Part II

IMPLEMENTATION PLAN OF THE PROPOSED PROJECT

Chapter 1 Present Conditions of the Potential Target Sites

1.1 Location and Administrative Divisions

The target four provinces lie between latitudes 21°00' - 22°30'N and longitude 102°30' - 106°00'E, with the geographical area of 37,415 km^2. Most land in the four provinces except Hoa Binh is located in the mountainous and hilly areas at altitudes from 500 to 1,500 m above sea level (ASL).

The potential target sites selected in **Section 6.1** of Part I of this report are administratively located in 97 communes out of 262 within 15 districts in the four provinces. **Table II-1-1** attached to this report shows all the communes in the districts including those relating to the potential target sites. The following table shows the number of communes as well as the associated villages geographically relating to the potential target sites.

Districts, Communes, and Villages relating to the Potential Target Sites

Province	District	No. of target communes	No. of village	Area (km^2)
Dien Bien	Dien Bien	5	85	513
	Muong Cha	1	11	171
	Tuan Giao	2	18	195
Lai Chau	Sin Ho	21	223	1,445
	Tan Uyen	9	134	834
	Than Uyen	10	133	723
Son La	Thuan Chau	6	140	650
	Quynh Nhai	5	75	485
	Van Ho	3	25	340
	Moc Chau	1	23	92
Hoa Binh	Da Bac	11	88	450
	Mai Chau	12	69	339
	Tan Lac	5	29	143
	Cao Phong	2	13	62
	Lac Son	4	52	146
TOTAL		97	1,118	6,588

Source: District Statistical Year Book 2015 and Results of the field survey made by JICA Preparatory Survey Team (2016)

1.2 Natural Conditions

1.2.1 Rainfall and Temperature

The following table shows the annual and monthly rainfalls of the target provinces. As shown below, the average rainfalls in the four provinces between 2011 and 2015 range from 1,570 to 1,960 mm, of which the majority are concentrated in five months between May and September.

Rainfall Data in the Four Target Provinces

	Dien Bien					Lai Chau					Son La					Hoa Binh					Average				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015 prel.	2011	2012	2013	2014	2015
Total	**1,418**	**1,978**	**1,978**	**2,069**	**1,709**	**2,179**	**2,554**	**2,358**	**2,475**	**2,480**	**1,176**	**1,405**	**1,337**	**1,290**	**1,374**	**1,825**	**1,904**	**1,736**	**1,252**	**1,674**	**1,570**	**1,960**	**1,875**	**1,681**	**1,927**
January	16	64	42	7	83	49	83	53	23	92	24	57	25	0	65	11	8	14	3	40	25	53	34	8	70
February	7	3	23	15	11	6	4	44	15	39	13	1	8	10	4	5	5	22	3	12	8	3	24	11	16
March	111	71	35	81	26	126	44	26	69	56	108	14	34	42	12	57	20	17	31	51	101	37	28	56	36
April	128	135	197	104	144	147	145	198	183	155	107	59	91	93	103	71	77	48	128	47	113	104	133	127	112
May	221	286	296	172	162	286	306	301	198	235	136	186	214	113	52	268	443	197	198	152	228	305	252	170	150
June	240	209	198	256	278	393	466	352	424	404	191	127	148	303	250	313	314	309	243	284	284	279	252	307	304
July	243	507	528	509	489	382	678	502	679	529	215	392	336	257	322	268	259	347	184	247	277	459	428	407	397
August	172	281	350	294	490	164	267	430	469	357	168	305	260	259	263	359	281	425	184	129	216	283	366	302	310
September	180	180	131	132	184	183	282	190	202	269	89	166	114	100	103	297	315	208	175	509	187	236	161	152	266
October	72	56	35	66	131	89	111	55	111	151	77	18	21	34	50	141	139	108	71	63	95	81	55	71	99
November	24	144	7	72	72	28	139	14	101	73	32	59	3	79	49	21	34	28	21	91	26	94	13	68	71
December	4	42	227	2	110	10	31	193	4	122	16	21	83	0	101	14	9	13	11	49	11	26	129	4	95

Source: Provincial Statistical Year Books, 2015

The annual mean temperatures in the provinces are between 20~26 ℃ in 2015, but it tends to be below 20 ℃ between November and February.

Monthly Temperature in the Target Provinces

Unit: ℃

	Dien Bien					Lai Chau					Son La					Hoa Binh				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	Prel. 2015
Average	20.9	22.0	21.3	21.7	23.3	19.5	20.6	20.3	20.5	20.8	21.0	21.9	21.4	22.3	23.0	22.8	28.4	23.3	24.2	25.1
January	13.4	15.8	15.9	14.9	16.1	11.7	13.8	14.3	13.4	13.4	11.7	14.2	14.7	15.0	15.5	12.6	17.8	21.5	16.5	17.8
February	17.5	18.6	20.2	17.5	19.1	15.9	16.5	18.5	15.9	16.0	16.7	16.7	19.6	17.1	18.2	18.0	19.6	15.6	17.7	19.7
March	17.6	20.3	21.0	21.3	23.1	15.8	18.7	20.6	19.8	22.6	18.4	20.1	22.3	21.4	22.5	17.1	24.6	20.3	20.9	22.6
April	22.2	23.7	23.0	24.5	24.1	20.8	22.6	21.8	23.2	21.6	22.1	24.3	23.1	25.4	24.0	23.7	31.8	24.4	26.0	25.5
May	23.9	25.3	24.3	25.0	27.4	22.6	24.3	23.5	24.2	24.9	24.1	26.1	25.1	26.7	28.4	26.4	33.9	25.3	28.9	30.6
June	25.2	25.3	25.0	25.4	27.2	24.2	24.1	23.8	24.6	24.8	25.5	25.9	25.1	26.6	27.3	28.9	34.4	28.5	29.3	30.3
July	25.3	24.8	24.1	25.0	26.5	24.4	23.8	23.6	24.2	24.1	25.5	25.4	24.6	26.2	26.3	29.0	33.8	28.1	28.9	29.2
August	25.0	25.1	24.6	24.6	26.3	23.9	24.2	23.7	23.6	23.0	25.1	25.2	25.0	25.5	26.1	28.0	33.4	28.3	28.4	29.2
September	24.5	23.6	23.8	24.8	26.3	23.3	22.5	22.9	23.6	23.9	24.5	23.6	23.7	25.7	25.6	26.9	31.2	26.1	28.3	28.0
October	22.1	22.7	21.0	22.2	24.1	20.9	21.5	19.8	20.8	21.4	23.6	22.8	21.1	22.8	23.3	23.8	30.4	24.0	25.5	25.9
November	19.3	21.1	19.7	20.2	22.1	17.2	19.6	18.4	18.4	19.3	18.4	20.7	19.6	20.4	22.1	22.5	27.3	21.9	22.6	24.2
December	15.2	17.9	13.6	15.7	17.6	13.4	15.9	12.5	14.1	15.1	16.4	17.4	13.0	15.0	16.4	16.7	22.2	15.0	16.9	18.5

Source: Provincial Statistical Year Books, 2015

1.2.2 Present Land Use

The present land use in the 15 districts relating to the potential target sites is shown below.

Land Use in the Four Target Provinces

Unit: thousand ha

Province	Target District	Forestry Land	Agricultural Production Land	Others	Total	Ratio of Forestry Land (%)
Dien Bien	***Province***	***351***	***371***	***232***	***954***	***48***
	Dien Bien	71	74	19	164	43
	Muong Cha	41	15	63	119	35
	Tuan Giao	37	62	15	114	33
Lai Chau	***Province***	***387***	***107***	***413***	***907***	***43***
	Sin Ho	38	31	83	153	25
	Tan Uyen	30	11	50	90	33
	Than Uyen	22	7	50	79	28
Son La	***Province***	***663***	***356***	***394***	***1,413***	***65***
	Thuan Chau	71	48	35	153	46
	Quynh Nhai	46	18	42	106	44
	Moc Chau	50	34	23	107	47
	Van Ho	52	33	13	98	53
Hoa Binh	***Province***	***288***	***65***	***108***	***461***	***63***
	Lac Son	37	13	9	59	63
	Tan Lac	36	9	9	53	67
	Mai Chau	43	7	8	57	75
	Da Bac	54	4	21	78	69
	Cao Phong	13	9	4	26	51
Total		**2,303**	**588**	**851**	**3,741**	**61**
Whole Country		15,845	10,232	6,993	33,070	48

Source: Statistical Yearbook of each province, 2015. Decision No. 1467/QD-BTNMT (21 Jul. 2014) by MONRE in Statistical Year Book of Vietnam

As shown above, Da Bac district in Hoa Binh has the highest proportion of forest land (69%,), while Sin Ho district in Lai Chau province shows the lowest proportion (25%).

1.2.3 Forest Conditions and Change of Forest Area

The present forest conditions in the communes relating to the potential target sites were confirmed by analyzing the latest National Forest Inventory and Statistic (2015 NFI&S) data approved by PPCs of the target provinces in 2016. **Table II-1-2** attached to this report shows the current forest conditions in the 97 communes. As per the summary shown below, forests under poor or regenerating conditions account for more than 50% of the total forests in the communes in the four provinces.

Forest Area in the 97 Communes in the Four Provinces

Provinces	Evergreen broadleaves (Rich)	Evergreen broadleaves (Medium)	Evergreen broadleaves (Poor)	Evergreen broadleaves (Regrowth)	Bamboo forest	Mixed wood-bamboo forests	Lime stone forest	Plantation	Total
Dien Bien	111	3,368	2,685	27,812	49	5,313	0	3,395	42,733
Lai Chau	19	3,783	16,455	58,285	530	2,436	8,803	14,988	105,299
Son La	3,777	6,427	5,243	41,395	1,813	9,974	12,757	2,791	84,178
Hoa Binh	53	5,947	4,765	24,018	689	3,086	28,612	18,961	86,130
Total	**3,960**	**19,524**	**29,149**	**151,510**	**3,081**	**20,809**	**50,172**	**40,136**	**318,340**

Source: NFI&S (2015) obtained in the provinces (adapted by the JICA Survey Team (2016))

Changes of forest areas were further confirmed by comparing the forest conditions in different years. The survey team was not able to collect the past forest inventory data stored in FORMIS of MARD during the survey period. Therefore the national forestry inventory data developed by the JICA study entitled "The Study on Potential Forests and Land Related to Climate Change and Forests in Vietnam (2012)" was used as a substitute. As the satellite images used and the methodologies employed by the JICA Study and the 2015 NFI&S were not the same, it was difficult to ensure the consistency between the latest NFI&S data and JICA study's. Hence, the preparatory survey team decided to use only the national inventory data of the JICA study for the comparison analyses. The results of the analysis of changes of forests in the 97 communes between 1990 and 2010 are shown in **Table II-1-3** attached to this report, and summarized below.

