quality growth of forests - to facilitate the calculation of forest carbon stocks.

Table 10. Summary and analysis of Circular No. 34/2009/TT-BNNPTNT

<table>
<tr><th>Aspects</th><th>Summary and analysis</th></tr>
<tr><td>Support</td><td>
- This policy document contains criteria for identifying and classifying forests using for purposes, such as inventory, statistics, planning, development and protection of forests, management forest and building forestry programs and projects.
- A statement is called a forest if it obtains the following three criteria:
1. As an ecosystem that its main component contains perennial timber trees and palms that have height at least 5.0 meters (except for newly plantation areas and some species of coastal mangrove forests), bamboo ... capable to provide timber and non-timber forest products, and other direct and indirect values, such as biodiversity conservation, environmental protection and landscape.
A new plantation areas or young generation areas are called forests if they obtain the following criteria: average height of trees is 1.5 m for the slow-growing tree species, or over 3.0 m for fast growing species, at the same time tree density should be at least 1,000 trees/ha.
The ecological agriculture, area for aquaculture production where have scattered trees, bamboos and palms ... are not be considered as forest.
2. Canopy cover by trees in the main component should be 0.1 or higher.
3. Area called a forest should be consecutive with minimum area of 0.5 ha; if the area has a form of a strip then width of area should be 20 meters and it contains at least 3 lines of trees.
Trees in the area under 0.5 ha or a strip with width least than 20 meters are classified as scattered trees.
- Regulations on forest classification: use purpose (protection forests, production forests and special-use forests), generated characteristics (natural forests and plantation forests); terrain conditions (hill forests, rocky mountain forests); species (timber, bamboo …), the level of stumpage volume, for example:
1. For timber forests
a) Very rich forest: stumpage volume is over 300 m3/ha;
b) Rich forest: stumpage volume ranges from 201 to 300 m3/ha;
c) Average forest: stumpage volume ranges from 101 to 200 m3/ha;
d) Poor forests: stumpage volume ranges from 10 to 100 m3/ha;
e) Forests with volume: average diameter of the tree is least than 8 cm, volume of standing trees is under 10 m3/ha.
2. For bamboo forests: Classification is based on species, diameter and density levels
a) Bamboo
<table>
<tr><th>Status</th><th>D (cm)</th><th>N (cây/ha)</th></tr>
<tr><td>Bamboo species with big body</td><td>≥ 5</td><td></td></tr>
<tr><td>- Rich forest (thick)</td><td></td><td>≥ 8.000</td></tr>
</table>
</td></tr>
</table>

		- Poor forest (scattered)		< 5.000
		Bamboo species with small body	< 5	
		- Rich forest (thick)		≥ 10.000
		- Average forest		6.000 - 10.000
		- Poor forest (scattered)		6.000
Conflict	Nil			
Gap	- There are no criteria presenting carbon stocks of each forest type because classified guideline does not include criteria of forest biomass. - There is no base-ground for evaluating and monitoring activities on "conservation of forest carbon stocks" and "enhancement of the forest carbon stocks"			

(3) The policy of closing natural forest - logging ban

- Since 1997, the government has tried to promote its policies toward logging ban with natural forests. Under this forestry policy trend, harvesting volume has reduced annually, from 2 million m^3 (1997) down to 185.000 m^3 (2010), thought quota mechanism. To date, there have 26 people's councils of 26 provinces that have approved logging ban of their natural forests (not allow to do any timber harvesting activity in the natural forests).

Related to: "Reducing emissions from forest degradation" and "sustainable forest management."

The reason: Create a great reduction of logging volume taken from natural forests and move toward closing natural forests (target: reducing harvested volume from 2 million m^3 in 1997 down to 200,000 m^3 per after year 2000).

Table 11. Summary and analysis of policy toward closing natural forest

Aspects	Summary and analysis
Support	An attempt to reduce logging volume taken from natural forests
Conflict	- Increment of illegal logging/losing ability to balance demand of timber from natural forests for domestic use and demand for producing export furniture. - Causing the risk of bankruptcy for a number forestry companies that are managing natural forests.
Gap	Nil

(4) Organization and management of special-use forest

- Government Decree on organization and management of special-use forest

i) Name of document: Decree No. 117/2010/ND-CP

ii) Responsible: Government

iii) Published Date: 24/12/2010

iv) Effective date:

In relation to "sustainable forest management" and "enhancement forest carbon stock"

Reason: To adjust the operations and activities in order to obtain sustainable management of special-use forests

Table 12. Summary and analysis of Decree No. 117/2010/ND-CP

Aspects	Summary and analysis
Support	• Special-use forest system includes the following categories: 1. National park; 2. Natural conservation area, natural reservation area, conservation area for species or habitats; 3. Landscape protection area including historical area, cultural area, tourist attraction. 4. Forest for research, scientific experiment

	• Criteria for establishing natural reservation area a) Have at least 01 natural forest ecosystems analyzing as importance at national and international level, have no human impact or small human impact, have especial value for scientific research, education, eco-tourism or relaxation. b) A natural habitat contains at least 05 plant or animal species that are in endangered situation, rare species and prioritized protection under the law. c) It has a minimum successive area of 5,000 ha, at least 90% of it is natural ecosystem (if the area is plantation forest, there is a need of being assured that the plantation will maintain stable development and step by step convert into natural ecosystems). • Sustainable use of forest resources: a) Activities harvesting natural resources in special-use forests have to make an ensure of conservation function, maintenance and development of biodiversity, living environment of endemic species, endangered and rare species; protection of species that have high value in scientific research and education; conservation of nature, biodiversity, landscape, culture, history and environment b) The procedures and technical measures to exploit and use natural resources in special-use forests must comply with regulations on forest management issued by the Prime Minister and guidance issued by Ministry of Agriculture and Rural Development. c) Utilization activities are permitted to perform: - To be allowed to do harvesting, clearing, cleaning the dead trees, fallen trees, vegetation in the administrative zone under the provisions of the State; to be allowed to harvest timber, firewood and vegetation in the places where have been approved to be clearance for building or construction. - To be allowed to do exploitation and use non-timber plants, which are not in the list of endangered species, rare species, in the ecological restoration zone and administration-service zone in accordance with project that has been approved by authorities, which are mentioned in the Article 14 of this Decree. - To be allowed to collect samples, genetic resources: Environmental services of forest: Management board has right to organize, implement policies on payment for environmental services of forests; provide services, such as soil conservation, erosion control, maintenance of water level, conservation of carbon stocks, reduction of emissions causing greenhouse effect, protection of natural landscape and biodiversity, creation of breeding grounds, food and seed, and utilization of water and forest for aquaculture production; Ecotourism activities: The organization of eco-tourism activities must be consistent with special-use forest planning and ecotourism project that are approved by the state's authorities.
Conflict	Nil
Gap	Nil

1.2.3 Strategy and planning for forestry development

(1) approval of the Forestry Development strategy in the period 2006 – 2020

i) Name of document: Decision 18/2007/QD-TTg, about approval of the Forestry Development Strategy in the period 2006-2020

ii) Responsible: Government

iii) Published Date: 05/02/2007

iv) Effective date:

Forestry development strategy is related all five activities of the REED+.

Table 13. Summary and analysis of Decision 18/2007/QD-TTg

Aspects	Summary and analysis
Support	- This is the first document of government to have full identification of forestry activities (including environmental services of forest): It is said that forestry sector is a specific technical and economic sector including all activities that associate with production of goods and services from forests, such as protected activities, afforestation, harvesting, transportation, manufacturing and processing of forest products and forest-based environmental services; Also, forestry sector has an important role in environmental protection, biodiversity conservation, poverty alleviation, especially for mountainous people, maintenance of social stability and national security. - The policy document also hold a viewpoint of synchronous development: development of the forestry includes management, protection, development and effective utilization of resources; development of the forestry includes a number of activities ranging from plantations, regeneration and forest enrichment to the exploitation and processing of forest products, providing environmental services, ecotourism ... - Development goals of forestry sector: To establish, manage, protect, develop and use sustainably three type of forest including 8.4 million ha production forest, of which 4.15 million ha plantation forests (to be concentrated industrial plantations, NTFPs ….); and 3.63 million ha natural production forest, and 0.62 million ha agro-forestry (efforts will be made to get forest certification of 30% of the production forest areas). Appropriate planning, management and effective use of the protection forest system, of approximately 5.68 million ha, and 2.16 million ha of special-use forests. One million ha of new plantation will be established by 2010 and 1.5 million ha for the next phase. Around 0.3 million ha will be annually reforested after harvesting. Two hundred million trees will be planted sparsely per year. - To raise income from the environmental value of forests through the Clean Development Mechanism (CDM), protection of water resources protection, ecotourism ... ($ 2 billion). Develop and implement mechanisms to charge of environmental services from organizations and individuals whose benefit directly and indirectly from the forests in order to create more finance for forestry investment. To collect fee of watershed protection from hydroelectric plant and fresh water manufacture, construction pilot forest plantation projects suitable with clean development mechanism (CDM). - Forest resources should be harvested and used appropriately, and at the same time, silvicultural measures used to regenerate and improve forest quality. Environmental services from forests, such as watershed, coastal and city protection, outdoor recreation, carbon credits of CDM, etc., should be maximized to generate revenue for reinvestment in forest protection and development. Utilization of natural forests should be bases on forest management schemes. - To establish national program on sustainable forest management and development
Conflict	Nil
Gap	Nil

(2) Final Report on the implementation of the project "new planting of 5 million hectares of forests" and the Plan for forest protection and development in the period of 2011-2020.

i. Name of document: Decision No. 243/BC-CP

ii. Responsible: Government

iii date of issue: 26/20/2011

iv Effective date:

Note: This is not a legal document, but should be analyzed to show the impacts of the project "planting 5 million hectares of forests" (1998-2010) on REED + in Vietnam, the Plan for forest protection and development in 2011-2020 period (Decision No. 57/2012/QD-TTg) is also analyzed below:

* Related to activities: reducing emissions from deforestation (a), maintaining forest carbon stocks (c), sustainable management of forest (d)

Table 14. Summary and analysis of Decision No. 243/BC-CP from the aspects of "reducing emission from deforestation", "maintaining forest carbon stock" and "sustainable forest management"

Aspects	Summary
Support	- The forest management has resulted in significant achievements: + The number of legal violation cases on forest protection has been reduced by 46% over the period, in 1998: 62,375 cases; in 2005: 34,900 cases; in 2010: 33,854 cases. + Area of forest loss is still large, but tends to decrease (by 60% over the period): in 1998:18,377 ha; 2005: 13,942 ha, 2010: 7415 ha. + The area damaged by forest fires also tends to reduce. The total area of forest fires was 23,652 ha (7,784 ha / year) in 3 years from 1998 to 2000, reduced to 21,531 ha (4,306 ha / year) in five years from 2001 to 2005 and continuously decreased to 21,531 ha in the period of 2006 - 2010 (2,032 ha / year). - The program has been implemented as below: - An area of 9,999,892 ha of forest land was allocated to enterprises (2,201,904 ha), protective and special use forest management units (3,981,858 ha), households and individuals (2,806,357 ha), residential communities (70,730 ha), army organizations (228,512 ha) and other organizations (620,531 ha). The area of forest land for lease was 75,179 ha. - System of legal documents and policies issued on forest protection has been improved to meet the practical requirements. The policy of socializing forest protection activities, diversifying forest economic sectors, land and forest allocation and protection have initially come to life. The roles and responsibilities of industries, governments at all levels and social organizations in forest management have been increasingly clarified and enhanced. 58 out of 63 provinces have established management units working on urgent issues on forest protection and fire control. 460 out of 520 forest districts and 4816 out of 5985 forest communes have established the management units to supervise and support forest owners to protect the forests. 62,000 copies of forest protection and development convention have been signed in different village communities. - The program has spent 120 - 150 billion VND every year to focus on forest protection in the vital areas. The total area of forest under protection is 2,454,480 hectares annually; - Strengthen the capacity of rangers and forest owners: a total of 218 FPUs for controlling forest products and 735 local FPUs have been established in communes. 4289 full-time and part-time forest rangers have been located in 4816 out of 5985 forest communes. There are still 1,169 communes with no local forest rangers.
Conflict	- The violation of forest protection regulations still complicatedly occurs. Illegal forest exploitation, forest fires, encroachment and opposing duty occurred seriously in some areas, pressing social opinions. - The process of allocating forest land was slow. The area which has not been allocated to the commune People's Committees is still over 2 million ha. The process of providing certificates of land use rights is still slow and only just focused on allocating forest land, not forests themselves. The allocation of land was just presented on the certificates. In practice, there is no defined boundary of the land. - Hundreds of thousands of hectares of poor natural forests have been approved for planting rubber trees.
Gap	No