Transition of Forest Area in 97 Communes between 1990 and 2010

Province	Year	Evergreen broadleaves (Rich)	Evergreen broadleaves (Medium)	Evergreen broadleaves (Poor)	Evergreen broadleaves (Regrowth)	Bamboo Forest	Mixed Wood-Bamboo Forests	Lime Stone Forests	Plantation	Total
Dien Bien	1990	3,216	55,843	44,450	29,546	7,624	28,012	13,531	592	182,814
	2010	1,306	18,997	18,017	263,946	1,785	22,859	12,865	10,526	350,302
	Difference (1990-2010)	-1,911	-36,846	-26,433	234,400	-5,839	-5,153	-666	9,935	167,487
Lai Chau	1990	5,113	96,084	70,258	32,432	1,273	10,272	2,088	1,003	218,522
	2010	155	74,269	76,699	293,345	18	11,305	2,754	14,369	472,914
	Difference (1990-2010)	-4,958	-21,815	6,441	260,913	-1,255	1,033	666	13,367	254,391
Son La	1990	21,932	34,381	55,857	34,241	17,938	19,859	49,230	2,343	235,780
	2010	9,924	38,338	46,532	339,303	55,750	16,503	85,648	13,919	605,917
	Difference (1990-2010)	-12,008	3,958	-9,325	305,062	37,813	-3,356	36,418	11,575	370,137
Hoa Binh	1990	2,264	10,979	15,692	19,799	5,872	9,052	47,543	15,378	126,580
	2010	0	3,679	8,662	40,321	7,429	7,318	47,415	90,116	204,940
	Difference (1990-2010)	-2,264	-7,301	-7,030	20,522	1,558	-1,734	-129	74,738	78,360
Four Province	1990	32,525	197,287	186,257	116,018	32,706	67,195	112,393	19,315	763,697
	2010	11,385	135,283	149,910	936,916	64,983	57,985	148,682	128,930	1,634,073
	Difference of forst area (1990-2010)	-21,141	-62,004	-36,347	820,897	32,276	-9,210	36,289	109,615	870,376

Source: The Study on Potential Forests and Land Related to Climate Change and Forests in Vietnam (2012)

The results of the analysis suggests that:

i) The total forest cover in and around the target protection forests and nature reserves in the four provinces has increased for the two decades because of the expansion of "regenerating evergreen broadleaf forests" and "plantation;"
ii) The "rich and medium evergreen broadleaf forests" in the same areas have constantly decreased for the same period; and
iii) The quality of forests has been degraded between 1990 and 2010 though the forest coverage has expanded.

1.2.4 Forest Land Allocation

The preparatory survey team was not able to collect clear and detailed data on the status of forest land allocation status in the 15 districts during the survey period. Instead, the land allocation status of the target protection forests and special use forests in the 15 districts was confirmed by interview to the PFMBs and SUFMBs concerned. **Table II-1-4** attached to this report shows the land allocation conditions with forest status in the 6 communes relating to the target protection forests and nature reserves. Its summary is shown below.

Land Allocation Conditions of the Proposed Areas

Province	Target PF/SUF	No. of commune	Areas allocated to MB	Areas allocated to HHs	Area unallocated	Total Area
Dien Bien	Dien Bien PF	3	1,301	0	5,211	6,512
	Muong Cha PF	1	4,953	0	453	5,406
	Tuan Giao PF	2	0	0	6,498	6,498
	Muong Phang SUF	2	1,004	0	1,768	2,772
	Sub-total	**8**	**7,258**	**0**	**13,929**	**21,187**
Lai Chau	Nam Ma PF	13	12,925	0	0	12,925
	Nam Na PF	8	15,958	0	0	15,958
	Tan Uyen PF	9	11,429	0	0	11,429
	Than Uyen PF	10	11,638	0	0	11,638
	Sub-total	**40**	**51,950**	**0**	**0**	**51,950**
Son La	Copia SUF	3	14,728	0	0	14,728
	Thuan Chau PF	3	7,343	0	0	7,343
	Quynh Nhai PF	5	0	0	9,163	9,163
	Xuan Nha SUF	4	22,943	0	0	22,943
	Sub-total	15	**45,014**	**0**	**9,163**	**54,177**
Hoa Binh	Da River PF	18<1	1,704	22,639	0	24,343
	Ngoc Son - Ngo Luong SUF	7<1	2,809	12,818	0	15,627
	Hang Kia-Pa Co SUF	8	5,252	0	0	5,252
	Phu Canh SUF	4<1	5,304	0	0	5,304
	Sub-total	**34<1**	**15,068**	**35,457**	**0**	**50,526**
Total	**Total**	**97**	**119,291**	**35,457**	**23,092**	**177,840**

Note: <1 Three (3) communes in Da River Watershed Protection Forest also relate to Phu Canh SUF; therefore, the total number of communes selected as target communes in Hoa Binh is 34.
Source: JICA Preparatory Survey Team (2016)

As shown above, parts of the target protection forests and nature reserves in Dien Bien, namely Dien Bien Protection Forest, Tuan Giao Protection Forest, and Muong Phang SUF, are still unallocated and currently managed by CPCs concerned, while a significant part of Ngoc Son-Ngo Luong SUF and almost all the areas of Da River Protection Forest are allocated to local communities and households.

In Dien Bien province, DARD/PPC of the province has shown the intention to secure the land use rights of protection forests and/or special use forests for the PFMBs/SUFMBs concerned. In fact the lands belonging to Dien Bien PFMB and Muong Phang SUFMB has been just allocated to the management boards in the end of 2015. This tendency was not seen in Hoa Binh as the lands have been already allocated to either the SUFMBs or communities/households. The survey team also confirmed that DARD/PPC of Hoa Binh province had no intention to convert the land tenure certificate of protection forests/special use forests from communities/households to PFMBs/SUFMBs.

It is likely true that a substantial portion of protection forests or special use forests allocated to the PFMBs/SUFMBs have been used by local communities who have lived in and around the protection forests and nature reserves. Hence, due consideration should be given to not only

the *de jure* or legitimate land use rights but also the *de facto* or customary land use rights over the target protection forests and nature reserves when determining the project areas.

1.3 Socio-economic Conditions

1.3.1 Demographic Conditions

The total population in the 97 communes amount to 358,655, which accounts for around 30% of the total population of the 15 districts.

Population and Population Density in the Project Area

Province	Target district	Target district general					Project area				
		Area (km^2)	Population (persons)	Population density (person/km^2)	No. of commune	No. of village	No. of communes	No. of villages	Area (km^2)	Population (persons)	Population density (person/km^2)
Dien Bien	***Sub-Total***	***3,975***	***235,411***	**59**	***56***	***823***	***8***	***114***	***879***	***30,690***	**35**
	Dien Bien	1,639	113,584	69	25	463	5	85	513	18,753	37
	Muong Cha	1,199	42,380	35	12	123	1	11	171	3,807	22
	Tong Giao	1,137	79,447	63	19	237	2	18	195	8,130	42
Lai Chau	***Sub-Total***	***3,215***	***197,132***	***61***	***44***	***541***	***40***	***490***	***3,002***	***172,658***	***58***
	Sin Ho	1,526	79,720	52	22	233	21	223	1,445	71,741	50
	Tan Uyen	897	54,132	60	10	142	9	134	834.0	50,533	61
	Than Uyen	792	63,280	80	12	166	10	133	723.0	50,384	70
Son La	***Sub-Total***	***3,588***	***280,191***	***78***	***54***	***902***	***15***	***263***	***1,567***	***77,795***	***224***
	Thuan Chau	1,549	162,002	156	29	568	6	140	650.0	35,743	55
	Quynh Nhai	1,060	60,220	59	11	189	5	75	485.0	22,739	47
	Van Ho	979	57,969	67	14	145	3	25	340.0	11,085	33
	Mac Chau	1,074	107,200	99	15	221	1	23	92.0	8,228	90
Hoa Binh	***Sub-Total***	***2,722***	***375,448***	***731***	***108***	***1,034***	***34***	***251***	***1,140***	***77,512***	***68***
	Da Bac	778	53,106	68	20	163	11	88	450.0	25,835	57
	Mai Chau	571	54,333	95	23	138	12	69	339.0	24,406	72
	Tan Lac	530	87,060	164	24	245	5	29	143.0	8,416	59
	Cao Phong	256	43,212	169	13	124	2	13	62.0	4,510	73
	Lac Son	587	137,737	235	28	364	4	52	146.0	14,345	98
Total		**13,500**	**1,088,182**	**81**	**262**	**3,300**	**97**	**1,118**	**6,588**	**358,655**	**54**

Source : JICA preparatory survey (2016), based on the respective District Statistical Year Book 2015 and survey result

Out of 97 communes and 358,655 populations, Lai Chau occupies the largest share, which accounts for 40 communes with 172,000 population, while the number of communes and populations related to the potential target sites in Dien Bien are 8 and 30,690, respectively, which are the smallest shares among the four provinces.

The following table shows the average population growth in the 15 districts from 2012 to 2015.

Population Growth Rate of the Target Districts in the Project Area

Province	District	2012	2013	2014	Prel. 2015
Dien Bien	Dien Bien	1.35%	0.99%	1.02%	1.15%
	Muong Cha	1.56%	1.58%	1.42%	1.58%
	Tuan Giao	1.31%	1.22%	2.00%	2.50%
Lai Chau	Sin Ho	2.32%	N.A.	2.04%	0.98%
	Tan Uyen	3.30%	2.25%	2.40%	3.75%
	Than Uyen	2.04%	1.97%	2.90%	1.40%
Son La	Thuan Chau	1.70%	1.56%	1.53%	1.52%
	Quynh Nhai	1.77%	1.65%	1.63%	1.28%
	Moc Chau	1.02%	1.01%	2.23%	1.53%
	Van Ho	1.64%	1.44%	1.46%	2.09%
Hoa Binh	Lac Son	0.78%	0.64%	0.86%	0.85%
	Tan Lac	0.77%	3.63%	1.29%	1.24%
	Mai Chau	1.32%	1.20%	0.88%	1.10%
	Da Bac	2.55%	0.64%	0.86%	0.78%
	Cao Phong	0.77%	0.64%	0.86%	1.66%
Average		1.52%	0.81%	1.54%	1.48%

Source: Provincial and district statistic books 2015

The average annual population increase in the 15 districts from 2012 to 2015 is estimated at 1.54% per annum. Tan Uyen district in Lai Chau shows the highest increase of 3.75% per

annum, while the same rate in Da Bac district in Hoa Binh is lowest (0.78%) among the districts.

1.3.2 Ethnic Groups

Like in the case of the four target provinces, ethnic groups are the majority populations in the 15 districts. The overall proportion of ethnic minorities to the total populations in the 15 districts is estimated at 86%. The composition of ethnic groups are diverse although the majority of them are classified into five groups as shown below.

Ethnic Composition of the Project Area

Province	District	Proportion to total population		Ethnic Minorities (%)									
		Ethnic minority	Kinh group	Thai	H'mong	Muong	Dao	Khu Mu	Tay	La Ha	Khang	Lu	Others
Dien Bien	Province total	82%	16%	38		35		4					5
	Muong Cha	91%	9%	16	66								9
	Tuan Giao	89%	11%										
	Dien Bien	70%	30%										
Lai Chau	Province total	85%	15%	34	23		12						16
	Sin Ho	95%	5%	30	33		23	2				5	2
	Tan Uyen	86%	14%	48	17		4						17
	Than Uyen	85%	15%	72	11		1	1					
Son La	Province total	84%	16%	54	16	7							7
	Quynh Nhai	96%	4%	83	4		2			2	4		1
	Van Ho	94%	6%	42	24	21	6						1
	Moc Chau	67%	33%	33	18								16
	Thuan Chau	93%	7%	76	11			1		2	3		
Hoa Binh	Province total	74%	28%	4		63			3				2
	Lac Son	90%	10%			90							
	Tan Lac	84%	16%	84									1
	Mai Chau	84%	16%	60	7	15	2						
	Da Bac	89%	11%			34	13		42				
	Cao Phong	72%	28%										
Average		86%	14%	-	-	-	-	-	-	-	-	-	-

Source : JICA Preparatory Survey Team (2016)

Although the details of ethnic groups at the commune level were not available, data shown above suggest that the tendency of ethnic composition varies from commune to commune. As a whole, Thai is the most dominant group whose share range from 16 to 83% in the 15 districts, followed by Hmong, Muong and Dao. As each ethnic group has unique lifestyle, farming tradition and different culture, which might influence on the use of forest lands and resources, it is worth understanding their uniqueness for effective implementation of the project.

Features of the major ethnic minority groups in the target areas

Ethnic group	Feature of the major ethnic minority groups
Thai	・Living in relatively low land and conducting mainly paddy cultivation. ・As the houses are traditionally built on raised floor with stilt and wood, it often requires woods for repairing and newly building houses in case of necessity. ・Awareness on importance of education is relatively high, and the participation of women in society is also active, comparing with other ethnic minority groups.
H'mong	・As the people living in generally middle-high land where the living condition is severe, slash and burn cultivation in the hilly areas are common, and the situation of poverty is also serious. ・The houses are built on soil, with clay wall (sometimes mixed with wooden board. ・Traditionally, scale of household is large and male dominated. The literacy rate of women is extremely lower than men, and women are passive, without participating in decision making in general.
Muong	・Relatively close to Kinh culture, living in low land, with conducting paddy cultivation. ・The houses are traditionally built on raised floor with stilt and wood, or built directly on soil, depending on the condition of the living area.

Ethnic group	Feature of the major ethnic minority groups
Dao	・Living in relatively high mountain, with conducting slash and burn cultivation. The main crops are upland rice and maize. ・The houses are traditionally built on raised floor with stilt and wood, built directly on soil or the mixture of the both, depending on the condition of the living area. ・Keep tradition, particularly following to the traditional religion. As there is a tradition to take herbal bath with natural herbs (including wood skin and herbal plants, mushroom etc.) from forest, the use of NTFP is high.

Source: JICA preparatory survey team(2016)

1.3.3 Labor

The labor force population in 2015 in the four provinces is estimated at 62%. In the four provinces, the labor force engaged in the agriculture, forestry and fishery sector has declined from 74% to 69% for the last four years, while those of the industry and construction sector and the service sector have slightly increased for the same period.

Labor Force Population in the Provinces

Item	Unit	Dien Bien					Lai Chau				Son La				Hoa Binh				Total/Average			
		2012	2013	2014	Prel. 2015	2011-2015	2012	2013	2014	Prel. 2015	2012	2013	2014	Prel. 2015	2012	2013	2014	Prel. 2015	2012	2013	2014	Prel. 2015
Population	1000 Person	520	528	538	548	547	403	415	423	431	1,134	1,151	1,170	1,192	805	810	817	824	2,862	2,904	2,948	2,995
Labor force from 15 year older	1000 Person	282	289	295	302	320	237	242	248	256	711	727	735	753	540	554	551	555	1,769	1,813	1,829	1,866
% of labour force/total population	%	54%	55%	55%	55%	58%	59%	58%	59%	59%	63%	63%	63%	63%	67%	68%	67%	67%	62%	62%	62%	62%
Labor force contribution by sector																						
- Agriculture, Forestry and Fishery	%	N/A	N/A	N/A	N/A	66	75	72	69	67	77	76	75	74	70	69	67	66	74	72	70	69
- Industry and Construction	%	N/A	N/A	N/A	N/A	12	9	10	11	11	10	10	12	13	19	19	20	21	13	13	14	15
- Service	%	N/A	N/A	N/A	N/A	22	17	19	21	22	13	14	13	13	11	12	13	14	13	15	16	16

Source: Provincial statistic yearbooks 2015

1.3.4 Economic Conditions

(1) Household Income

The results of the socio economic survey conducted by the preparatory survey team reveals that the average per capita annual income in the sampled communes is about VND 9,200,000, which is far lower than the provincial average of VND 22,309,000 per person per annum. The results suggest that the average per capita annual income in the sampled communes in Son La and Hoa Binh may be less than 40% of the provincial averages.

Average Annual Income per Capita in the Surveyed Communes

(Unit: VND)

Province	District	Commune	Average Annual Income (VND/prs/year)
Dien Bien	*Provincial average*		*17,052,000*
	Dien Bien	Muong Nha	10,000,000
	Tuan Giao	Ta Ma	6,000,000
	Muong Cha	Muong Tung	10,000,000
Lai Chau	*Provincial average*		*19,086,000*
	Tan Uyen	Nam So	7,200,000
	Than Uyen	Pha Mu	N.A.
	Sin Ho	Phang So Lin	N.A.
Son La	*Provincial average*		*24,696,000*
	Van Ho	Chieng Xuan	6,000,000
	Quynh Nhai	Muong Giang	12,000,000
	Thuan Chau	Ban Lam	6,000,000
Hoa Binh	*Provincial average*		*28,404,000*
	Lac Son	Ngoc Lau	12,000,000
	Mai Chau	Pa Co	7,300,000

Province	District	Commune	Average Annual Income (VND/prs/year)
	Da Bac	Tien Phong	13,500,000
	Cao Phang	N.A.	N.A.
Average	Provincial average		*22,309,500*
	Average of target communes		*9,200,000*

Source : JICA Preparatory Survey Team (2016)

Local communities in the sampled communes may live at subsistence level, if anything, they may eke out an existence, as income generating opportunities in the communes are extremely limited. The major sources of income in the sampled communes are: i) sales of maize and cassava, ii) sales of other crops but small quantity, and iii) occasional sales of cattle for urgent cash needs.

Only households whose family members are working for government institutes or schools, or who run a grocery shops in communes can have regular cash income.

(2) Poverty Situation

The poverty rate in the 15 districts has been drastically reduced from 38.9% to 22.4% for the last five years. Compared with the latest national poverty rate (2014) of 6%, the rate of the target districts is still about four times higher.

Poverty Rate of the Target Districts

Unit:%

Province	District	2011	2012	2013	2014	2015
Dien Bien	*Whole province*	***45.3***	***38.2***	***35.2***	***32.6***	***28.0***
	Dien Bien	25.2	20.8	17.6	15.7	14.6
	Tuan giao	54.8	47.8	45.3	42.3	39.3
	Muong Cha	60.6	56.4	53.5	50.7	46.1
Lai Chau	*Whole province*	***47.2***	***42.8***	***41.0***	***38.8***	***N.A.***
	Sin Ho	48.0	41.6	34.9	29.9	24.9
	Than Uyen	43.6	34.8	26.3	22.1	19.0
	Tan Uyen	39.3	28.0	22.2	20.1	16.0
Son La	*Whole province*	***31.9***	***28.0***	***27.0***	***23.9***	***22.4***
	Quynh Nhai	42.0	33.3	25.9	22.6	19,5
	Van Ho	-	-	57.3	53.0	51.0
	Moc Chau	18.0	16.0	14.0	13.0	12.0
	Tuan Chau	39.9	35.9	32.8	29.4	26.5
Hoa Binh	*Whole province*	***26.1***	***21.7***	***18.7***	***15.5***	***12.3***
	Da Bac	48.2	42.5	38.6	34.0	28.8
	Mai Chau	28.6	25.8	23.1	21.0	17.2
	Lac Son	47.2	38.4	27.8	22.3	18.3
	Tan Lac	33.4	26.9	23.2	17.0	11.8
	Cao Phong	23.7	21.9	19.8	15.8	12.1
Provincial average		***37.6***	***32.7***	***30.5***	***27.7***	***20.9***
Average of the target districts		38.9	33.2	29.0	25.7	22.4

Source : JICA Preparatory Survey Team (2016)

The following table shows the summary of the results of the poverty ratio assessment of the 97 communes. A total of 59 communes (or 61%) out of 97 show more than 50% of the poverty rate.

Number of Communes by Poverty Rates

Unit: communes

Poverty Rate	No. of communes	Dien Bien	Lai Chau	Son La	Hoa Binh
High (More than 75%)	7	0	4	1	1
Medium (50-75%)	52	6	16	8	22
Low (25-50%)	23	2	12	2	7

Poverty Rate	No. of communes	Dien Bien	Lai Chau	Son La	Hoa Binh
Very low (Less than 25%)	15	0	8	4	3
TOTAL	97	8	40	15	34

Source : JICA Preparatory Survey Team (2016)

The results of the socio economic survey show the tendency that relatively wealthy communes are generally located along the main roads. It suggests that the accessibility, such as access to markets and/or information and opportunities relating to livelihood improvement, may be one of the important factors for livelihood improvement.

(3) Feature of Economic Status of Household

The socio economic survey further reveals the household economy in one of the villages in the sampled communes to understand the living standard of local communities in the potential target sites. The following table shows the results of the survey made in one of the villages, Nam Danh village of Nam So commune in Tan Uyen district, Lai Chau as a typical case.