* In relation to activities: Reducing emissions from forest degradation (b) and enhancing forest carbon stocks (e):

Table 15. Summary and analysis of Decision No. 243/BC-CP from the aspects of "reducing emission from forest degradation" and "enhancing forest carbon stock"

<table>
<tr><th>Aspects</th><th>Summary</th></tr>
<tr><td>Support</td><td>• Forest area increased throughout the country:
<table>
<tr><td>Project implementation</td><td>1998-2005</td><td>2006-2010</td><td>1998-2010</td></tr>
<tr><td>Zoning regeneration (ha)</td><td>763,852 (76%)</td><td>922,768 (115%)</td><td>1,283,350 (128%)</td></tr>
<tr><td>Afforestation (ha)</td><td>1,309,380 (65%)</td><td>1,114,630 (114%)</td><td>2,450,010 (81%)</td></tr>
<tr><td>The total forest area (ha)</td><td>10,345,466 (1998)</td><td>12,901,715 (2005)</td><td>13,388,015 (2010)</td></tr>
<tr><td>Forest coverage (%)</td><td>32 (1998)</td><td></td><td>39.5 (2010)</td></tr>
<tr><td>Forest capacity (million m3)</td><td>751,5 (1998)</td><td></td><td>935,3 (2010)</td></tr>
</table>
- The solutions have been implemented:
+ Implemented the closing forest solution. The Government only allowed logging of 150,000 to 200,000 m^3 in natural forests each year.
+ has mobilized a total project fund of 31,858 billion, of which 8,496 billion VND was from the State and local Government, accounting for 26.5%; credit fund: 7%; organizations' fund: 6.2%, households and individuals 50% (≈15,788.7 billion VND) and foreign capital: 10.3%.
+ International projects supported 45 projects with total capital of 3,300 billion VND from non-refundable aid programs.
+ Has selected and introduced some varieties of high-yield forest trees. Therefore, forest trees seed quality has increased significantly, 60% of seeds has been supplied by recognized sources, of which 40% were propagated for forest plantation by 2010.
+ The Ministry of Agriculture and Rural Development has issued a list of main forest plant varieties, a list of major tree species for forest production in nine economic regions of ecological forestry. Many technical protocols and silvicultural measures have been issued and regularly developed. Many advanced techniques have been applied in practice.</td></tr>
<tr><td>Conflict</td><td>- Forest coverage has increased, but is still below the expectation. There are still a large area of bare hills (2.8 million ha)
- Forest area has increased unevenly between regions. The natural forest area in Central Highland and in the South East region have been reduced by 297,707 ha and 88,544 ha, respectively. A significant area of these two regions has been used for plantation of rubber trees, coffee and cassava.
- Although the forest area and capacity have been increased, the quality of forests and biological diversity of some natural forests have been decreased or increased very slowly.</td></tr>
<tr><td>Gap</td><td>No</td></tr>
</table>

(3) **Decision No. 57/2012/QD-TTg** dated 09/01/2012 approved by the Prime Minister on the Plan for forest protection & development in the period 2011-2020.

i. Name of document: Decision No. 57/2012/QD-TTg

ii. Responsible: Government

iii. Issued date: 09/01/2012

iv. Valid date: 09/01/2012

* Related to activities: reducing emissions from deforestation (a), maintaining forest carbon stocks (c), sustainable management of forest (d):

Table 16. Summary and analysis of Decision No. 57/2012/QD-TTg from the aspects of "reducing emission from deforestation", "maintaining forest carbon stock" and "sustainable forest management"

Aspects	Summary
Support	• Target: to protect well the existing forest areas; to use forestry resources and forest land effectively and sustainably • Solutions: - Protecting and developing sustainably 13.388 million hectares of existing forests, regenerating forests and new plantations. - Basically reducing violations of the law on forest protection and development; - Promoting awareness of forests and forest protection; strengthening legal education for people on the protection and development of forests; and improving people's sense of forest protection responsibility. - Reviewing the master plan for 16.245 million hectares of forests and forest land, managing planning on the basis of stable national forest area; defining boundaries among 3 forest types in the field; fixing timely any planning issues with the 3 forest types. - Promoting stable and long-term allocation of forests to organizations, households and individuals and having completed the process by 2015; continuing the socialization of forestry; - Reviewing and finalizing policies of forest allocation and protection for organizations, households and individuals; In the planned areas, people who receive long-term and stable forest allocation will directly benefit from the forests; promulgating new policies to replace Decree 01/CP issued in 1995 and Decree 135/2005 issued by the Government on contractual assignment of forests and forest land in the state forestry organizations; - Consolidating and developing forest protection force from the central to grassroots level and the forest owners; strengthening rights and legal responsibilities of the forest rangers in the forest management, protection and law enforcement. - Increasing inspection to control the implementation of legislation on forest protection and development; timely and strictly control violations of the law on forest protection & development; - Implementing the mechanisms of refunding the value of biodiversity and the regulations on replanting forests for the forest areas with changed purpose of use. - Developing policies of protected forests towards allowing all forest owners of all stakeholders within the country to protect, develop and use appropriately protected forests which harbor stable sources of revenue; - Implementing the mechanism of forest co-management, testing the mechanism of sharing benefits in some special-use forests following the direction of transition from state control to multiple partners control, enabling local communities to share management responsibilities and benefits with the state agencies; - Business economic capital of the State will ensure the forest protection allocation; - Continuing to apply existing policies of supporting food for mountainous communities to overcome the forest burning-for-cultivation issues and planting forest on the cultivated forest land.
Conflict	- There are no clear criteria for determination of cultivated forest land in theory as well as in practice. There is confusion between cultivated forest land and cultivated agricultural land according to the analysis of the Ministry of Natural Resources and Environment (this confusion is also demonstrated in the cultivated forest land proposals of Department of Forestry as well as Dien Bien's People Committee). Due to the confusion in determining the lands, the policy cannot be implemented if only the forestry sector involves in the process.
Gap	Not detected

* In relation to activities: Reducing emissions from forest degradation (b) and enhancing forest carbon stocks (e):

Table 17. Summary and analysis of Decision 57/2012/QD-TTg from the aspects of "reducing emissions from forest degradation" and "enhancing forest carbon stock"

Aspects	Summary
Support	• Objective: To raise the forest coverage to 42-43% by 2015 and 44-45% in 2020; to zone regenerating 750,000 ha forests; to plant new 1.25 million ha forest; and to plant 500 million scattered trees; the forest area would be about 14.270 million ha by 2015 and reach 15.1 million hectares in 2020; to improve the quality of natural forests and increase yield of production forests by 25% in 2020 in comparison to 2011 • The solutions: - Promoting research, technology transfer, especially focusing on selection and breeding for new varieties with high-yield and good quality; applying advanced and suitable technology and inheriting traditional experience to improve efficiency of forest resource use and quality of environmental services; investing central/state budget for research and application of high technology in seed selection, seed production and intensive plantation technologies; - Strengthening local agricultural extension system, especially in wooded and remote areas; - The investment capital from the central budget (14,067 billion VND, accounting for 29% of the total capital needs) is allocated for projects on afforestation of large-scale protected forest, national parks and local projects under the resolution 30a/2008/NQ-CP on supporting the development of production forests; - The State funding is allocated for zoning and regenerating forests while mobilizing other lawful capital sources including income from forest environmental services, forest resources tax (amending policy of forest resources tax so that the whole income from forest resource tax will be used primarily to protect and develop forests) - Continuing to apply mechanisms and policies of forest development following the project on new planting 5 million hectares of forests; - Actively initiating bilateral and multilateral cooperation with international and regional forestry organizations; continuing to implement the international commitments which Vietnam has participated in such as UNCBD, UNCCD, UNFCCC, RAMSA, REED +, ITTO ... - The plan for forest protection and development in the period 1011-2020 will be implemented following the regulation on management of nationally targeted programs, establishing the National Steering Committee on Planning & Development of forest protection in the period 2011-2012: + At the central level, establishing the State Steering Committee on the plan for forest protection & development in the period 2011-2020. The Deputy Prime Minister is the Chairman and the Minister of Agriculture and Rural Development is the permanent Vice Chairman of the Committee. The committee members include leaders from ministries and related departments. + At the local level, establishing the State Steering Committee on the plan for forest Protection & development in the period 2011-2020 in provinces and cities under central authority. (Decision No. 58/QD-TTg dated 09/01/2012 approved by the Prime Minister on the establishment of state steering committee on the plan for forest protection & development phase 2011-2012)
Conflict	• The objective of renovating 350,000 ha degraded forest seems contrary to REED+ trend of anti-declining forest coverage, especially natural forests which have greater effects on environmental protection than artificial forest. Several hundreds of thousand hectares of natural forests which were considered poor forests have been changed to rubber tree plantations throughout the country, especially in Central Highlands and the South-East. Even in Dien Bien province although the natural forest area is very limited an area of 10,000 hectares has been

	used for cultivation of rubber trees.
Gap	• The objective of improving the quality of natural forests has not been clearly defined. It lacks specific solutions for techniques and investment mechanisms for forest owners to improve the quality of natural forests.

1.2.4. Investment, credit and taxation

(1) Investment policy for development of production forest

- Decision of Government relating to development of production forest

i) Name of document: Decision No. 147/2007/QD-TTg

ii) Responsible: Government

iii) Issued date: 09/10/2007

iv) Effective date:

Related activities "Reducing emission from deforestation" and "enhancement of forest carbon stocks."

Reason: To increase resources for the household and community to plant production forest, to encourage tree plantation activities in order to increase plantation area.

Table 18. Summary and analysis of Decision No. 147/2007/QD-TTg

Aspects	Summary and analysis
Support	- Objective of development of production forest: To plant 2 million hectares of production forests or 250,000 ha a year on average (including areas to be reforested after exploitation). - The State encourages organizations, households and individuals of all economic sectors to invest in planting forests. Production forests are multi-purpose forests: planting of production forests aims at increasing incomes of foresters and contributing to environmental and ecological protection. Organizations, households, individuals and communities may invest in and enjoy benefits directly from afforestation, exploitation and processing of timbers and forest products; the State shall provide partial support in terms of initial expenses to encourage forest development, concurrently pay for part of the environmental value brought about by planted forests, and offset the profit deficit caused by the silvicultural particularities. - Organizations, individuals, households and communities are allowed to receive supports of seedling, extension for afforestation at rate 1, 5 million VND per ha as a maximum and 1, 5 million VND per 1, 500 scattered plants (equivalent to 1 ha). - Benefit: be permitted to collect all production forest products from harvesting. Products from production forest are free for transportation and be inherited other preferential policies on tax remission, land use fees as regulated by the current state laws. - Obligations: For harvesting products from production forest, they contribute to the commune budget an amount of money that is equivalent to 80 kg of rice per ha for a production cycle in order to develop the Commune and village funds for forestry development, of which 50% is for use of the Commune fund while the other part is for the Village fund. - Other investment supports: planting and managing seed production unit, seed garden, building of center producing high quality seedlings; investment into nurseries, investment of forestry roads;
Conflict	- Amount of investment and support given to households are no longer appropriate and without adjustment - Organize project management are cumbersome - Procedure for building an investment project to support production forest is complicated; implementation activities for ethnic minorities in mountainous areas are not suitable.
Gap	Nil

(2) Adjustment of objectives, tasks and policies for implementing the 5 million ha of forest

i) Name of document: Decision 100/2007/QD-TTg on Revision and amendment of some articles of the Decision 661/ QD-TTg dated 29 July 1998 on objectives, tasks, policies, and implementation arrangements of the 5 Million Hectares Reforestation Project

ii) Responsible: Government

iii) Issued date: 06/07/2007

iv) Effective date:

Related activities: "Conservation of forest carbon stocks", "Enhancement of forest carbon stocks" and "sustainable forest management."