Feature of Household by Social Status in the Case of Relatively Poor Village

Indicator	Nam Danh village, Nam So commune, Tan Uyen district			
	Better- off (7%)	Medium (34%)	Near-poor (7%)	Poor (52%)
Annual income per capita (Thous.VND)	≥ 8,400	6,000-7,000	5,400-6000	≤ 5,400
Main income sources	Small businesses	No regular cash income (self sufficient with rice, cattle and poultry)	No regular cash income (self sufficient with rice, cattle and poultry)	No regular cash income (self sufficient with rice, cattle and poultry)
Average cultivation land area (ha/HH)	1.8	0.6-0.8	0.3	0.2-0.3
Average production forest area (ha/HH)	2.0	0.1-1.0	0.3	0-0.3
Food shortage	No	No	1-3 months/year	1-3 months/year
Number of buffalos/HH	3-5 buffalos	2-3 buffaloes	0-1 buffaloes	0-1 buffaloes
Number of pigs/HH	3-4 pigs	1 pig	1 pig	1 pig
Number of chickens/HH	19 chickens	14 chickens	1-2 chickens	1-2 chickens
Others	6 ducks	-	-	-

Source: JICA Preparatory Survey Team (2016)

As shown in the table above, the poor and near-poor households in the village are even not able to fulfill subsistence for 1-3 months per year. Land tenure is considered as one of the key factors that affect the annual income and living standard of households as indicated that the households below the near poor have only 0.2-0.3 ha/HH on average. It is reported that communities rely on loans from the government rural credit agencies, such as social policy bank, and/or from the relatives or other villagers for their daily lives during the food shortage period.

(4) Gender and livelihood Activities

Due consideration should be given to gender issues for achieving sustainable forest management. The socio economic survey made in the sampled communes indicates that burden of women is higher than men because they have various domestic works/duties such as cooking, taking care of children, and feeding livestock, in addition to farming which are usually carried out by both men and women. It is also essential to recognize the roles of men and women for livelihood development and forest management to make the project plan easily acceptable by a wide range of local communities. For instance, the socio economic survey

reveals that both male and female are responsible for collection of firewood, but female is responsible for harvest of forest vegetables and medicinal plants from forests, while collection of bamboo poles, which requires physically heavy work, is the role of men.

Looking at the differences in roles of women among ethnic groups, the preparatory survey team confirmed the following differences:

- Thai group, which is the major ethnic group in the target provinces, allows women to actively participate in the decision making process as compared to the other ethnic groups;
- In fact, there are some villages led by women village heads in the communes dominated by Thai group;
- Women in Hmong, Muon, and Dzao groups are more passive and reserved in the decision making as they usually sit or stand at the back of the meeting room without being involved in the discussions:
- Hence, women in the same ethnic groups have little formal education, which is one of the causes of limited livelihood improvement opportunities for women.

1.3.5 Budgets and Expenditures

The structures of budgets and expenditures of the 15 districts are the same as those of the provinces. The total revenues are generally composed of local revenue and support from the central government, which accounts for more than 90% of the revenue. The majority of the expenditures are spent for the administrative expenses, especially for the education, health, and culture sectors. The budget for development investment (mainly for infrastructure development) is limited from zero to 11% in the respective districts. It suggests that the emphasis of the public services at the district level is generally put on social services but not infrastructure development. The following table shows the revenues and expenditures of selected districts from 2011 to 2014.

Revenue and Expenditure of Sample Target Districts (2011-2014)

(unit: VND million)

Items	Dien Bien			Lai Chau			Son La			Hoa Binh		
	Tuan Giao district			Tan Uyen district			Thuan Chau district			Da Bac district		
	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
Total Revenue	465,456	448,181	515,154	395,611	404,230	415,880	664,051	880,037	988,797	354,498	429,335	443,005
of which: + Local revenue	48,281	42,078	19,795	21,267	26,116	27,118	38,354	61,168	26,977	7,557	10,047	16,085
+ Support from central state budget	417,175	406,103	468,457	340,034	307,955	344,742	583,627	759,711	858,871	331,616	392,097	404,184
+ Other revenue (Revenue from the settlement balance last year; revenues transferred from the perious years)			26,902	55,577	70,159	44,020	42,070	59,158	102,949	15,325	27,191	22,736
Total Expenditure	465,465	448,181	509,136	392,032	396,950	375,260	611,660	815,874	988,344	350,771	426,388	441,363
of which: + Development investment	-	-	18,446	-	-	-	70,258	21,393	24,702	12,837	2,636	4,838
+ Administrative expense	465,465	448,181	420,014	187,152	239,216	264,211	510,628	572,574	431,185	320,131	396,632	408,880
- Economic administrative expense	34,471	42,971	16,107	14,459	17,696	24,981	22,517	31,477	42,051	-	-	-
- Cultural, education and health care administrstive expense	234,406	236,987	288,589	136,545	172,018	181,616	340,022	349,942	256,769	-	-	-
- Administrative management expense	25,673	23,110	77,648	15,347	20,900	22,086	26,963	31,493	23,080	-	-	-
- Commune budget expenditure	-	-	-	20,801	28,602	35,528	121,126	159,662	109,285	-	-	-
- Other administrative expense			37,670									
+ Other (Such as national target program and some missions etc)	170,906	145,113	70,676	204,880	157,734	111,049	30,358	46,214	532,457	17,803	27,120	27,645

Source: Respective district statistic year book 2015 of Dien Bien, Lai Chau, and Son La province, SEDP of the Mai Chau DPC, 2015 in Hoa Binh

1.3.6 Education and Health Services

There are a total of 346 primary schools and 282 lower secondary schools in the 15 districts, which means that each commune in the district may have one or two primary school/s and one lower secondary school on average. Considering the geographical size of communes which

may have more or less 10 villages on average, it may not necessarily be easy for children in the communes to access to schools.

Number of Schools and Health Care Establishments in the Target Districts

Province	Target district	No. of commune	Number of schools (2015-2016)			Number of health establishments in 2015		
			Primary school	Lower secondary school	Upper secondary school	Hospital	Regional polyclinic	Other medical service unit
Dien Bien	***Sub-total***	***56***	***82***	***48***	***11***	***3***	***8***	***56***
	Dien Bien	25	38	19	6	1	3	25
	Tuan Giao	19	28	16	3	1	3	19
	Muong Cha	12	16	13	2	1	2	12
Lai Chau	***Sub-total***	***44***	***63***	***49***	***9***	***3***	***9***	***44***
	Sin Ho	22	27	23	3	1	4	22
	Than Uyen	12	17	14	4	1	2	12
	Tan Uyen	10	19	12	2	1	3	10
Son La	***Sub-total***	***69***	***95***	***83***	***12***	***4***	***3***	***69***
	Quynh Nhai	11	16	14	2	1	1	11
	Van Ho	14	16	15	2	1	1	14
	Moc Chau	15	22	22	4	1	0	15
	Thuan Chau	29	41	32	4	1	1	29
Hoa Binh	***Sub-total***	***109***	***106***	***102***	***15***	***5***	***10***	***109***
	Da Bac	20	24	20	3	1	2	20
	Mai Chau	23	19	19	2	1	2	23
	Lac Son	29	31	29	4	1	3	29
	Tan Lac	24	19	20	4	1	2	24
	Cao Phong	13	13	14	2	1	1	13
Target district total		**278**	**346**	**282**	**47**	**15**	**30**	**278**
Average per commune			**1.24**	**1.01**	**0.17**	**0.05**	**0.11**	**1.00**

Source: Provincial statistic year book (2015)

There are 15 hospitals, 30 regional polyclinic and 278 medical service units are available in the 15 districts. The data suggest that at least one hospital and one to four regional polyclinics exist in each district, while one or two medical service units are allocated to each commune. It is also judged that the current conditions may not satisfy local people's needs.

1.3.7 Small-scale Rural Infrastructure

(1) Commune Level Roads

Commune level roads are generally classified as "commune roads" or "village roads," which are managed and maintained by local communities. The total length of commune level roads in the district ranges from 248 km in Tan Uyen district in Lai Chau to 1,661 km in Lac Son district in Hoa Binh. The density of commune level roads is lower in some districts in Lai Chau and Son La (i.e., Tan Uyen, Thuan Chau, and Moc Chau), while the same is higher in those in Hoa Binh, especially Da Bac district. Most of the commune level roads are earth roads, which might not be passable during the rainy season. In particular, the ratio of earth roads in the 15 districts except two districts (Tan Uyen and Than Uyen) in Lai Chau and three districts (Mai Chau, Lac Son, and Tan Lac) in Hoa Binh is more than 80% of the total length of the commune level roads as shown below.

Existing Rural Road in the Target Districts

Province	District	Length of Roads by pavement Type (km)					Road Dencity		Ratio of Soil Road (%)
		Asphalt	Concrete	Gravel	Soil	Total	per person (km/ 1000 person)	per area (km/ km2)	
Dien Bien	Dien Bien	25	29	47	1,366	1,467	12.9	0.9	93.1
	Muong Cha	0	1	0	309	310	7.3	0.3	99.7
	Tuan Giao	3	19	6	674	702	8.8	0.6	96.0
Lai Chau	Sin Ho	0	90	0	1,138	1,228	16.2	0.8	92.7
	Tan Uyen	0	36	20	192	248	4.6	0.3	77.4
	Than Uyen	8	131	7	255	401	6.3	0.5	63.6
Son La	Moc Chau	66	3	3	380	452	4.2	0.4	84.1
	Quynh Nhai	0	0	0	439	439	7.3	0.4	100.0
	Thuan Chau	47	10	44	885	986	3.2	0.6	89.8
	Van Ho	0	26	0	835	861	14.9	0.9	97.0
Hoa Binh	Da Bac	41	8	9	964	1,022	18.6	1.3	94.3
	Mai Chau	191	22	12	334	559	10.3	1.0	59.7
	Lac Son	0	310	82	1,269	1,661	12.3	3.1	76.4
	Tan Lac	48	99	59	727	933	10.7	1.8	77.9

Source: 15 District offices concerned in Dien Bien, Lai Chau, Son La, and Hoa Binh provinces

(2) Small Scale Irrigation System

In general, small scale irrigation systems indicate those managed by commune or village. As shown in the following table, there are many small scale irrigation systems existing in the 15 districts. The number of the systems ranges from 11 to 880, while the irrigation areas of the systems range from the micro level (less than 1 ha) to the medium scale (more than 100 ha). The majority of them falls within the range from 10 to 20 ha/system in general as shown below.

Summary of Irrigation System Inventory in the Target Districts

Province	District	No. of System	Area of Irrigation				Average of Canal Length		Ratio of Soil Canal in Total
			Total (ha)	Minimum	Maxmum	Average	All Types of	Soil Canal (km)	
DienBien	Dien Bien	880	3,546	0.03	200.00	4.03	1.200	0.817	68.1
	Muoung Cha	61	268	0.33	16.67	4.40	1.562	1.157	74.1
	Tuan Giao	141	1,385	0.20	150.00	9.82	1.240	0.600	48.4
Lai hau	Sin Ho	129	2,576	2.00	215.00	20.00	1.650	1.190	72.1
	Tan Uyen	103	3,073	3.00	233.00	29.80	2.410	0.530	22.0
	Than Uyen	121	2,482	2.00	158.00	20.50	2.450	0.890	36.3
Son La	Moc Chau	157	1,329	0.75	66.60	8.47	0.942	0.537	57.0
	Quynh Nhai	11	1,309	9.03	328.73	118.99	13.950	6.190	44.4
	Thuan Chau	273	952	0.42	65.62	6.30	0.950	0.570	60.0
	Van Ho	130	1,311	1.10	40.96	10.10	1.640	0.910	55.5
Hao Binh	Lac Son	184	4,472	1.00	92.00	24.30	2.350	1.080	46.0
	Tan Lac	457	4,654	3.90	40.70	15.20	1.190	0.930	78.2
	Mai Chau	152	916	0.20	53.70	6.00	1.040	0.570	54.8
	Da Bac	255	1,340	0.20	48.50	5.30	0.700	0.330	47.1

Source: 15 District offices concerned in Dien Bien, Lai Chau, Son La, and Hoa Binh provinces

(3) Rural Water Supply System

A small-scale and simple water supply infrastructure is commonly found as a rural water supply system at the commune, village, or hamlet levels. The following table shows the existing small-scale water supply systems in the target districts. The number and size of the water supply system vary with the districts from 7 units to 436 units and from 2 households to 2,589 households.