Reason: To adjust some level of support of forest protection and afforestation; To encourage households and communities to strengthen their activities on forest protection and reforestation.

Table 19. Summary and analysis of Decision 100/2007/QD-TTg

Aspects	Summary and analysis
Support	- To strengthen measures to protect the current natural forests - To concentrate on promotion of forest allocation to communities, households; to create conditions for the households, village community to manage and to protect the forests; To create motivation for forest development through a linkage activities on management and protection with received benefit; - Stably maintained area of special-use forest at 2 million hectares; area of protection forest about 6 million hectares; To transfer around 3 million ha (including natural forests, planted forests, bare land and hills), where were planned for building protection forest but review process have shown poor assessment results of protection function, into production forest. - To move towards sustainable protection, management and exploitation of forest, get it fried it: + For natural forests under category of production forests: to construct forest management schemes – management and exploitation are in accordance with sustainable forest management; + For the poor natural forests: To carry out activities on forest enrichment in order to improve quality of forests, such as to plant of trees with high economic value and species providing non-timber forest products, or to conduct forest rehabilitation, to replant with higher economic value species. + For existing planted forest under category of production forest: beside encouragement of exploitation and reforestation, to provide support for building forest providing large timber for wood processing, handicraft production and other processing needs; + For the barren land planned for development of production forest: To promote intensive plantation in order to provide raw material for wood processing industry and furniture production; to encourage people planting multi-purpose tree and species that can provide non-timber forest products. To use high quality seed to increase productivity of forest plantations. - 100% of forest villages and forest commune have its forest protection team, a commune ranger and people working in the team are all trained; 100% of protection and special-use forests have managers (State organizations, individuals, or communities) and medium and long-term forest protection and development plans and planning; 100% of production and business enterprises in natural forests have forest management plans developed, implemented, monitored, and evaluated; - Total investment is 15,000 bil. VND, of which state provides 5,000 bil. VND, with on average of 1,000 bil. VND annually; and loan and other sources provide 10,000 bil. VND, with on average of 2,000 bil. VND each year. - Investment of state budget: Annually, 5% of project budgets are allocated to forest management and protection; Forest management boards carry out continually contract based allocation of special-use and protection forests in endangered areas where forest related benefits are not yet available. Support provided from the Central to local budget on contracting of special-use and protection forests for protection is on average 100,000 VND/ha/year. Contracting norms and duration are decided in certain areas by provincial and municipal

	People's Committees under the Central Government in line with actual situation (except for provinces with special regulations issued by Prime Minister). The support norm of 100,000 VND/ha/year is also applied in forest zoning for natural regeneration; - Investment norms for plantation are used to balance the annual investment plan between 2007 and 2010 with the norm of 6 mil. VND per hectare on average. - Food provision is implemented to support ethnic minorities living in mountainous areas, who are working on forest plantation as the replacement of field cultivation. For unstable cultivation fields, which are not yet improved by terracing and with a gradient of over 25^0 in the areas planned for protection forest (about 500,000 ha), replanting of protection forest will be done if the areas are used for production of rice and other agricultural products, resulting in erosion and land degradation; For fields with a gradient of under 25^0 in the areas planned for plantation of production forests (about 260,000 ha), production plantation is implemented with timber and specialty trees species, which are appropriate to physical conditions and market demand of each province. When people working with forestry occupation are unable to change cultivation practices, the State provides support averaging 10kg of rice per capita each month for food security, and allocate funding as regulated for either protection or production plantation so that local people carry out reforestation on field-cultivated land. - Some essential infrastructure work are build up for silviculture in plantation projects, including: + Provide support for new construction and upgrading of seed gardens, forests, transformed seed forests, and nurseries; + Develop and upgrade pest control and forest fire prevention and fighting work (fire break lines, fire sentry boxes, water reservoirs, canals, and lakes for forest fire fighting in dry season…); + Forest protection station: develop and upgrade new system of forestry roads (main roads in centralized material plantations and protection forests). Infrastructure building budget (for annual macro planning) is average of 10% of total project investment budget. Specific investment norms for each project are approved by either MARD or provincial People's Committees. Using 2% of the total annual investment for the project are allocated to organize forestry extension activities, including: development of models, transfer of advanced technologies, information and training provision for forestry related people in the areas directly serving the project; - Investment credit: + State Forest Enterprises (SFEs), enterprises, investors, organizations, households, and those participating in plantation activities in material plantation projects approved by competent levels, are eligible to receive loans from the Development Bank of Vietnam, ODA of various countries, international organizations, and other sources with existing preferential rates and duration appropriate to tree growing rotation. After the main harvesting of timber in the first rotation, forest owners will repay the loan and interest in accordance with the credit contract, excluding the accumulated interest, and take the responsibility for replanting; + Central and local Forest Protection and Development Funds are formulated from different funding sources (State budget, ODA, taxes on forest and water resources, electricity, environmental services, carbon credit, eco-tourism, and other contributions) to support forest protection and development.
Conflict	- Because of limitation of credit for investment, there have a few of state forestry companies, which plant tree and provide material for wood processing industry, that can access the state fund. - Practically, "period of the loan is equal to cycle of the plantation species, debtors pay the principal and interest in accordance with the credit contract, after harvesting the first cycle of their plantation, excluding the accumulated interest, and take the responsibility for replanting;
Gap	Nil

(3) Taxation of forest resources

i) Name of document: Law on Royalties, coded 45/2009/QH12

ii) Responsible: National Assembly

iii) Published Date: 25/11/2009

iv) Effective date: 01/07/2010

In relation to "Reducing emissions from deforestation"

Reason: Raising tax rates to limit the use of natural forests and forest products

Table 20. Summary and analysis of Law on Royalties

Aspects	Summary and analysis
Support	Products of natural forests are subject to pay royalty
Conflict	- Harvested products of natural forests have higher royalty rate in comparison with other types of renewable resources (timber in group I: 25-35%, timber in group II: 20-30%, timber in group III, IV: 15-20%; timber in group V-IIX: 10-15%; ..... other products of natural forests: 5-15%. Meanwhile royalty rate for natural marine products ranges from 1-10%) - Promoting illegal logging and harvesting forest products
Gap	Nil

(4) Payment for forest environmental services

- Decision of the Prime Minister on the pilot policy for payment for forest environmental services

i) Name of document: Decision 380/QD-TTg

ii) Responsible: Prime Minister

iii) Published Date: 10/04/2008

iv) Effective date:

Related to: "Reducing emissions from deforestation" và "sustainable forest management"

Reason: To create stable revenue source and incentives for forest owners to manage forest

Table 21. Summary and analysis of Decision 380/QD-TTg

Aspects	Summary and analysis
Support	- Purpose: To establish the basis for the development of the legal framework for a national policy on payment for forest environmental services to be applied in the whole country, where the responsibilities and benefits of the payers and payees of forest environmental services (hereinafter referred to as forest environmental services: FES) are clearly defined and to socialize the forestry sector, gradually establishing sustainable economic basis for protecting the environment and ecosystems, improving quality of service provision, especially ensuring water supply for electricity production, for clean water production, and ecotourism business activities. - The timeframe for the application of the pilot policy for payment for forest environmental services is 2 years, starting on date this Decision comes into force. The pilot policy is to be applied within the areas of Lam Dong, Son La, Dong Nai, Hoa Binh, Binh Thuan, Ninh Thuan and Ho Chi Minh City. - Forest owners are eligible to apply this PES pilot policy include: (i) The Management Boards of protection forests, the Management Boards of Special Use Forests; (ii) Economic organizations; (iii) Households and individuals within the country; (iv) The village communities. - Payment for forest environmental services is an economic relation where the users of FES pay to the providers of FES according to the government's stipulations in this decision. - Norm of payment for use of forest environmental services + Payment of hydropower production units: 20 VND/kwh of commercial electricity + Water production and supply units: 40 VND/m^3 of commercial water + Organizations and individuals conducting tourism business: 0.5-2.0% of the tourism revenue of the period - Forms of payment for forest environmental services: Direct and indirect method. - For indirect payment: Payment is transfer to Fund for Forest Protection and Development.

	The Fund will pay directly to providers of services. - Utilization of money collected from payment PES + For the case of direct payment: after fulfilling the financial duties according to the stipulations of the laws, the payees have all the right to decide on the use of money collected from payment for forest environmental services for investing into forest protection and development, improving quality of forest environmental services, and improving livelihoods. + For the case of indirect payment, collected money from payment for forest environmental services could be used as followed: Leaving 10% for the Forest Protection and Development Fund; 90% will be paid for forest protection activities of the payees of the forest environmental services. - If the payees of forest environmental services are state organizations, they can use 10% the total for management costs and 80% will be used to pay for the contracts for forest protection to the contracted households and individuals and rural communities. - The list of specific types of forest owners who are organizations is considered and decided by the Provincial People's Committee per recommendation from the People's Committee at district level after being appraised by the Department of Agriculture and Rural Development.
Conflict	- Coefficient K: depends on the forest type (protection forest, special use forest, production forest); status of forest (rich, average, poor, regenerating forests); origin of forest (natural, planted) specifically stipulated by the People's Committee of Lam Dong and Son La based on the forest checking results confirmed by responsible authority agency. - Because sources and amount of money collected from forest environmental services are stable (relatively), payment for one unit of forest will decrease when area and quality of protection forest in the watershed increase.
Gap	Nil

- Government Decree on payments for forest environmental services

i) Name of document: Decree 99/2010/ND-CP

ii) Responsible: Government

iii) Published Date: 24/09/2010

iv) Effective date:

Related to: "sustainable forest management"

Reason: To create stable revenue source and incentives for forest owners to manage forest

Table 22. Summary and analysis of Decree 99/2010/ND-CP

Aspects	Summary and analysis
Support	- Purpose: To create a new and stable income for forest owners - Provisions of this Decree shall apply to state agencies; organizations, households, individuals, village communities in the country; Vietnamese residing overseas, foreign organizations and individuals with operations relating to supply, use, and payment for forest environmental services and management of the payment from forest environmental services. - Forest owners, who are paid for providing forest environmental services, include: Forest owners who are allocated forest or leased forest by the Government for long-term forestry development purpose; households, individuals, village communities who make their own investment to plant tree on their allocated forest land; Organizations, households, individuals, village communities contracted for long-term forest protection by state organizations (hereafter referred to as contracted households). - The level of payment for forest environmental services applied to hydropower plants is 20 VND/kWh of commodity electricity; to the clean water production and supply businesses is 40 VND/m^3 of commodity water. For organizations and individuals conducting tourism business benefiting from forest environmental services, the level of payment for forest environmental services is 1-2% of the revenue generated in the payment period.
Conflict	Nil
Gap	Nil

(5) Establish a fund for forest protection and development

i) Name of Document: Circular No. 05/2008/NĐ-CP

ii) Responsible by: Government

iii) Issued date: 14/1/2008

Related to: "Enhancement of forest carbon stocks"

Reason: To create a sustainable funding source for forest development.

Table 23. Summary and analysis of Circular 05/2008/NĐ-CP

Aspects	Summary of content
Support	- Task of the fund: Mobilize, receive and manage compulsory contributions, foreign aids, grants, voluntary contributions, trust fund from individuals or organizations at home and abroad, fund from state budget (for purchasing carbon in forests). - Organize the fund at the central and provincial levels
Conflicts	- Nil
Gap	- Nil

(6) Policy to support households in mountainous region to reforest.

i) Name of document: Resolution No. 30a/2008/NQ-CP on Program to support sustainable poverty reduction in 961 poor districts.

ii) Responsible by: Government

iii) Date of issue: 27/12/2008

iv) Date of validity:

Related to: "reducing emissions from deforestation" and "reducing emission from forest degradation", and "sustainable management of forests".

Reason: Increase resources for households to protect forest (investment and benefit), support livelihood development and reduce slash-and-burn on sloping land, increase plantation area.

Table 24. Summary and analysis of Resolution No. 30a/2008/NQ-CP

Aspects	Summary and analysis of content
Support	1. Viewpoint: - To mobilize resources from the State, the society and the people in order to exploit in an effective manner potentials and advantages of every locality, especially in forest and agricultural production for poverty reduction and sustainable socio-economic development. - Beside investment and support from the State and society, effort of households to overcome difficulties is the decisive factor for a successful poverty reduction. - At the same time, the mastership of the people from program planning to implementation, monitoring and evaluation must be enhanced. 2. Objectives: - To create a swifter change in the material and spiritual life of poor and ethnic minority people in poor districts, ensuring that they will reach the level of other districts in the region by 2020. To support sustainable agro-forestry production towards commodity production and well tapping local advantages. To build socio-economic infrastructure suitable to each district's characteristics; to restructure local economies and shift to effective production forms under planning; to build a stable rural society imbued with national cultural identity; to raise people's intellectual level and protect the eco-environment; and to firmly maintain security and defense. 3. Mechanism, policy and specific solution for poor districts • Support production, job creation and income generation from forestry: Support policy through contract to maintain and protect forest, and land allocation for

	planting production forest: a) Households which are contracted to tend and protect forests (special-purpose forests, protection forests, closed natural forests being production forests with rich and medium reserves) will receive VND 200.000/ha/year; b) Households which are assigned production forests (production forests under planning, but not being those contracted for tending and protection under item a) and land to plant production forests under planning, are allowed: - To enjoy all products on the area of assigned and planted production forests; - To receive VND 2-5 million/ha as initial support in forestry saplings according to the production forest plantation process (presidents of provincial-level People's Committees shall decide on specific support levels based on sapling prices in each locality); c) Poor households which are contracted to tend and protect forests or assigned forests and land to plant production forests will, apart from the supports specified at Item a and b, enjoy: - 15 kg of rice/household/month during the time they cannot support themselves with rice (the support time shall be decided by presidents of provincial-level People's Committees, but must not exceed 7 years); - VND 5 million/ha/household to build food-crop fields on the areas contracted for forest tending and protection or land areas assigned for production forest plantation; - The 50%-interest state support for loans borrowed from state commercial banks for production forest plantation.
Conflict	Nil
Gap	Nil

1.2.5 Institution and organization

(1) Organization of the Forest Protection Force

i) Name of document: Circular 119/2006/NĐ-CP, regarding organization and operation of the Forest Protection Force

ii) Responsible by: Government

iii) Date of issue: 16/10/2006

iv) Date of validity:

Related to: All the five activities of REED+

Reason: Forest Protection Force is the professional force of the State to be in charge of enforcing laws and regulations on forest protection.

Table 25. Summary of analysis of Circular No. 119/2006/NĐ-CP

Aspects	Summary and analysis of content
Support	- Stipulates principles for organization and operation of the Forest protection Force - Organizational system of the Forest protection Force
Conflict	Nil
Gap	Nil

(2) Policy for community forest management

- Guideline for community forest management

i) Decision N.106/2006/QĐ-BNN

ii) Responsible by: MARD

iii) Date of issue: 27/11/2006

iv) Date of validity

Related to "Sustainable Forest Management"

Reason: Instruct local communities on how to manage the allocated forest in a sustainable manner.

Table 26. Summary and Analysis of Decision No. 106/2006/QĐ-BNN

Aspects	Summary of content
Support	- Instruction on: Allocation of forests; planning for forest management; Rights and responsibilities of village communities (community); Responsibilities of concerned organizations and agencies in supporting community forest management.
Conflict	- Nil
Gap	- Nil

- Instruction on how to develop Village Regulations on community forest management

i) Name of document: Circular 70/2007/TT-BNN

ii) Responsible by: MARD

iii) Date of issue: 8/1/2007

iv) Date of validity

Related to "Sustainable Forest management"

Reason: Instruct local people on how to manage the allocated forest in a sustainable manner.

Table 27. Summary and analysis of Circular No. 70/2007/TT-BNN

Aspects	Summary of content
Support	- Instruct procedures to develop and implement village regulation on forest management within the village community. - Target to apply: 1) Village communities who have been allocated with forests by the State. 2) Population communities living in or near forests. - Instruction on format and content for the regulation
Conflict	- Nil
Gap	- Nil

(3) Decentralization of management responsibilities upon forestland and forest resources

i) Decision No. 245/QĐ-TTg, 21/12/1998 regarding state management responsibilities of different levels when it comes to forestland and forests

ii) Responsible by: Government

iii) Date of issue: 21/12/1998

iv) Date comes into force

Related to "Sustainable Forest Management"

Reason: Government agencies in charge are responsible to manage forestland and forest

Table 28. Summary and analysis of Decision No. 245/QĐ-TTg

Aspects	Summary and analysis of content
Support	- Clearly stipulates responsibilities of agencies at different levels regarding forest management. - Stipulates content of state management responsibility of government agencies at different levels over forestland and forests.
Conflict	- Nil
Gap	- Unclear state management responsibility over forestland and forests in commune area, which have not been handed over to commune People's Committee

(4) Consolidating State agencies responsible for management of forest activities

i) Name of document: Decree No. 75/2009/ND-CP,10/9/2009 regarding the establishment of three General Departments of MARD
ii) Responsible: Government
iii) Date of issue: 10/9/2009
iv) Date of validity
Related to "Sustainable Forest Management".
Reason: Consolidate capacity and effectiveness of the forest sector at national level; Get rid of any overlapping, fill gaps due to split organizations of the Forest Department and Forest Protection Department.

Table 29. Summary and analysis of Decree No. 75/2009/ND-CP

Aspects	Summary and analysis of content
Supports	- Unite organizations at the central level, consolidate capacity and effectiveness of the forest sector - Get rid and repair any overlapping, gap due to split organizations of the Forest Department and Forest Protection Department
Conflict	- Nil
Gap	- Nil

1.2.6 Environment protection and respond to climate change

(1) Environment Protection

i) Name of document: Law on Environmental Protection
ii) Responsible by: National Assembly
iii) Date of issue: 29/11/2005
iv) Date of validity:
Related to "Sustainable management", "conservation of forest carbon stocks" and "Enhancement of forest carbon stocks"

Table 30. Summary and analysis of Law on Environmental Protection

Aspects	Summary and analysis
Support	- This Law provides for activities of environmental protection; policies, measures and resources for environmental protection; rights and obligations of organizations, households and individuals in environmental protection. - This Law applies to state agencies, organizations, households and individuals in the country; overseas Vietnamese, foreign organizations and individuals carrying out activities in the territory of the Socialist Republic of Vietnam. - Principles for environmental protection; State policy on environmental protection; Prohibited activities.
Conflict	- Nil
Gap	- Nil

(2) Response to Climate Change

- Government Resolution
i) Name of document: Resolution No. 60/2007/NQ-CP on responding to global climate change

ii) Responsible by: Government

iii) Date of issue: 3/12/2007

iv) Date of validity:

- Decision of the Prime Minister

i) Name of document: Decisions No. 158/2008/QĐ-TTg, on the approval of the National Target Program to cope with Climate Change

ii) Responsible by: Government

iii) Date of issue: 2/12/2008

iv) Date of validity:

Related to "Sustainable Forest Management", "Conserve carbon in forests" and "Increase carbon stock in forests".

Table 31. Summary and analysis of Decision No. 158/2008/QĐ-TTg

Aspects	Summary and analysis
Support	- Viewpoint is to create guiding principle for responding to global climate change. - Strategic objectives of the NTP are to assess climate change impacts on sectors and regions in specific periods and to develop feasible action plans to effectively respond to climate change in the short-term and long-term to ensure sustainable development of Vietnam, to take opportunities to develop towards a low-carbon economy, and to join the international community's efforts in mitigating climate change and protecting the climatic system. - Lay out tasks, solution and financial mechanism for mobilizing investment fund.
Support	- Nil
Gap	- Nil

- Action Plan Framework for adaptation and mitigation of climate change of the agriculture and rural development sector period 2008-2020

i) Name of document: Decision No. 2730/QĐ-BNN-KHCN

ii) Responsible by: MARD and Ministry of Science and Technology

iii) Date of issue: 5/9/2008

iv) Date of validity:

Related to "Sustainable Forest Management", "Conserve carbon in forests" and "Increase carbon stock in forests".

Table 32. Summary and analysis of Decision No. 2730/QĐ-BNN-KHCN

Aspects	Summary and analysis
Support	- The general objectives of the plan are to enhance capability of mitigation and adaptation to climate change, to minimize its adverse impacts and ensure sustainable development of the agriculture and rural development sector in the context of climate change. - Main tasks: Conduct the communication and information program to disseminate knowledge and experiences to enhance people's awareness on CC impacts and mitigation and adaptation activities of the sector; Develop human resources and conduct studies to develop and consolidate scientific foundation for providing solutions to mitigate and adapt to CC; Develop policy system, integrate CC in sectoral development program; Promote international cooperation in CC mitigation and adaptation in agriculture and rural development sector
Conflict	- Nil
Gap	- Nil

- Anti-desertification

i) Name of document: Decision No. 204/2006/QĐ-TTg on national action for combat desertification

ii) Responsible: Government

iii) Date of issue: 16/1/2007

iv) Date of validity:

Related to "reducing emission from deforestation" and "reducing emission from forest degradation"

Table 33. Summary and analysis of Decision No. 204/2006/QĐ-TTg

Aspects	Summary and analysis
Support	Produce great impact on "reducing emission from deforestation" and "reducing emission from forest degradation" in areas where are under threats of desertification
Conflict	- Nil
Gap	- Nil

(3) **Decision No. 2139/QD-TTg** dated 5/12/2011 approved by the Prime Minister of the national strategy on climate change

i. Name of document: Decision No. 2139/QD-TTg

ii. Responsible: Government

iii. Issued date: 05/12/2011

iv Valid date: 05/12/2011

Related to all 5 areas of REED + activities

Table 34. Summary and analysis of Decision No. 2139/QD-TTg

Aspects	Summary and analysis
Support	• Strategic point of views: - Responding to climate changes in Vietnam must be connected to sustainable development towards a low carbon economy; - Conducting simultaneously activities involving adaptation and mitigation of greenhouse gas emissions to response to climate change. In the early phase, adaptation is the focus. • Objectives: - To protect natural resources in the global climate change situation; - To contribute positively to the international community in responding to climate change; enhancing the international cooperation activities in Vietnam to cope effectively with climate change. • Strategic tasks (*related to the forestry sector*): - Improving the quality of forests, reforestation, regreening bare hills, ensuring the effective exploitation of forests to maintain and enhance the disaster prevention and combat to desertification, erosion and soil degradation; enhancing the management, protection and development of mangrove forests, submergence ecosystems to increase the vegetation coverage to 45%. - Protecting and developing forests to strengthen absorption of greenhouse gases and to conserve biodiversity; speeding up afforestation and reforestation projects, encouraging enterprises to invest on economic forest plantation. By 2020 having established, managed, protected, developed and used sustainably 16.24 million hectares of land planned for forestry; sustainably and effectively managing 8,132 million hectares of production forests, 5.842 million ha of protected forests and 2.271 million hectares of special- use forest; conservation of biodiversity. - Developing and implementing programs related to reducing greenhouse gas emissions through efforts to limit deforestation and forest degradation, manage forests sustainably, conserve and enhance carbon resorption of forests while maintaining and

	diversifying livelihoods of regional and local inhabitants, supporting adaptation to climate change. - Developing and implementing management programs to protect the natural forests, protection forests, special-use forests and current production forests; building green urban and residential models - Developing and implementing broadly policies related to mobilizing the participation of socio-economic stakeholders in the conservation and sustainable development of forests and natural ecosystems to cope effectively with climate change, enhancing carbon sequestration of forests and other ecosystems. - Strengthening the capacity and effectiveness of evaluation systems, forecasting, preventing, monitoring and emergency response to forest fires. • Solutions: - Strengthening the leading role of government in responding to climate change: + Adjusting and incorporating issues of climate change into strategies and plans of ministries, branches and localities; + Establishment of National Committee on Climate Change; + Studying and formulating comprehensive mechanisms, policies and legislation on climate change to suit each stage of national development in harmony with the global policies and international agreements on climate change which Vietnam has participated in. + Establishing a mechanism to support residential communities and encourage non-governmental organizations to participate in activities involving adaptation to climate change and mitigating greenhouse gas emissions. + Promoting the use of indigenous knowledge in response to climate change, particularly building livelihoods towards low carbon. + Raising awareness, education and training. + Developing advanced science and technology in response to climate change. + Strengthening cooperation and international integration in order to enhance national role in the climate change problem. + Diversifying financial resources and focusing on effective investment.
Conflict	- The plan for forest protection and development in the period 2011-2020 is not included in the list of prioritized projects and programs of the Strategy (Section 2.IV)
Gap	No