Summary of Water System Inventory in the Target Districts

Province	District	No. of System (No.)	Minimum No. of HHs per System (HH)	Maximum No. of HHs per System (HH)	Average No. of HHs per System (HH)	Total HHs (HH)	Remarks
Dien Bien	Dien Bien	436	2	345	115	8,128	
	Muong Cha	7	46	301	91	5,894	
	Tuan Giao	116	5	89	48	6,051	
Lai Chau	Sin Ho	162	8	386	69	9,123	29 of 162 systems have been broken.
	Tan Uyen	93	4	700	80	7,413	43 of 93 systems have been broken
	Than Uyen	107	11	861	104	10,681	
Son La	Moc Chau	102	14	1055	103	10,550	4 of 102 systems do not have data of No. of HHs
	Quynh Nhai	11	348	2589	1,085	11,934	
	Thuan Chau	281	8	1801	107	30,005	No. of HHs are estimated based on capasity of water.
	Van Ho	96	3	300	84	7,700	4 of 96 systems do not have HH data
Hoa Binh	Da Bac	-	-	-	-	-	There are no water supply system in the District.
	Mai Chau	13	36	266	103	1,336	
	Lac Son	28	292	2917	1,171	32,786	Data of 10 systems are omitted due to missing
	Tan Lac	-	-	-	-	-	There are no water supply system in the District.

Source: 15 District offices concerned in Dien Bien, Lai Chau, Son La, and Hoa Binh provinces

Generally, water is piped from the sources, which are mainly springs/streams or small reservoirs built for water supply or irrigation, to hamlets/villages/communes.

1.3.8 Forest and Agriculture Production

(1) Production and Marketing of Forest Products

The major forest products harvested and marketed in the 15 districts are timber, firewood and NTFPs (namely bamboo, medicinal plants and rattan) like in the case of the provinces. The socio economic survey identifies the types of forest resources collected by local communities in natural forests with the purposes as follows.

Major Use of Forest Resources in the Surveyed Communes

Major Forest Resource	Purpose	Frequency of exploitation	Sales or Domestic use	
			Domestic use	Occasional sales
1. Timber	For repairing/building house for domestic use,	Occasionally (1 to 3 times per year)	✓	✓
2. Firewood	Daily domestic use (cooking and heating	Everyday	✓	
3. Bamboo	For making fence, weaving mat, and broom making	Occasionally, but in average twice a year	✓	✓
4. Bamboo shoot	Both for home consumption and sale	June-August (once in each month)	✓	✓
5. Herbal plants	For home consumption (medicine, food for livestock, etc.)	Monthly (particularly common in Hoa Binh and Lai Chau)	✓	✓
6. Tiger grass	For making broom, picking out the particular worm living in the grass for eating/making alcohol drink	(popular particularly in Dien Bien province)		✓
7. Forest vegetable & mushroom	Home consumption	Once or twice a year	✓	
8. Honey	Mostly for sale	Once a year or in several years		✔

Source: JICA Preparatory Survey Team (2016)

As shown above, forest resources most commonly exploited and used by the local communities are timber and firewood. The former is used for fixing and building houses, while the latter is collected for daily use. Bamboo is also commonly collected by local communities for various purposes such as building fence, weaving, broom making as well as for selling occasionally. Apart from those resources, a variety of NTFPs, such as bamboo shoot, medicinal and spice plants (turmeric, lac, cardamom, line leaves, etc.), forest vegetables,

and mushroom are commonly used but likely in different ways from commune to commune in the districts.

Some of the forest resources are also marketed to the existing processing factories/middle persons/markets, such as, bamboo sold to a bamboo chop stick company in Mai Chau in Hoa Binh, medicinal/herbal plants sold to traders in Sin Ho district in Lai Chau, and medicinal herbs and mushrooms sold to pharmaceutical companies and/or traders in Hoa Binh, to name a few.

(2) Agriculture Production and Marketing

The main staple crops produced in the 15 districts are paddy rice, followed by upland rice, maize, and cassava. As shown below, some districts show higher production of paddy rice or maize (e.g., high yield of rice in Cao Phong, Dien Bien and Tan Lac, and high maize productivity in Dien Bien and Da Bac), while the production of the same crops in Tuan Giao, Muong Cha, Sin Ho and Thuan Chau are rather limited maybe due to low soil fertility and mountainous terrains in the districts.

Major Crop Produced in the Target Districts (2015)

Province	District	Paddy			Maize			Cassava		
		Planted area (thous.ha)	Production (thous.tons)	Yield (ton/ha)	Planted area (thous.ha)	Production (thous.tons)	Yield (ton/ha)	Planted area (thous.ha)	Production (thous.tons)	Yield (ton/ha)
Dien Bien*	***Sub-total***	***22.5***	***98.3***	***4.4***	***14.0***	***45.0***	***3.2***	***4.5***	***37.5***	***8.4***
	Dien Bien	13.4	71.1	5.3	4.7	22.5	4.8	2.0	20.8	10.2
	Tuan Giao	6.2	18.4	2.9	6.3	16.9	2.7	1.8	12.3	6.7
	Muong Cha	2.9	8.7	3.0	3.0	5.6	1.9	0.6	4.4	7.3
Lai Chau**	***Sub-total***	***17.0***	***72.0***	***4.2***	***9.3***	***21.7***	***2.3***	***1.3***	***14.0***	***11.1***
	Sin Ho	7.1	25.2	3.6	6.2	10.4	1.7	0.1	1.1	9.2
	Than Uyen	4.6	22.7	4.9	1.9	7.0	3.6	0.6	6.9	10.7
	Tan Uyen	5.4	24.1	4.5	1.2	4.4	3.7	0.5	6.0	12.0
Son La*	***Sub-total***	***16.1***	***55.5***	***3.4***	***47.7***	***187.6***	***3.9***	***11.5***	***143.2***	***12.5***
	Quynh Nhai	3.5	10.6	3.1	3.4	10.5	3.1	3.1	27.3	8.8
	Van Ho	2.8	12.3	4.4	12.1	51.5	4.2	0.9	11.2	13.1
	Moc Chau	2.5	11.4	4.6	23.3	93.1	4.0	0.5	8.5	16.0
	Thuan Chau	7.4	21.3	2.9	8.9	32.4	3.7	7.0	96.3	13.7
Hoa Binh**	***Sub-total***	***19.2***	***98.1***	***5.1***	***24.7***	***100.9***	***4.1***	***8.1***	***104.2***	***12.9***
	Da Bac	2.0	10.3	5.0	7.9	35.7	4.5	2.4	31.1	12.7
	Mai Chau	2.2	10.7	4.9	5.2	19.8	3.8	1.4	12.7	8.8
	Lac Son	9.0	45.7	5.0	5.7	19.8	3.5	2.6	44.9	17.0
	Tan Lac	4.6	24.3	5.2	3.9	17.2	4.4	1.1	11.6	10.6
	Cao Phong	1.3	7.0	5.4	2.0	8.4	4.2	0.5	3.9	8.3
Target district total		**74.8**	**323.8**	**4.3**	**95.8**	**355.2**	**3.7**	**25.3**	**299.0**	**11.8**

*Note: *= actual data in 2015; **=prel. data in 2015*
Source: Statistical Yearbook of each province, 2015.

The results of the socio-economic survey, especially focus group interviews, made in the sampled communes indicate that local communities still practice swidden cultivation but has gradually stopped the practice due to the limitation of cultivation areas as well as strong instructions from DPCs and CPCs concerned. This tendency is particularly confirmed in the communes under the PFES scheme.

The staple crops are generally used for self-consumption in the 15 districts, but some of them are occasionally sold to traders/middlemen who come to their places for purchase. In fact, it is commonly observed in the districts that communities often get necessary farm inputs such as improved seeds and fertilizer from traders in exchange for the sales of their products at rather lower prices set by traders. Since they also need to repay the interest to traders, it is not easy for them to accumulate savings from crop production. The lack of post harvesting facilities, such as drying yard, rice mill, and/or corn sheller, is another difficulty that they face in the post harvesting period.

Aside from the staple crops, the market demand of tea and coffee has increased in the country. Particularly, Moc Chau district in Son La and Tan Uyen and Than Uyen districts in Lai Chau are well-known as quality tea production areas in the country.

1.3.9 Experiences of Forestry Conservation Activities

Communities in the target areas have some experiences of forest protection and afforestation activities through the government program under FPDP of respective province/district, and/or PFES system, including receiving certain payment against their contribution.

The PFES scheme is widely applied to the target provinces since there are several large-scale hydropower plants existing in the watersheds covering the provinces. The PFES scheme has played an important role in the implementation of the provincial and district FPDPs in the target provinces. The following table shows the forest areas by forest owners under the PFES scheme in the four provinces.

Districts and Communes under PFES Scheme

Province	No. of districts	No. of communes	Forest areas under PFES scheme (ha)			
			Total area	Forests allocated to companies	Forests allocated to FMBs	Forests allocated to HH & communities
Dien Bien	7	10	311,241	12,480	18,731	280,030
Lai Chau	8	106	435,963	5,995	429,600	368
Son La	12	157	635,230	4,738	109,573	520,919
Hoa Binh	5	45	72,900	4,792	5,180	62,928
TOTAL	32	318	1,455,334	28,005	563,084	864,245

Source: VNFF's report No.9577/BC-BNN-Tcln DATED ON 24/11/2015

The service fees have been paid to forest owners in principle. Hence, the fees are paid directly to communes or households when they are the owners. In the case that FMBs or state enterprises own forests, the public institutions exchange the forest protection contracts with village groups and re-distribute the service fees to local communities who engage in forest protection works after deduction of the management fee (10% of the total fees).

It is estimated that local communities who either participated in forest protection contracts with FMBs or owned natural forests received VND 100,000 - 457,895 per ha in 2015 through PFES and other government forest programs based on the results of the socio economic survey. The following table shows more details.