4. **Decision No 534/2011/**QD-BNN-KHCN dated 13/3/2011 approved by the Ministry of Agriculture and Rural Development

Promulgating the Action Plan to respond to climate change for agriculture and rural development in the period of 2011-2015 and vision 2050.

ii. Responsible: Minister of Agriculture and Rural Development

iii. Issued Date: 13/3/2011

iv. Valid Date:13/3/2011

Related to the 5 areas of REDD +

Table 35. Summary and analysis of Decision No. 534/2011/QD-BNN-KHCN

Aspects	Summary and analysis
Support	• General objective: Enhancing the capacity of responding to climate change in agriculture and rural development in 2011-2015 and vision to 2050, in order to reduce the damages caused by climate change and to limit greenhouse gas emissions, ensuring the sustainable development of the industry sectors on a national scale; Protecting people's lives, preventing, reducing natural disasters caused by climate change and sea level rise and at the same time creating opportunities for sustainable

	development of the agricultural and rural development industry sectors & in the climate change condition. Reducing greenhouse gas emissions by 20% in each 10 year period of time. • Specific objectives: - Strengthening the capacity of research and forecast on the effects of climate change on the agriculture and rural development sectors; - Developing policy systems to integrate climate change with the sector's programs and specific tasks; - Strengthening international cooperation; - Developing human resources in the activities related to mitigation and adaptation to climate change; - Raising awareness of employees in the sector and community. • The key tasks: - Assessing the impact of climate change and sea level rise to each area of the sector; - Developing appropriate programs/projects for specific local areas in the related areas of the sectors to deal with (mitigation and adaptation) climate change and create opportunities for development of the sector; ***+ For the forestry sector:*** - Implementing the programs/projects on improvement of forest quality and protective capacity, particularly on development of the watershed protection area and mangroves, protection forest against waves, wind and sand movement in coastal areas; - Building and implementing plans for management of forest destruction, forest fires, forest pests, reforestation and forest enrichment; - Building and implementing coastal ecological economic models to adapt to climate change and sea level rise, especially in vulnerable areas; - Concentrating on building and implementing a number of programs/projects related to the mechanism of Kyoto Post-Protocol on the emission reductions from deforestation and forest degradation (REDD), Decree 99/2010/ND-CP on payment for forest environmental services; continuing to develop and implement projects on Clean Development Mechanism (CDM) associated with the pilot program of Payment for Environmental Services (PES); - Developing programs for effective use of bare land, creating jobs for workers, eradicating hunger and reducing poverty, settled agriculture (incorporating the Convention of Combat Desertification as in the Decision 204/QD-TTg approved by the Prime Minister); - Studying and adjusting master plans and strategies for managing conservation areas of natural forests and biodiversity (incorporating the biodiversity convention) in adaptation to climate change. • List of tasks responding to climate change research in the area of forestry: - Study and prediction of the impact of climate change on biodiversity, wetland and forest ecosystems to propose adaptation measures. - Research on breeding of drought-resistant trees with high disease resistance to adapt to climate change. - Studying on biomass assessment and developing a baseline for carbon stocks of forests and forest land in different ecological forest areas. - Developing databases on climate change and the impact of climate change on forestry.
Conflict	No
Gap	No

1.2.7. Other aspects

(1) Planning for socio-economic development in Dien Bien province

i) Name of document: Decision No. 230/2006/QĐ-TTg on the approval of planning for socio-economic development in Dien Bien province. Stage 2006-2020
ii) Responsible by: Government
iii) Date of issue: 13/10/2006
iv) Date of validity:
Related to all activities of REED+

Table 36. Summary and analysis of Decision No. 230/2006/QĐ-TTg

Appraisal	Summary and analysis of content
Support	- Objective: Develop economy in connection to environmental conservation, protection of watershed areas, especially the watershed of Da river to insure the protection function of national hydraulic power stations. - Environmental protection objective: Increase the vegetation coverage from the current 38.5% to 50% in 2010, and 65% in 2020 in order to improve the watershed protection function and contribute to economic development. - Orientation for forestry development: Every year, plant about 4,500 ha of new forest, of which, there are 1.800 - 2.000 ha of production forests; To 2010 design for regeneration of 134,000 ha; Between 2011 and 2020, design for regeneration of 190,000 – 200,000 ha in order to increase the vegetation coverage up to 50% in 2010 and 65% in 2020, in order to improve the watershed protection function and contribute to economic development.
Conflict	- Nil
Gap	- Nil

(2) Land use planning in Dien Bien province

i) Name of document: Resolution No. 10/2006/NQ-CP dated on 26/5/2006 to approve the land use planning up to 2010, and the land use plan of Dien Bien (2006-2010).
ii) Responsible: Government
iii) Date of issues: 25/6/2006
iv) Date of validity:

Table 37. Summary and analysis of Resolution No.10/2006/NQ-CP

<table>
<tr><td>Aspects</td><td>Summary and analysis of content</td></tr>
<tr><td>Support</td><td>
- Forest area to 2010: (ha)
<table>
<tr><td>Forestry land</td><td>606.809,29</td></tr>
<tr><td>Production forest land</td><td>21.401,72</td></tr>
<tr><td>Protection forest land</td><td>437.739,20</td></tr>
<tr><td>Special use forest land</td><td>147.668,37</td></tr>
</table>
- Land raea to be withhold for other use purposes (ha)
<table>
<tr><td>Forestry land</td><td>1.798,52</td></tr>
<tr><td>Production forest land</td><td>266,02</td></tr>
<tr><td>Protection forest land</td><td>1.532,50</td></tr>
</table>
- Annual distribution of forestland
<table>
<tr><th></th><th>Current status (2005)</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th></tr>
<tr><td>Forestland</td><td>504.033,77</td><td>522.533,36</td><td>545.143,98</td><td>571.865,61</td><td>586.254,19</td><td>606.809,29</td></tr>
<tr><td>Production forestland</td><td>8.093,70</td><td>10.489,14</td><td>13.416,91</td><td>16.876,99</td><td>18.740,12</td><td>21.401,72</td></tr>
<tr><td>Protection forestland</td><td>366.471,70</td><td>379.299,85</td><td>394.978,70</td><td>413.508,25</td><td>423.485,70</td><td>437.739,20</td></tr>
<tr><td>Special use forestland</td><td>129.468,37</td><td>132.744,37</td><td>136.748,37</td><td>141.480,37</td><td>144.028,37</td><td>147.668,37</td></tr>
</table>
- Distribution of withhold land for other use purpose
</td></tr>
<tr><td>Conflict</td><td>The land fund on the map does not match the reality</td></tr>
<tr><td>Gap</td><td>- Nil</td></tr>
</table>

(3) Planning for stabilizing population along the border between Vietnam and Laos

i) Name of document: Decision No. 49/2008/QĐ-TTg. To approve the plan for stabilizing population in communes along the border between Vietnam and Laos up to 2015

ii) Responsible: Government

iii) Date of issue: 24/4/2009

iv) Date of validity:

Table 38. Summary and analysis of Decision No. 49/2008/QĐ-TTg

Aspects	Summary and analysis of content
Support	• Plan to stabilize population in communes along the border between Vietnam and Laos up to 2015. Dien Bien has 22 communes which belonging to 3 districts: Moung Nhé (7 communes), Muong Cha (6 communes) and Dien Bien (9 communes). • General objective: To 2015 basically stabilize population on communes along the border for socio-economic development, improve and increase the spirit and material life for ethnic minority people, stop free immigration and firmly defend security in the border area. • Develop forestry and agricultural production and handy craft works in the rural area. - For agriculture: Food crops: 42,700 ha. Annual food income per capita 330 kg. Plant 2,100 ha of fruit trees; 4,.700 ha of perennial industry trees; 4,500 ha seasonal industry crops; 91,400 buffaloes; 89;500 cows; 323.800 pigs; 1,500,000 poultry; 29,600 horses and goats. - For forestry: Regeneration: 21,700 ha. New plantation: 11,450 ha; Vegetation coverage: 55%; - Develop handy craft works and services: blacksmith, weaving, wood carving, building markets along the border and border gate at Nam Can, Chieng Khuong, Nam Meo;

	Improve historical and beautiful places to attract tourists. - MARD has to cooperate with other sectors to instruct People's Committee of border provinces to implement the plan.
Conflict	- Nil
Gap	- Nil

(4) Reduce negative impacts of mining works on forest

i) Name of document: Mineral Law, coded 60/2010/QH 12

ii) Responsible: National Assembly

iii) Date of issue: 17-11-2010

iv) Date of validity: 01-7-2011

Related to "reducing emission for deforestation"

Reason: Mining usually resulted in forest loss, especially illegal mining activities.

Table 39. Summary and Analysis of the Mineral Law 60/2010/QH 12

Aspects	Summary of policy content
Support	- Mineral activities must comply with mineral strategies and master plans and connected with the protection of environment, natural landscape, historical-cultural relics, scenic places and other natural resources while assuring national defense, security and social order and safety. - Mineral strategies shall be elaborated on the following principles and Conformity with socio-economic development, national defense and security strategies and plans and regional master planning. - The Government shall assign ministries to elaborate and submit the master plans specified in at Points a, b and c, Clause 1 of this Article to the Prime Minister for approval; and provide for the elaboration of provincial master plans on mineral exploration, mining and utilization. - Agencies elaborating the master plans defined at Point d, Clause 1, Article 10 of this Law shall collect opinions on the master plans from the Ministry of Natural Resources and Environment and concerned ministries and ministerial-level agencies before submitting them to competent state agencies for decision. The agency which elaborates a mineral master plan shall publicize it within 30 days after it is approved or adjusted. - Organizations and individuals engaged in mineral activities shall apply solutions and bear all costs for environmental protection, rehabilitation and restoration. Solutions and costs for environmental protection, rehabilitation and restoration must be identified in investment projects, environmental impact assessment reports and environmental protection commitments approved by competent state agencies. - Before conducting mineral mining activities, mining organizations and individuals shall pay a deposit for environmental rehabilitation and restoration according to the Government's regulations. - Government shall perform the unified state management of minerals. The Ministry of Natural Resources and Environment shall take responsibility before the Government for performing the state management of minerals nationwide.
Support	- Provincial-level People's Committees may grant mineral exploration licenses, licenses for mining of minerals for use as common construction materials, peat, and minerals in areas with scattered and small-scale. - Reason: After the decentralization, the number of license has rocketed beyond the control of local authorities and created a lot of forest losses and destroy the environment.
Gap	Nil

(5) Reducing negative impacts of electricity development on forests

i) Name of document: Electricity Law 28/2004/QH11

ii) Responsible: National Assembly

iii) Date of issue: 14 / 12 / 2004

iv) Date of validity: 01 / 7 / 2005

Related to “reducing emission from deforestation”

Reason: Electricity development, especially mini hydraulic power stations (to 2005, the total output increased to 3,375 MW) consume larger area of watershed and forestland and land for re-settlement.

Table 40. Summary and analysis of Electricity Law 28/2004/QH11

Aspects	Summary of policy content
Support	
Conflict	- Lack cooperation among different sectors (Vietnam Electricity and MARD) in forest planning for mini hydraulic power development.
Gap	

- Decision of the Government

i) Name of document: Decision No. 110/2007/QĐ-TTg, dated on 18/7/2007 concerning the approval of the National Electricity Development Plan period 2006 – 2015 with a vision of 2025.

ii) Responsible: Prime Minister

iii) Date of issue: 18/7/2007

iv) date of validity:

2. Legal framework and institutions of Dien Bien province for REED+ activities

2.1. General information of Dien Bien province

Dien Bien is a mountain and border province in the northwestern region of Vietnam. Natural area of the province is 956,290 ha, of which area of forest land is 760,449 ha or 79.5% of the total natural area. Total area of forest land with forest cover is 346,287 ha including 331,661 ha of natural forest (95.77% of forest land area) and 14,626 ha of plantation forest. It is calculated that forest coverage of the province is 36.2%. Areas of forest land are very different among districts in the province. Basically, most of forest lands belong to three districts, such as Muong Nhe, Muong Cha and Tuan Giao.

Dien Bien is the watershed of Da river, Ma river and Mekong river with complex terrain and high sloping degree lead to high requirement of environmental protection.

Under the Government's priorities, Dien Bien province has received a number of forest development project, such as projects of Programs 327, projects of National Program on 5 million ha Afforestation, projects funded by Germany, EU ... Forestry sector of Dien Bien province has achieved some positive results including protection and rehabilitation of natural forest, plantation of forest. However, main activities of the forestry sector are to protect the forest. Meanwhile, activities producing forest products are still in weakness.

For managing the forests and forest development activities, the provincial government bases mainly on forestry policies of the central government. Main contents of these policies are guidelines for implementing policies issued by the central government.

Our research team has tried to collect policy documents issues by provincial government of Dien Bien and experiences of key informants about contents of the policies. The following part contains our analyses of key policies of the provincial government that relating to REED+ activities.

2.2. Policy and institution analysis

(1) Participatory forest land allocation

i) Name of document: Decree No. 520/QD-UBND for participatory forest land allocation
ii) Responsible: PC of the province
iii) Date of issue: 2000
iv) Effective date:
Because this decree contains regulations relating to identification of specific owners of forest land (to be allocated) with their duties and benefits, it relates to "sustainable forest management".

Table 41. Summary and analysis of Decree No. 520/QD-UBND

Aspects	Summary and analysis
Support	- To give rights to use forest land to land users through allocation activities, to recognize rights to use areas of forest land for land users who have has long and stable utilization of the areas; to regulate specific rights and duties of forest land users; regulations to encourage people receiving forest land. - Allocation process with people participation (with support of EU project) - To date, 337,411 ha of forests and 16,983 ha of unused land; 39,990 forest land use certificate have been given to land users (interview with DORE, 2011)
Conflict	- Policy document focuses mainly on allocation of forest land without forest cover to households. - The policy does not have regulation of forest resource calculation before allocation of forest land with forest cover. - This policy is issued before arrival of Land Law 2003 and Forest Protection and Development 2004. Moreover, there have a lager change of socio-economy and actual situation. - Policy does not have sufficient human resource and budget for implementation. This has led to poor implementation of the policy and practical activities do not follow procedure of policy document. It is reported that 50% of forest land have been allocated to local households. However, in many places of the province the forest land certificates do not meet with actual areas managed by the households. The provincial authority has allocated 106,818 ha to management boards of protection forest and special-use forest, but most of these areas have no clear boundary in the field. Meanwhile, a large area (234,826 ha or 31% total area of forest land) has not been allocated (Sub-department of Forest Protection of Dien Bien, 2010). This area is being seen and used as open asset for everybody.
Gap	- Poor implementation of policy can lead to difficulty for implementing policy on environmental service payment and managing quality of activities of forest owners as forest land certificates do not contain information on forest resources.

(2) Policy on development of concentrated production of agriculture and forestry in order to provide products for exportation

i) Name of document: Resolution No. 07/NQ-TU for development of concentrated production of agriculture and forestry in order to provide products for exportation
ii) Responsible: Provincial Committee of the Communist Party
iii) Date of issue: 07-3-2007
iv) Effective date:
This resolution has relation to increase carbon stocks of forests

Table 42. Summary and analysis of Resolution No. 07/NQ-TU

Aspects	Summary and analysis
Support	- To increase percentage of forest cover to 50%; To identify areas for planting forest and provide material for wood processing and paper industry; - To continue practices of policy on forest land allocation, forest allocation on contract; to grant certificates of land use right to organizations, households and other economic units; to engage these policy practices with creation of opportunities for people to manage, to use their land suitable with planned purpose, long term and stable production with high effectiveness. - To research and issue policy with reduction of tax and encouragement of investment into timber plantation.
Conflict	Nil
Gap	Nil

(3) Revision of forest planning

i) Name of document: Decision No. 76/QD-UBND about approval of checking results and planning of three types of forest of Dien Bien province for period of 2008-2020

ii) Responsible: Provincial People's Committee

iii) Date of issue: 14/1/2008

iv) Effective date:

This policy contains regulation relating to "sustainable forest management"

Table 43. Summary and analysis of Decision No. 76/QD-UBND

Aspects	Summary and analysis
Support	- Planning of three types of forest up to 2020: + Total forest area: 760.449,83 ha, of which area of forest land with forest cover is 374.218,22 ha, and area of forest land without forest cover 386.231,60 ha. + Three types of forest classification: Special use forest with 46.516,88 ha, Protection forest with 424.199,39 ha, production forest with 289.733,55 ha. - The policy document has provided detail planning areas for every district. - It contains regulations to encourage all stakeholders participating in activities of forest protection, rehabilitation and tree plantation. It also points out that it needs to build and implement policy suitable with conditions of the province in order to attract both domestic and international investors to put money into development of production forest in accordance with approval planning.
Conflict	Nil
Gap	Nil

(4) Plan forest protection and forest development of the province

i) Name of document: Decision No. 983/QD-UBND of approval plan of forest protection and forest development of Dien Bien province for period of 2008-2015 with vision to 2020

ii) Responsible: Provincial People's Committee

iii) Date of issue: 29/7/2008

iv) Effective date:

This policy document relates to 5 activities of REED+ because it mentions to aspects, such as forest protection, forest development, sustainable forest exploitation and solutions to develop forestry sector of the province.

Table 44. Summary and analysis of Decision No. 983/QD-UBND

Aspects	Summary and analysis
Support	- Forest development direction

+ Activities on protection and rehabilitation of watershed are focal points, of which, natural rehabilitation is applied. Protection forest for environment protection in combination with eco-tourism service will be developed.
+ To make use of bare land and to promote production forest, to improve quality of current forest, to build concentrated plantation area in combination with construction of forest products processing, to replace current plantation species by rubber or industrial trees.
+ Continue to obtain well management of special-use forest, bio-diversity and sustainable forest management.
+ To check and to perfect activities of forest land allocation, allocation on contract and leasing in order to create owner for each area of forest land; at the same time to recheck, classify and remake planning in order to build suitable plan and use purpose of forest land. Create effective prevention of conversion forest into food cultivation.
- Environmental purpose: To increase portion of forest cover from 41.6% (2008) to 44% at 2010, 55% at 2015 and 65% at 2020. To minimize cases of violation of Law on Forest Protection and Development; to create sustainable development of forest resource.
- Tasks: Attempt to obtain the following result at 2020
+ To protect 526,770 ha of forest (including current forest, new plantation forest and rehabilitated forest)
+ To regenerate and rehabilitate 148,543 ha
+ To plan 92,363 ha including 20,000 ha of rubber, 1,688 ha of special-use forest, 18,299 ha of protection forest, 52,376 ha of production forest.
+ To make unconcentrated plantation with 4.55 million trees (equal to 30,000 ha)
- Forest land planning

Forestry planning of Dien Bien province at 2020

Unit: ha

Item	2008	2020
Total area of forest land	760.450	760.350
- Special-use forest	46.517	47.581
- Protection forest	424.199	423.135
- Production forest	289.733	289.634

- To recover and develop the forest:
+ Regeneration: This method is applied to land at statement of Ic and Ib. Total regeneration area is 148,543 ha including 9,332 ha of special-use forest, 139,221 ha of protection forest.
+ Forest plantation: Total area of new plantation is 92,363 ha, including 1,688 ha of special-use forest, 18,299 ha of protection forest and 72,367 ha of production forest. Unconcentrated plantation at period of 2016-2020 is 353,000 trees/year.
- Forest exploitation: Annual exploitation 10% of total area of forest land equal to 4,500 ha; harvested volume 13,500 m^3/năm.
- To harvest supporting trees planted in protection forests: total volume is 3,000 m^3/năm.
- Exploitation of natural forest: Total exploiting volume is 22,500 m^3/năm; total harvesting volume from production forest ranging from 60.000- 75.000 m^3/năm.

Conflict

- Direction of sloping cultivation: area of sloping cultivation is 106,310 ha. Of which, 644 ha of fix sloping cultivation of the districts, such as Tua Chua, Tuan Giao and Muong Ang, will be convert into tea, coffee and fruit tree plantation. Local people will be supported to convert this area in order to obtain extensive cultivation and better productivity.
- For 105,666 ha of rotational shifting cultivation (planting short-term industrial crops and then leaving for fallow), people who are using this area will be encouraged to convert their land into tree plantation through providing rice. Procedure of providing rice for these people are followed circular No. 52/2008/TTLT-BNN-BTC, date 14 April 2008, between MARD and MF on guideline for providing rice to local ethnic minority to plant tree in their shifting cultivation areas.

Conflicts:

- According to classification of MORE: Hill rice cultivation area (LUN), Area of long-term

	industrial plantation (LNC), area of fruit tree (LNQ) are under category of agricultural productive land not forest land. Thus, it is better to take out calculation of these 664 ha in forest land. - "Area of rotational shifting cultivation (planting short-term industrial crops and then leaving for fallow)" is not recognized in the forest land classification. In the classification of agricultural land, there is an item namely "other areas of annual sloping cultivation (NHK)". Are areas of fallow land included in this item? Or are areas of rotational shifting cultivation included in this item (according to statistical data in 2005, total area of annual sloping cultivation (NHK) is 1,036,993 ha and this number of Dien Bien is 65,411 ha. This information shows that there is confusion in forest land classification. It needs to take area of sloping cultivation out of calculation of forest land in order to create a convenience of management. If the state perceives that rotational sloping cultivation is suitable way in livelihood of the mountainous people, then it should has a policy on land allocation policy that provide suitable area for local people. All activities of shifting cultivation and forest invasion for agricultural cultivation are not allowed. Also, it needs to revise the article of "to encourage local people and if they spontaneously convert their sloping cultivation areas then state provides them rice". Our comments come out from the following rational. First, people living in the remote areas have very small land for water rice cultivation and most of their demand of food is taken from sloping cultivation area. How long can the state maintain their policy on rice support? How can local people balance their demand of food when they do not have enough land for cultivation? Second, if cultivation areas of local people are classified as protection forest and after they plant trees, their main income from the areas is payment for activities on forest protection ranging from 100.000 VND/ha/year to 200.000 VND/ha/year. Can these people maintain their life with this amount of income? How much can the projects on forest protection pay for local people in order to help local people maintaining their life. Third, if cultivation areas of local people are classified as areas for production forest and they are provided materials for planting tree, they can obtain logs after few years of their plantation. However, where they can sell their logs is a question without answer. At the moment, there have local people living in lower area of the province, who have planted trees, and they cannot find out market for selling their logs.
Gap	- Criteria to classify forest land have mainly focused on natural elements, and there is a lack of criterion relating to social and cultural elements (for instances: population density, cultivation habits, living standard ….). This has led to difficulties in implementing this policy in places, where have different ethnic groups living together. - Data of portion of forest cover (current 36.2%) should be checked and corrected.

(5) Investment and support for forest management and protection in the period of 2011

i) Name of document: Decision No. 10/2011/QD-UBND of approval cost norm paid for activities on forest development and protection of the Dien Bien province during period of 2008-2015 with vision to 2020

ii) Responsible: Provincial People's Committee

iii) Date of issue: 22/4/2011

iv) Effective date: 10 days after approval

This policy relates to "enhancement of forest carbon stock" because its main purpose to create more plantation forests, protect current forests and improve quality of protection forest.