Protection Area under Current Forest Protection Activities in the Surveyed Communes

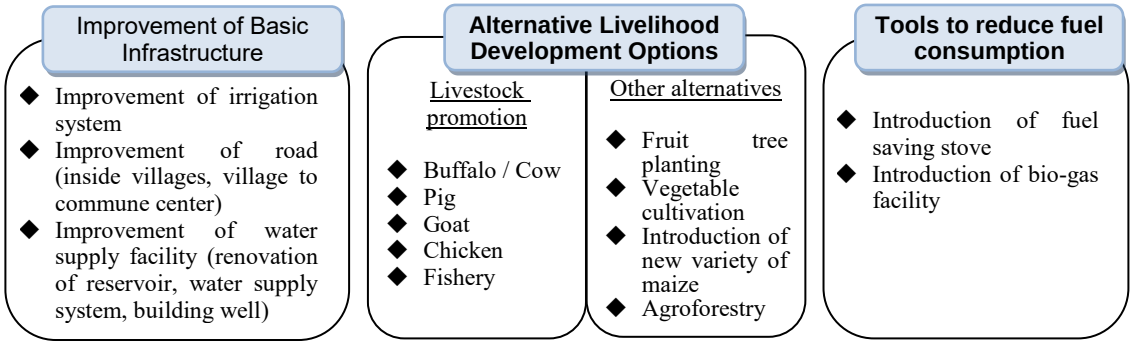
Province	District	Commune	Protection Management Fee				PFES			
			Started year	protection area (ha)	Payment as of 2015 (VND)	Unit cost (VND/ha)	Started year	protection area (ha)	Payment as of 2015 (VND)	Unit cost (VND/ha)
Dien Bien	Dien Bien	Muong Nha	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Tuan Giao	Ta Ma	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Muong Cha	Muong Tung	2014	4,431	1,243,292,000	280,589	N.A.	N.A.	N.A.	N.A.
Lai Chau	Tan Uyen	Nam So	2011	879	262,746,250	298,983	2,012	2,465	785,972,095	318,866
	Than Uyen	Pha Mu	2008	721	215,500,000	299,098	2,011	2,519	1,153,300,000	457,895
	Sin Ho	Pang So Lin	1998	1,030	308,850,000	300,000	2,011	1,156	365,138,000	316,000
Son La	Van Ho	Chieng Xuan	2011	1,209	120,938,000	100,000	N.A.	N.A.	N.A.	N.A.
	Quynh Nhai	Muong Giang	N.A.	N.A.	N.A.	N.A.	2,010	2,173	584,607,380	269,032
	Thuan Chau	Ban Lam	2011	1,427	142,700,000	100,000	N.A.	N.A.	N.A.	N.A.
Hoa Binh	Lac Son	Ngoc Lau*					2,011	170	34,000,000	200,000
	Mai Chau	Pa Co								
	Da Bac	Tien Phong					2,011	1,142	182,720,000	160,000

Source: Socio-economic survey in the JICA preparatory survey team (2016)

1.3.10 Livelihood Potentials

Local communities in the 15 districts highly depend on agriculture and forest products for their livelihoods. Due to the limited cultivation areas, steep terrains, and vulnerable household economy, crop production is not necessarily high. If anything, it is too low to maintain the subsistence level in the case of the poorest households.

Through the participatory discussions with the 12 sampled communes in the socio-economic survey, the following livelihood improvement options were proposed by local communities as effective means for improving their livelihoods and also facilitating their participation in forest protection activities. The proposed means can be categorized as three options: namely, i) improvement of basic infrastructure, ii) introduction of alternative livelihood development activities, and iii) provision of tools to reduce fuel consumption.



Source: JICA Preparatory Survey Team (2016)

Major Potential Livelihood Options in the Surveyed Communes

As the participants in the discussion raised these options based on their own experiences of external supports in the past without consideration of the conditions in the respective localities, the feasibility with a cost and benefit analysis of those options should be analyzed prior to introduction.

For example, the needs of livestock animals (cow/buffalo, pig, goat, and chicken) are generally high among communities as they are considered literally as "stock" and have played an important role in local people's daily life, especially when people urgently need cash in hand. However, it may not be easy to raise livestock animals as confirmed by several failure cases caused by i) outbreak of epidemic, ii) lack of vaccine and veterinarian when necessary, iii) insufficient animal feed, and iv) low temperature or lack of proper facilities to rear animals. It is, therefore, essential to examine local conditions and assess the capacities of communities to judge if they can develop the enabling conditions for raising animals in a proper manner.

It is also necessary to carefully examine the applicability of new tools and/or hybrid types of crops to the areas along with the capacity analysis of local communities.

1.4 Issues and Problems

1.4.1 Drivers of Deforestation and Forest Degradations

The following table shows the major threats to forest resources and their underlying causes confirmed by the socio-economic survey conducted in the 12 sampled communes/villages in the four provinces. Although the order of seriousness slightly differs among the sample communes and provinces, the major threats commonly found in the sampled

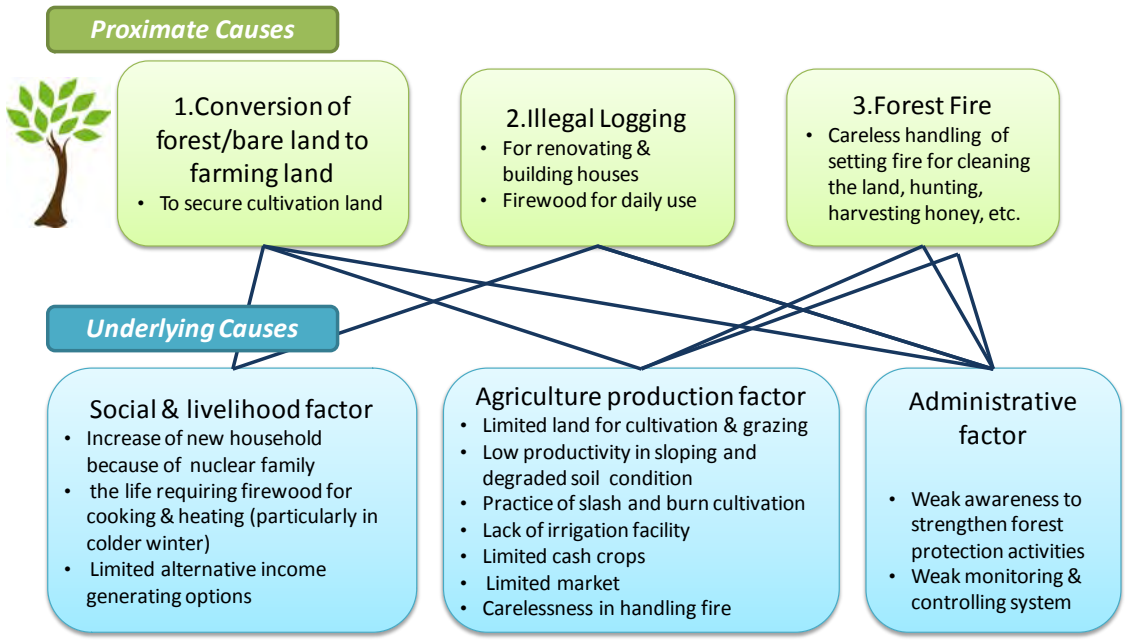
communes/villages are summarized into i) illegal logging, ii) conversion of forests to farms, and iii) forest fire.

Major Drivers of Deforestation and Forest Degradation in the Surveyed Communes

Province	Threats to Natural Forests	Underlying Causes
Dien Bien	1.Conversion of forests to farms 2. Lack of efforts of commune & district leaders and forest ranger station	1. People, particularly poor population, have expanded farm lands due to a lack of cultivation land. 2. The land allocation has not been properly done; hence the lands secured for farmers are rather limited to produce enough crops. Not all commune leaders are necessarily aware the importance of forest protection activities; therefore less effort for forest protection has been made at the commune level.
Lai Chau	1.Slash and burn cultivation 2. Illegal logging 3. Free grazing 4. Exploitation of NTFP 5. Forest fire	1. People, particularly poor population, have expanded farm lands due to a lack of cultivation land. 2. Trees have been often illegally cut by people from neighboring communes for fixing/building houses. 3. Due to a lack of cattle feed or grazing land, people have grazed their cattle in forests. 4. Medicinal plants and honey have been often illegally collected by people from neighboring communes. 5. Fire used for hunting often cause forest fires.
Son La	1.Natural hazard 2. Conversion of forests to farms 3. Illegal logging	1. Cold damage and forest fires have caused damage to forests. 2. Landless households have opened forests for gaining the cultivation lands. 3. Poor households have cut trees illegally for sales (both as timber and firewood).
Hoa Binh	1.Illegal logging 2.Natural hazard (i.e. cold weather) 3. Hunting 4. Free grazing 5. Conversion of forests to farms	1. Trees have been often illegally cut by people from neighboring communes for fixing/building houses. In general, landless or poor households tend to be engaged in illegal cutting. 2. There have been forest fires causing damage to forests. 3. People use fires for hunting and hone collection, and such a practice has often caused forest fires. 4. People have grazed cattle in forests to feed their animals due to a lack of animal feed or grazing land. 5. People, particularly poor population, have expanded farm lands due to a lack of cultivation land.

Source: JICA Preparatory Survey Team (2016)

Underlying causes of the major drivers are further analyzed and categorized into three factors as illustrated below.



Proximate Causes of Deforestation and Underlying Causes

Source: JICA Preparatory Survey Team (2016)

Conversion of forests to farms is the most prevailing cause found in the sampled communes. Landless household, such as newly established or transmigratory families, and/or poor households who have less alternative sources of generating income other than farming are the main players in conversion of forests as they need to secure food to support their family members. In many cases, conversion of forests takes place in the upper part of hilly and mountainous areas which no one has used for farming and forest patrolling can hardly reach. As farming in such marginal areas, which generally are steep sloping, rocky, and low fertile, is less productive or sustainable in combination with their conventional farming practices (e.g., swidden farming), such landless/poor farmers tend to enlarge their farms or open other forests for secure daily food.

Illegal logging caused by exploitation of timber for house construction and collection of firewood for daily consumption has been widely practiced by local communities. Socio-economic survey reports that local communities have realized the reduction of native timber species in natural forests but have paid less attention to the impact of firewood collection on forests. The survey also suggests that the consumption of firewood has increased recently because of cooling in winter due to climate changes.

The result of the sample survey in the 12 communes shows that forest fire is particularly predominant in Dien Bien and Hoa Binh, while the official data at provincial level suggests that the forest fire is serious also in Lai Chau. A variety of causes were identified in the survey, such as carelessness when handling fires for slash and burn cultivation or harvesting honey, littering of cigarette butts, and natural fires. Although its frequency is less, its impact is significant as compared to the other causes. It is important to take proactive approaches to i) the reduction of occurrences of fires and ii) the minimization of damaged areas by early extinction.