Table 45. Summary and analysis of Decision No. 10/2011/QD-UBND

Aspects	Summary and analysis
Support	- Level of support + Investment for planting protection forest and special-use forest: 15 million VND/ha within period of 4 years + Investment for activities on forest protection, natural regeneration: 200,000 VND/ha/year,

	and investment period is 5 years. + Regeneration in combination with tree plantation: 1 million VND/ha within period of 6 years.
Conflict	Nil
Gap	- There is a lack of regulation that encourage to develop tree plantation and improve quality of natural forest under category of production forest

(6) Policy on development of rubber plantation

i) Name of document: Decision 1305/QD-UBND, approval of planning of development rubber in Dien Bien province in period of 2008-2020

ii) Responsible: Provincial People's Committee

iii) Date of issue: 30-7-2009

iv) Effective date: 10 days after approval

This policy relates to reducing emissions from deforestation as it mentions about conversion of forest land and natural forests into rubber plantation.

Table 46. Summary and analysis of Decision 1305/QD-UBND

Aspects	Summary and analysis
Support	
Conflict	- Total area of rubber plantation at 2020: 20,000 ha for every district. Most of area of rubber plantation is located in Muong Nhe, Muong Cha and Dien Bien. - Poor natural forests should be converted into rubber plantation: + Total area of production forest that is going to be converted is 20,796. According to data in this document policy, these are not poor natural forests. Actually, 32% of this area are natural forest in category of IIa, and 36,9% of IIb and 3,4% of IIIa1. + Area of sloping cultivation to be converted: 14,137 ha or 19,3 of planned area for rubber plantation + Area ranging from 700-1000 m above sea level for rubber plantation: 6,045 ha or 30% of planned area for rubber plantation
Gap	There is no data and study of emission producing by clearance of natural forest for rubber plantation in Dien Bien.

(7) Recognition of environmental impacts of rubber plantation

i) Name of document: Decision 208/QD-UBND, approval of environmental impact assessment of conversion 10,000 ha into rubber plantation

ii) Responsible: Provincial People's Committee

iii) Date of issue: 23/1/2010

iv) Effective date:

This decision document relates to reduction of emissions from deforestation and increment of carbon stocks of forests, because there are conversions of poor natural forests, poor plantation forests, and bare land into rubber plantation.

Table 47. Summary and analysis of Decision 208/QD-UBND

Aspects	Summary and analysis
Support	- To point out impacts to environment, society and economy of rubber plantation over 10,000 ha and solutions to advise negative impacts on forest, land and to make contribution to local socio-economic development.
Conflict	- According to Department of Recourse and Environment, most of areas planned for rubber

	plantation are bare land. According to DARD, however, more than 4,000 ha used for rubber plantation are being converted from natural forests classified as IIa and better statement. Moreover, the rubber company has cut down trees of the forests, where it has not received land use certificate. Sub-Department of Forest Protection reported has found logs harvested in the areas for rubber plantation to be transported on the road without legal documents. The Forest Ranger cannot do anything with those logs. - The Forest Ranger has no role in process of making planning for rubber conversion and it also cannot make a voice of about conversion of forest land into rubber plantation. This organization is allowed to check the activities after forests being cleared. - According to a social survey, portion of people, who have an agreement with rubber plantation, is very small. Especially, there is very small number of people living in the forest area has agreed with development of rubber plantation.
Gap	- There is no activity to collect information on changes of carbon stock on the areas that are converted into rubber plantation.

(8) Bio-diversity protection

i) Name of document: Decision 593/QD-UBND, approval of detail planning of Muong Nhe Natural Conservation area

ii) Responsible: Provincial People's Committee

iii) Date of issue: 25/5/2008

iv) Effective date:

This decision allows to build and manage Muong Nhe Natural Conservation area in accordance with regulations of special-use forests.

Development of Muong Nhe Natural Conservation area has relations with sustainable forest management and increment of carbon stocks of forest.

Table 48. Summary and analysis of Decision 593/QD-UBND

Aspects	Summary and analysis
Support	- Objectives + To protect forests, bio-diversity, to conserve gene and fauna and flora in Muong Nhe. Main development objective is to increase quality of the forests, bio-diversity value and then to recover primitive statement of the area. To serve requirements of sustainable socio-economic and environmental development at present and future. + To protect current statement of bio-diversity and other forest resources, especially those in the rich forest areas. + To regenerate the forest, forest area and forest cover and to create secure living region for recover big animal species of the region. + To protect high value species and endanger species, to maintain current forest structure, to increase population endanger species. + To make contribution to stability of society and increment of physical and spiritual life of local people, to converse special culture of ethnic people. + To propagandize and enhance awareness and perception of environmental protection and resource protection of local communities. To attract local people participating in activities on forest protection. To mobilize local people to make stable life, fix settlement, to replace their living way from dependency on forest resources by protection and sustainable use of forest. **- Planning** Total area of the natural conservation is 45.581 ha. Unit: Ha

	Nậm Kè	**Mường Nhé**	**Chung Chải**	**Sín Thầu**	
Sum	***45,581.00***	***7,283.90***	***9,744.40***	***21,044.00***	***7,508.70***
1. Land with forest cover	*27,885.90*	*4,628.60*	*5,757.70*	*11,706.00*	*5,793.60*
a) Natural forest	27,885.90	4,628.60	5,757.70	11,706.00	5,793.60
- Broad leaf forest	27,340.00	4,628.60	5,757.70	11,706.00	5,793.60
+ Rich forest					
+ Medium forest	15,510.50	4,221.40	1,506.40	5,952.50	3,305.60
+ Poor forest	4,613.30		463.80	2,219.50	2,097.00
+ Regenerating forest	7,216.20	407.20	3,787.50	1,800.00	1,121.0
b) Plantation forest					
2. Land without forest	*17,695.10*	*2,655.30*	*3,986.70*	*9,338.00*	*1,715.10*
a) Ia	9,736.80	2,108.60	3,509.20	3,899.00	220.00
b) Ib	656.00			159.50	496.50
c) Ic	7,302.30	546.70	477.50	5,279.50	998.60

+ Core zone: 25,679 ha
+ Ecological regenerating zone: 19,888 ha
+ Administrative zone: 13.50 ha
+ Buffer zone includes areas of 6 communes that are Sín Thầu, Chung Chải, Mường Nhé, Nậm Kè, Quảng Lâm and Mường Toong. Total area of buffer zone is 124,084 ha.
- Solutions for establishment of the natural conservation
+ Classify boundary and make landmark
+ Disseminate knowledge of law on special-use forest management and protection
+ Control forest fire
+ Organize forest protection system
+ Total investment for forest protection program: 24.826 billion VND
+ Forest regeneration program:
Natural regeneration: 8,732 ha, new plantation: 2,448 ha
Total investment : 20.330 billion VND
+ Socio-economy development program
Support for households, who migrated illegally to ecological regenerating zone: 74 households
Support for economic development of the buffer zone
- Total investment: 254.640 billion VND

Conflict	- There is lack of understanding about root cause of illegal migration of 74 H'Mong households in the ecological regenerating zone. It is necessary to reanalyze of solution aiming to bring those households. Lessons learned from other places show that activities to bring those people out of the conservation area are costly with poor result. The best solution is to provide supports for these people settling down and to prevent new arrival. - The most serious challenges of the natural conservation are shifting cultivation and land invasion of local people (mainly H'Mong people) living in the buffer zone. Meanwhile, solutions to support for socio-economy development of the buffer zone are not clear. It needs to have activities on providing support for the people to applying rotational shifting cultivation on the sloping land, developing livestock and non-timber products (currently, each household is using 22 ha of forest land).
Gap	Nil

Appendix 3. Study on forest map relations

RESULTS OF FOREST STATUS MAP STUDY OF THE ORGANIZATIONS

Producer	MONRE (DONRE)	FIPI (Sub-FIPI)	Center of Agro-Forestry Designing and Planning	FPD
Description	The map showing distribution of land-use types in accordance with inventory norms on land-use purposes at the time of land inventory and prepared by administrative levels, natural geographic – economic regions and nationwide. Contents of land-use status map reflect fully and truly the land-use status at the time of mapping. Splitting by agro-ecological regions: 1. North West 2. North East 3. Red River delta 4. North Central 5. South Central 6. Highland 7. South East 8. South West Spliting by forestry-ecological regions: 1. North West 2. Central 3. North East 4. Red River delta 5. North Central 6. South Central 7. Highland 8. South East	Description of forest status, forest status classification based on Decision QPN6-84. And the latest is classification based on Circular 34/2009. This Circular regulates the criteria of forest determination as well as forest classification system to support forest inventory and statistics, forest planning for protection and development and preparing forestry programs and projects. Before 2009, applied with Decision QPN6-84, from 2009 so far, applied with Circular 34/2009. Upcoming forest inventories in Bac Can and Ha Tinh provinces will also be applied with Circular 34/2009 in forest type classification.	Forest status map: planning and designing for projects of forestry investment and development such as program 661. Planning maps are published every 5 years and designing maps are published every year, based on forest status map. Based on topography maps to re-polygon the area which designed for afforestation/ forest regeneration and protection. Processing is conducted according to Decision No. 661/QD-TTg issued on July 29, 1998 by Prime Minister.	Forest status map: Monitoring annually forest change. Based on forest status map and the reports from district Sub-FPD, local Sub-FPD, Management Boards,etc the provincial will annual update on forest status changes, such as increasing, decreasing, conversion, afforestation,etc. The unit does not establish new maps but inheriting forest status maps from FIPI (Sub-FIPI).However, FPD is also applying the guidance of the State on forest type classification to adjust annually forest status maps: Before 2009, applied with Decision QPN6-84, from 2009 so far, applied with Circular 34/2009. Following is technical process of forest status change monitoring: - Updating forest and forest land area of all types, based on forest and forest land classification system in Decision QPN6-84, accompanied with Decision No. 682B/QLKT issued on August 01, 1984 by Forestry Ministry (now so called MARD), and forest area inventory result, which announced in Decision No. 03/2001/QD-TTg issued on January 05, 2001 by Prime Minister regarding to approval of national forest inventory result.

	9. South West Basal of land use status map establishment. - Circular No. 28/CT/TT-BTNMT issued on November 01, 2004 by MONRE regarding to guidance of land use statistic, inventory and land use status mapping; - Decision No. 33/2004/QD-BTNMT issued on December 17, 2004 by MONRE regarding to issuance of software for coordinate conversion from HN-72 to VN-2000 to use with digital cadastral maps. - Guidelines for land use status mapping, issued by Minister of MONRE, in accordance with Decision No. 39/2004/ QD-BTNMT issued on December 31, 2004 by MONRE. - Decision No. 40/2004/QD-BTNMT dated on December 31, 2004. - Since 2008, Decision No. 39/2004 was replaced with Decision No. 22/2007/QD-BTNMT dated on December 17, 2007.			- Determining the changes of forest and forest land area, which caused by: forest plantation, forest exploitation, forest fires, harm insect, deforestation; land use purpose conversion, forest quality increase/decrease and other causes. From 2001, FPD will apply the Circular No. 34/2009 in forest status determination.
Legend	Forestry land: * Forest land + Protection forest: - Natural protection forest - Planted protection forest + Special use forest: - Natural special use forest - Planted special use forest	Classified by forest types: - Rich forest - Medium forest - Poor forest - Rehabilitated forest - Grass land - Bare land with scattered timber - Bare land with bush	Classified by statuses: - Village/Residential - Regeneration forest (Ib, Ic) - Plantation forest (Rt) - Rehabilitated forest (IIa, IIb) - Poor forest (IIIa1) - Medium forest (IIIa2) - Rich forest (IIIa3)	Classified by forest types: - Rich forest - Medium forest - Poor forest - Rehabilitated forest - Grass land - Bare land with scattered timber - Bare land with bush

	+ Production forest: - Natural production forest - Planted production forest * Un-forest land - Bareland (planned for) protection forest - Bareland (planned for) special use forest - Bareland (planned for) production forest	- Limestone forest - Limestone - Bamboo forest - Mixed bamboo timber forest - Plantation - Residential area - Waterbody - Upland field - Agriculture land - Other land Forest type classification according to Circular 34	- Primary forest (IIIB)	- Limestone forest - Limestone - Bamboo forest - Mixed bamboo timber forest - Plantation - Residential area - Water body - Upland field - Agriculture land - Other land According to source maps, regulated by mapping enterprise (FIPI).
Method	Based on purpose and requirement of establishment of land use status map; background map scale; characteristics of the administrative units; area, size of the polygons, adequacy, accuracy and reliability of the existing data source; conditions of time, equipments, technology and knowledge of the technical workforce. The commune level land-se status maps is established by one of following methods: - Using cadastral maps or base cadastral maps. - Using high resolution aero or satellite images which have been revised to be orthogonal products. - Revision of land use status maps from previous cycle (This method can be used only if unavailable of cadastral maps or base cadastral	Using different methods for each cycle. Method for each cycle is described as below.	Planning and designing for forest plantation, regeneration and protection in accordance with Program 661, based on forest status maps with field survey.	Updating annually forest status based on forest status maps with field survey and reports from district FPD.

	maps and aero or satellite images; the previous cycle land use status maps were established on the background maps in accordance with regulations of MONRE whenever the coefficient of variation of quantity and area of polygons on the field is not more than 25% in compare with previous cycle land use status maps.			
Satellite data	Depending on the conditions and demands of each province to use aero or satellite images or not use these remote sensing data, in the establishment of land use status maps. Before 1995: using Landsat images. From 1995 to 2005: using Landsat and SPOT3 images. From 2005 to 2010: Using SPOT5 images	- Phase 1991 – 1995: forest status maps were mapping based on existing forest status maps of the years before 1990, then using Landsat MMS and Landsat TM satellite images with resolution at 30 x 30m to update for the area which changes of land use, deforestation or plantation or regeneration. Landsat MMS and Landsat TM satellite images are color hard-copied, scale at 1:250.000 and interpreted by human eyes. The achievements from these programs are forest resource data of national, regions and provinces; regional vegetation ecological maps with scale of 1/250.000 and land-use status maps of provinces at scale of 1:100.000 and regions at scale of 1:250.000. - Phase 1996 – 2000: In this phase, forest status maps are prepared by using remote sensing data. Satellite images		

		were used are SPOT3, resolution at 15 x 15m, suitable for preparing maps at scale of 1:100.000. SPOT3 images are processed, faked color and hard-copied. The achievements in this program is forest status maps at scales of 1:100.000; 1:250.000; 1:1000.000 - Phase 2000 – 2005: This phase, forest status maps are prepared from Landsat ETM+ digital satellite images. Image quality is same as in Cycle I with resolution at 30 x 30m. Images are not hard-copied but save in digital format in CD disks. FIPI applied new interpretation technology with support of professional software, Erdas Imagine 8.5. Interpretation is conducted in-room, based on interpretation keys which examined on the field. - Phase 2006 – 2010: In this phase, preparation of system of maps and forest resource data is conducted using SPOT5 satellite images with resolution of 2.5m for the whole country, provided by MONRE, as a basal for compiling and revising maps of: forest resource status maps, scale 1:25.000 for 1.000 key forestry communes; forest status maps, scale 1:50.000 for all districts; forest status maps, scale		

		1:100.000 and 1:250.000 for all provinces and regions and nationwide. Building an interpretation key to support interpreting and reading satellite images.		
Update interval	Updating every 5 years according to national policies.	Updating every 5 years according to national policies. Annual updates are allocated to Sub-FPD and Sub-FDD (Sub-Forest Development Department) for implementing on each Sub-Department purpose and tasks, regarding to State management of forest development.	- Grand update: Cycle of every 5 years according to national policies. - Annual update: (by the units which using data): Only update on progress of projects or program (i.e 661) and update real forest status.	- Grand update: Cycle of every 5 years according to national policies. - Annual update: (by the units which using data): Updating on forest change, mainly deforested area (by fires, shifting cultivation or purpose conversion…)
Relationship with other maps	Topographic maps, previous cycle land use status maps (MONRE), forest status maps (FIPI). Final products are all land-use status map of the inventory year. According to the State's policy, inventory program will be conducted every five years. The latest time is in 2010. In addition to the maps, there are reporting data in document format (statistical tables) which specify in detail of area of each land-use type in inventory year. - Depending on method of establishment of land-use status map, different kind of map required. + Using cadastral maps or base cadastral maps. In this method, the background map will be	Topographic maps, previous cycle forest status maps (FIPI), land use status maps (MONRE) The land-use status map provided by MONRE/DONRE is a basal to determine boundary and area of all land-use type (Forestry land, agriculture land, upland field, residential land, other land,…) Final products are the maps which describes all forest statuses of the mapping year. According to State's policy, map establishment and examination will be conducted every five years. Forest status maps will be	Planning and designing will be based on forest status maps provided by FIPI/Sub-FIPI which ordered from DARD. Based on forest status, planning will be conducted every five years on assigned tasks and plans. The design of afforestation, forest regeneration and protection will be conducted annually on annual planned criteria. Final product is map of program 661 implementation progress from 1998 to 2010. This map will be provided to district sub-DARD, Protection Forest Management Boards (PFMB), Special-use Forest Management Board (SFMB) and Protection Forest Project Management Board (PFPMB).	Sub-FPD is forest legal management unit and the one that take responsibilities of monitoring forest status changes. Monitoring forest status changes must be based on forest status map provided by FIPI and map of Program 661 implementation progress (1998-2010). Monitoring forest status changes is conducted every year. There are two channels to monitor and to update forest status: Channel 1: Based on reporting data from district FPD, local FPD (determining boundary of increasing/decreasing area by GPS equipment then send this data in document format on polygon coordinates) and Sub-FPD will update on hard-copy or digital map. Channel 2: Based on implementation progress map of afforestation, forest regeneration and protection programs and

	established from cadastral maps or base cadastral map. + Using revised high resolution aero or satellite images: Background maps are extracted from cadastral maps or base cadastral maps. + Revision of land use status maps from previous cycle: Using land use status maps from previous cycle.	provided to DARD and will be used for its specific purposes.	The sub-DARD and Management Boards, using this designing map for the purpose of implement of afforestation, forest regeneration and protection in accordance with Program 661.	projects, and reports of forest examination from district FPD to update on forest status map. Results of forest change monitoring includes: a. Forest and forest land status maps for communal level, scale at 1/25.000 or 1/10.000; for district level, scale at 1/50.000; provincial level, scale at 1/100.000 and nationwide, scale at 1/1000.000 are published every year. b. Monitoring booklets of communal plots, and forest and forest land area changes. c. Area aggregated charts by land use types, forest types of the statistical units: local, communes, districts, provinces. - Chart 1. Forest and forest land area. - Chart 2. Forest and forest land area by 3 forest types. - Chart 3. Forest and forest land area by stakeholders. - Chart 4. Plantation area by species and age class. - Chart 5. Changes (increase/decrease) of forest and forest land area. - Chart 6. Land use status and forest cover. d. Digitalized and compiled forest status map layers of communes, districts and provinces. e. Forest and forest land area change database. This result is submitted to DARD, FPD, MARD, Government.

RELATIONSHIP BETWEEN DIFFERENT TYPES OF MAP

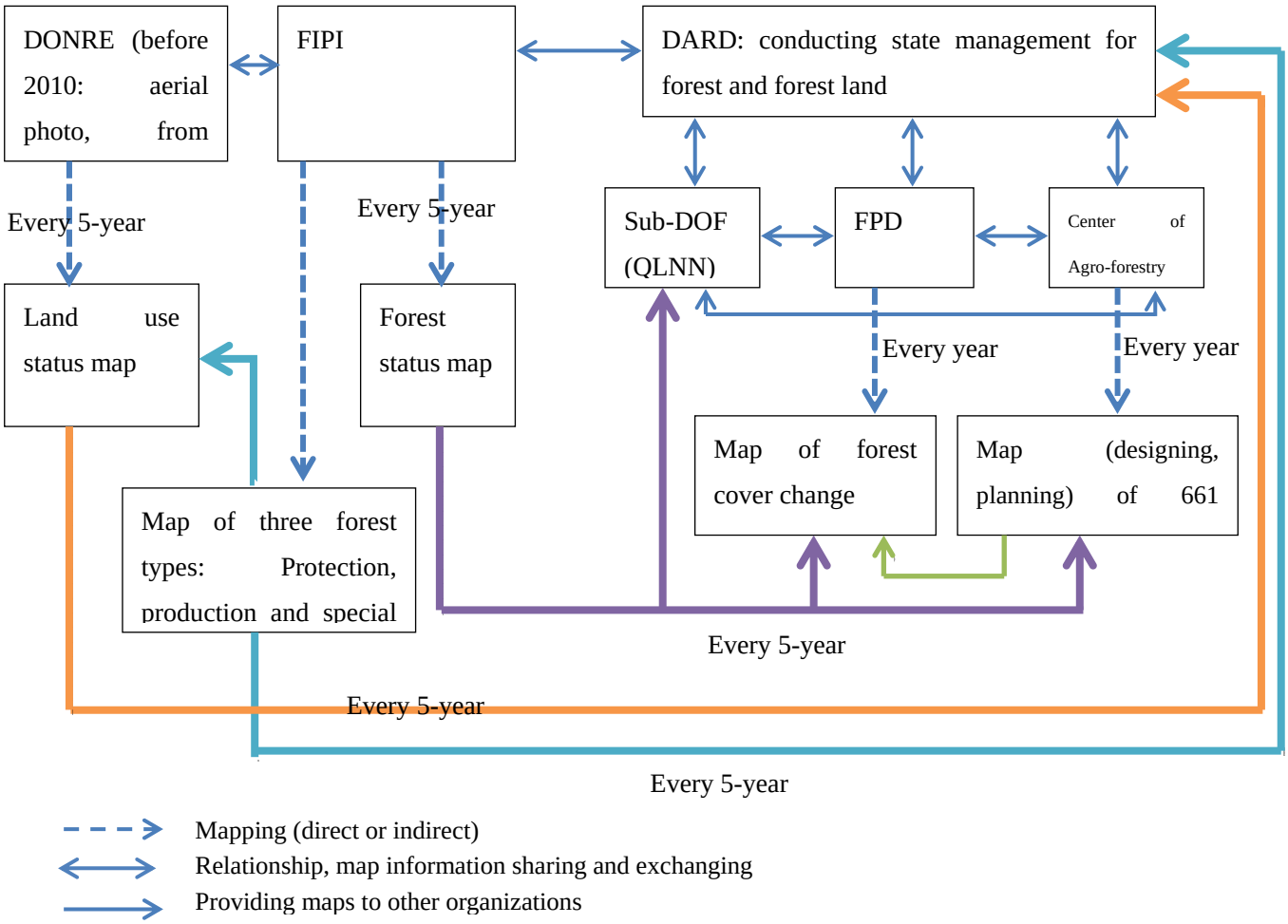


Figure 1: The flow-chats of the relationship between different types of the maps:

Interviewee list

TT	***Name of interviewee***	***Office***
1	Mr. Lê Minh Sơn	MONRE
2	Mr. Nguyễn Ngọc Sinh	MONRE
3	Mr. Lương Chính Kế	MONRE
4	Mr. Trần Danh Hải	Cục Kiểm lâm
5	Mr. Trần Viết Tuân	FIPI
6	Mr. Nguyễn Văn Hiến	FIPI
7	Mr. Nguyễn Thành Chung	FIPI
8	Mr. Nguyễn Thành Trung	DONRE
9	Mrs. Đường Thị Thu Hường	FPD
10	Mr. Nguyễn Đình Kỳ	Sub-DOF
11	Mr. Lò Quang Chiêu	Center of Agro- Forestry Designing and Planning
12	Mr. Hoàng Văn Diệu	Center of Agro- Forestry Designing and Planning