1.4.2 Issues on Sustainable Forest Management

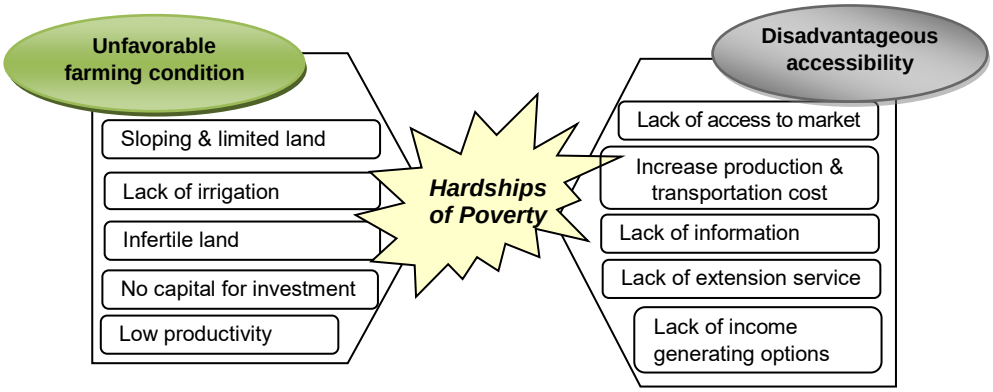
In addition to drivers (direct causes) of forest degradation and their underlying causes described above, the following issues are confirmed as hindrances to sustainable forest management in the target protection forests and nature reserves in the four provinces.

- Parts of the target protection forests and special use forests have been allocated to communities, villages, and/or households in Hoa Binh, while some in Dien Bien and Son La are still under the unallocated status. It may not be easy to use bare lands/grass lands in such areas for forest development, as local communities residing in and around the target protection forests/nature reserves may use them for farming.
- Even in the areas allocated PFMBs/SUFMBs, local communities living in and around the target areas have customarily used parts of the areas for farming. Likewise, it may not necessarily be easy to use such areas (bare lands/grasslands) for afforestation.
- Demarcations of lands allocated to local communities, households, PFMBs, and SUFMBs are not clear especially on the ground. Such situations hinder PFMBs/SUFMBs from effectively protecting and managing forests in the target areas.
- It is difficult to regulate illegal activities, such as illegal exploitation and conversion of forests into farms, as these activities are generally attributed to livelihood activities done by poor households living in the remote areas.

- The amount of payment from the PFES scheme is not necessary high enough to motivate local people to protect natural forests in the target areas, especially in Son La and Hoa Binh, because the PFES unit rate per ha is estimated at less than 200,000 VND, while the other two provinces enjoy 240,000 to 430,000 VND/ha, which is not a small amount considering their average income level.
- In some areas, local communities and/or households who enter into the forest protection contracts do not properly protect forests due to the lack of incentive, limited knowledge, and poor accessibility in the areas.
- Forests are scattered in the target protection forests and special use forests, and many of them are located in remote and mountainous/hilly areas with poor infrastructure, especially poor access roads. These situations hinder PFMBs/SUFMBs from efficiently managing forests and carrying out forest improvement activities.
- Financial and managerial capacities of PFMBs and SUFMBs are not necessary capable enough to manage and protect their assigned areas.
- Public awareness of necessity and importance of forests is still low particularly among local communities living in remote hilly and mountainous areas.

1.4.3 Issues in Livelihood Development

The issues of livelihood development in the 15 districts closely relate to the underlying causes of forest degradation and deforestation. They are diverse, inter-linked with each other, but generally derived from two fundamental conditions in the districts, namely, i) poor accessibility, and ii) unfavorable farming conditions.



Issues in Livelihood Development

Source: JICA Preparatory Survey Team (2016)

The target protection forests and special use forests are generally located in hilly and mountainous areas, which are far more remote and less accessible from commune and district centers. These conditions make it difficult for local communities to improve their livelihoods, and if anything, constrain them to follow the conventional farming practices, since they are isolated from markets, information, and extension services, and also obliged to bear higher production and transportation costs for their farming and other economic activities. Although local communities in the districts have been able to earn cash income from the sales of cassava and maize, most of them are sold to middle persons/traders at lower prices due to the

limited marketing outlets, the lack of post-harvesting facilities (drying yards and storages), and the dependency on informal loans provided by middle persons/traders.

The unfavorable farming conditions, such as a lack of irrigation systems, low soil fertility, and difficult geographical conditions (i.e., steep slopes and rockiness), keep crop productivity low, which further compels local communities to live at subsistence level.

Understanding these difficulties, GoV has provided various supports through poverty reduction programs, such as provision of agriculture inputs (e.g., seeds, fertilizer and chemicals), facilitation of access to rural credit programs particularly conditioned for poor societies through the existing banking system, and improvement of basic infrastructure. However, as these supporting programs have just focused on the "provision" of materials/services without enhancing their capacities or developing a sustainable mechanism where local communities could improve their livelihoods on their initiatives, local communities ironically tend to increase their dependency on external interventions.

It is therefore important to emphasize the development of an enabling environment that could encourage local communities to continue livelihood developing activities even without external supports, when designing the livelihood improvement component.

1.4.4 Issues on Small Scale Infrastructure Development

Low quality and low durability of the facilities are common issues found in the small scale infrastructure facilities in the 15 districts: namely commune/village roads, village irrigation systems, and village water supply systems. These issues are mainly caused by a lack of budget allocated to small scale rural infrastructure. The following table shows the major typical issues and difficulties found in the small scale infrastructure.

Issues in Livelihood Development

Infrastructure	Issues and difficulties
Commune/village road	The majority of them is earth roads and has been severely damaged by heavy rains, floods and inundation, and land slide during the rainy seasons over years. Hence, they are not easily passable during the rainy season. It is necessary to upgrade them to concrete roads to improve the accessibility of local communities especially in hilly and mountainous areas.
Village irrigation system	In general, the system is composed of i) earth-fill dam/embankment or rock-fill dam/embankment and ii) earth canals, which are not durable for a long period of time. Particularly, the main and branch canals have been deformed/damaged by heavy rains and floods/inundations during the rainy seasons. Such key facilities need to be renovated and upgraded to concrete canals to improve irrigation efficiency.
Village water supply system	Some existing water supply systems were developed without a treatment tank due to a lack of budget. There is a need to install a treatment tank to provide hygienic water to users. Some have malfunctioned since their intakes and/or distribution pipes were too old or damaged by natural disasters. It is not easy for local communities to fix such problems, the replacement of parts is fairly costly.

Source: JICA Preparatory Survey Team based on hearing from 15 district offices (2016)

1.4.5 Issues on Forest Monitoring

Although GoV has made effort to improve the forest monitoring system technically, the national monitoring system still has the following issues:

i) Lack of verification step for quality assurance and quality control (QA/QC): There is no verification process to secure the transparency, robustness, and verifiability of data collected at the field level. The validity of data collected in the field should be checked

as it is the most important factor that affects the quality of the whole monitoring system.

ii) Errors and bugs in the database system: There are still a lot of bugs and errors remaining in the database system and software. MARD plans to fix such errors in the coming two years.

iii) Compatibility of the new forest inventory data: NFI&S 2015 data are considered as the most updated and reliable data to be used as new baselines. However, it is also judged that the completeness of the data is not sufficient to be integrated into the new database system and there is still a need to correct and standardize the data for integration.

The Provincial Forest Monitoring Systems (PFMS) improved by SUSFORM-NOW can contribute to the improvement of the verification process and accuracy of the reported data.

The PFMS database has already been introduced in Dien Bien Province with support from SUSFORM-NOW; however the same database has not been established in the other provinces so far. SNRMP, the on-going held , plans to introduce the same database in the remaining provinces, namely Lai Chau, Son La, and Hoa Binh, together with provision of tablet-PCs and technical training to forest rangers in the districts concerned, so that the target provinces can operate the PFMS database system as a tool for forest monitoring. It is, therefore, expected that the forest monitoring system in the target provinces will be improved by SNRMP by the middle of the project period. Consequently, the same procedures for forest monitoring should be employed in the project so that the results of forest monitoring could be incorporated into the PFMS database systems developed at Sub-FPDs in the respective provinces.

1.5 Results of the Stakeholder Meetings

1.5.1 Rationale and Purpose of Stakeholder Consultation

The JICA guidelines on environmental and social considerations state the importance of developing and implementing environmental and social safeguards from the early stage of planning, and also early information disclosure with meaningful stakeholder participation in designing and implementation of the project. Thus, two types of consultation meetings, namely i) site-level consultation meetings and ii) provincial stakeholder consultation meetings, were conducted in the four provinces in June and July 2016.

The proposed project is classified as a Category B project which requires stakeholder meetings ‘when necessary’ (rather than as a pre-determined requirement as per Category A projects). However, the preparatory survey team judged that the site-level consultation meetings with local stakeholders should be held in the course of the survey as they would be good opportunities to obtain their opinions and feedback about the proposed project, especially potential social issues related to access to lands/resources and loss of livelihoods, so that the preparatory survey team could give due considerations to potential environmental and social issues when designing the project plan. The consultation meetings were arranged and organized by a sub-contractor under the guidance and supervision of the preparatory survey team. The specific objectives of the meetings were as follows:

1) To disclose information on project activities to local stakeholders at the early stage of project preparation;

2) To provide an opportunity for local stakeholders to provide comments and feedback on the appropriateness and feasibility of proposed activities and interventions;
3) To involve local stakeholders in the assessment of environmental and particularly social benefits and risks associated with the project; and
4) To confirm the willingness of local stakeholders to participate in the project.

Comments and feedback from the stakeholder consultation process have been noted and integrated with the final analysis and assessment of project-related environmental and social issues as well as measures intended to enhance benefits and mitigate risks.

1.5.2 Approach and Contents of the Stakeholder Consultation Meetings

The workshops were composed of three district level meetings and one provincial level meetings so that the preparatory team could exchange ideas and opinions with as many stakeholders from commune to the provincial government as possible in a short period of time. The following table shows the outline of both level meetings.

Outline of the Consultation Meetings

Session	Outline
Session 1: Project Information Disclosure	The sub-contractor presented the features of the proposed project, namely: ■ Project stage and development process; ■ Project rationale and objectives; ■ Size and scope of the Project; ■ Geographical coverage and project sites; ■ Project approaches and strategies; and ■ Project components and activities. A handout showing the outline of the project information was developed and provided to the participants in the workshop. In the session, sufficient time for clarifications and questions was also allocated.
Session 2: Appropriateness/ Feasibility Consultation	In the second session which was done by using a participatory group working approach, local stakeholders were given opportunities to express their comments on the project components, activities and approaches/strategies, and examine their appropriateness/feasibility in the local context. A plenary/round table discussion was held in the workshops at the provincial level to receive comments and feedback from the participants.
Session 3: Assessment of Environmental and Social Benefits and Risks	The local stakeholders were asked to identify potential environmental and social risks associated with the project and examine appropriate mitigation measures. Due to time constraints, they were not able to discuss all potential issues and risks, but focused mainly on social safeguard issues relating to forest development and improvement activities. Likewise, a plenary/round table discussion was held without any specific focus given to the participants in the workshops at the provincial level.
Session 4: Confirmation of willingness to participate	At the end of the meeting, all participants, either individuals or representatives of agencies or social groups, were requested to submit a "voting slip," which indicated their agreement or disagreement on the project.
Local stakeholders participated in the workshops	The major stakeholders invited to the site-level and provincial consultation meetings are shown below. The lists of the participants in both meetings at the respective provinces are shown in **Annex-A** of the Final Report. On average 30 to 40 participants attended both site-level meetings and provincial meetings, respectively.

Stakeholders invited to the Meetings

Meeting	Category	Major participants
Site level consultation meetings	Provincial government	DARD, sub-department of Forestry
	District government	DPC, DARD, Forest Ranger Station
	Forest Management Board	PFMB, SUFMB
	Commune administration	Leaders and staff CPCs
	Mass organizations	Leaders of Communal Women Unions
	Representative of local people	Villagers (farmers)
Provincial Consultation meetings	Provincial government	DARD/SubDoF, DONRE, Department of Ethnic minority
	District government	DPC, DARD, DONRE,
	Forest Management Board	PFMBs and SUFMBs
	Mass organisations	Provincial Women's Union

Source: JICA Preparatory Survey Team (2016)

In the site level consultation meetings, due consideration was given to collection of opinions and voices of vulnerable groups. In addition to representatives of communes and villages concerned, those of mass organizations, such as youth and women union, and marginal groups were intentionally invited. Although it was difficult to identify comments and suggestions given specifically given by those belonging to vulnerable groups due to time constraints, the opinions and suggestions given by the participants in the meetings at the district level could be considered as ideas representing the voices of a wide range of communitiess including socially vulnerable groups, since the majority of the populations in the target areas are ethnic minorities and economic situations are more or less the same.

1.5.3 Results of Confirmation of Willingness (via Voting)

At the end of the meetings, all the participants were requested to submit a 'voting slip'. As representatives of their respective agencies and jurisdictions, they confirmed whether or not they were willing to participate in the project. As a result, except one person, all the participants agreed and showed interests in the project.

Results of the Voting Slip

Province	Meeting site	Total votes	Yes	No	% of Yes
Dien Bien	Muong Cha & DB PFMBs	27	27	0	100%
	Tuan Giao PFMB	16	16	0	100%
	Provincial meeting	24	24	0	100%
	TOTAL	67	67	0	100%
Lai Chau	Nam Ma and Nam Na PFMB (Sin Ho district)	30	29	1	97%
	Tan Uyen PFMB (Tan Uyen district)	21	21	0	100%
	Than Uyen PFMB (Than Uyen district)	25	25	0	100%
	TOTAL	76	75	1	99%
Son La	Copia SUF, Thuan Chau PFMB (in Thuan Chau district)	36	36	0	100%
	Quynh Nhai PFMB (Quynh Nhai district)	31	31	0	100%
	Xuan Nha SUFMB (Van Ho district)	27	27	0	100%
	Provincial meeting	30	30	0	100%
	Total	124	124	0	100%
Hoa Binh	Da River PFMB, Phu Canh SUFMB (Da Bac district)	43	43	0	100%
	Hang Kia Pa Co SUFMB (Mai Chau district)	37	37	0	100%
	Ngoc Son Ngo Luong SUFMB (Lac Son district)	37	37	0	100%
	TOTAL	117	117	0	100%

Source: JICA Preparatory Survey Team (2016)

The reason why one participant expressed his unwillingness to participate in the project was that their commune has used the part of their forest lands for tea plantations operated by a tea estate in collaboration with the provincial government.

1.5.4 Summary of Key Comments and Feedback

(1) Major Comments and Feedback on Basic Project Design

The key comments and feedback on the objectives, design and components of the project were almost similar. Details of the discussions in the stakeholder consultation meetings in the four provinces are described in **Annex-A** attached to Volume II of the Final Report. Some highlights of the discussions are summarized below.

a. Major comments on overall project design and framework

- The overall project design and framework were generally acceptable and appropriate for the purpose of forest protection and improvement and livelihood improvement of local communities.
- The project should place its emphasis on the people living in the forest area, particularly poor population.
- Concise and clear information on benefits and duties should be clearly provided to local communities in the target areas at the right timing. It is also important to design the proper information dissemination methods appropriate for the respective stakeholders (ethnic group, women, the poor, farmers, province/district/commune/ village level, etc.)
- As the development needs and living conditions are different from commune to commune/ethnic group to group, the project approach, methodology and intervention should be flexible.
- It is important to involve women, youth and farmer's unions to take a leading role in disseminating project information.
- It is also important to increase the forest protection fees paid to local communities as the current payment from the PFES scheme is not enough to motivate people to participate in forest protection activities.

b. Major comments on forest development component

- Given that crops have been produced in the lands categorized as "bare land" in reality, the land users in the target sites should be definitely involved in afforestation and protection activities to be paid.
- Participation of local people in the forestry inventory and planning is essential, and a detail land use map with clear boundaries should be provided to local communities.
- In the selection of wood species introduced, priorities should be given to indigenous species. It is necessary to test and verify the adaptability of exotic species by pilot planting prior to the introduction.
- Involvement of too many communes will result in i) reduction of the scale of the project activities as well as their effects, ii) increase of difficulties in project management, and iii) increase of the project cost. Thus, the number of communes to be involved should be reduced.

c. Major comments on small scale infrastructure and livelihood improvement components

- Participants generally agreed on the idea that small scale infrastructure support focused mainly on upgrading the existing facilities. The community gave the highest priority to the upgrading of rural roads, followed by the rehabilitation of water supply facilities and irrigation systems.
- The necessity of increasing the budget for small scale infrastructure development and livelihood activities was stressed by the participants as they were crucial interventions for local communities and effective in motivating them to engage in the forest protection activities.

- The component for development of small scale rural infrastructure was expected to increase employment opportunities at the commune level as local communities could be hired as laborers for the rehabilitation works.
- The livelihood improvement should be linked with development of small scale rural infrastructure (such as road, water supply, and irrigation system) and marketing support.
- Selection of supporting options should be fully discussed with local communities. Apart from the proposed activities for livelihood improvement, provision of processing facility which can be commonly used by several communes, support for pig and cow raising, establishment of a farm-input material shop at the commune level, and provision of high yield seeds of maize were also proposed by the participants.
- Regarding fuel saving solutions, the participants showed both the interests and concerns of the installation of a biogas facility considering its large investment cost and requirement of continuous maintenance. The fuel saving cooking stove was considered useful, but not necessarily applicable to all ethnic groups (for Thai ethnic group, effective, while not suitable for Hmong).

(2) Major Comments and Feedback on Environmental and Social Issues

The key comments and feedback on environmental and social issues are summarized below. As it was an initial consultation in the designing stage of the project, only broad and general information on the project could be shared with the participants. Hence, the comments and feedback given by the participants were also general and rather identical, but they were meaningful and useful for obtaining their ideas and opinions about the project.

a. Overall comments

- Concise and clear information on benefits and duties should be clearly provided to the population in the target areas to avoid social risks such as land conflict.
- In order not to create negative impact on the vulnerable communities, it is important to pay special attention to women and illiterate ethnic minorities.

b. Major comments on project component

- The following potential risks were raised by the participants;

  <Relating To Land> Fear of loss of farming land, increment of conflicts over boundaries of lands between villages and among household in a village, increment of forest encroachment by neighboring communities, potential land disputes among households/villages/ communes.

  <Relating To Livelihood> Conflicts over benefits given by the project activities, jealous of non-participating communes, reduction of lands for food crop production, reduction of area for cattle grazing, loss of chances to log timber for building/fixing private house.

  <Other Social Issues> Less opportunities for women and old people to participate in the project activities; loss of livelihood opportunities for poor households to collect NTFPs due to the limitation of accessibility to forest resources.

- No natural environmental risk was foreseen by the participants as the project focused on forest protection and development and upgrading of small scale rural infrastructure rather than new construction.

(3) Points to be considered in the Formulation of the Proposed Project

Taking into account the comments given by the participants in the stakeholder consultations, the preparatory survey team judged that the following points should be further examined and considered in the project formulation to reflect the concerns of socially vulnerable groups to the project plan.

Selection of target sites:

- Target sites and communities/households participating in the project should be selected and determined in a participatory and transparent manner. Participatory Land Use Planning (PLUP), which is the participatory process of designing future land use in the localities, is one of the possible interventions to avoid any negative social conflict over land use.
- Any project activities which require involuntary resettlement, loss of livelihood, or restriction on access to productive areas should not be included in the project.

Support for livelihood improvement:

- It is important to involve marginalized groups, such as landless, poor households, female headed households, women, and other socially vulnerable groups, in the project activities, especially livelihood improvement activities programmed in the project, to enable the project to contribute to sustainable forest management and poverty alleviation in the target communes. Due attention should be paid to the selection of beneficiaries of livelihood development activities to ensure that a certain percentage of women and other socially vulnerable groups could participate in the project activities.
- Livelihood development options, which will be demonstrated/introduced by the project, should be selected through thorough discussions with local communities, especially socially marginalized populations, in the needs assessment workshops to be planned in the early stage of the project. It is necessary to make training courses relating to livelihood development options open to anybody in the communes/villages in principle so that any households, even marginalized families, such as the poor and women-headed families, can take part in the activities.

Creation of job opportunities:

- The forest development and improvement activities in the field, such as afforestation, ANR, and protection of natural forests are to be contracted out by PFMBs/SUFMBs to local communities, such as village working groups in the project. It is also important to make an arrangement that local communities could be employed as casual laborers for construction works of small scale rural infrastructure to increase employment opportunities for local communities in the communes.
- Socio-economic aspects should be taken into account in the selection of wood species used for afforestation in addition to their adaptability to the project areas and suitability for those introduced in protection and special use forests.

Chapter 2 Rationales and Justifications of the Project

2.1 Contribution to the Existing Policies and Plans

2.1.1 Policies and Plans in the Forestry Sector

As described in **Section 2.2** of Part I of the Final Report, the implementation of the proposed project will contribute to the achievement of the following key policies and plans in the forestry sector.

- Vietnam Forest Development Strategy (2006-2020)
- National Forest Protection and Development Plan (2011-2020)
- Forestry Sector Reform Proposal
- National Action Program on REDD+ (2011-2020)
- Provincial Forest Protection and Development Plan

More details of the relevance of the proposed project to the key policies and plans are highlighted below.

(1) Vietnam Forest Development Strategy (2006-2020) (PM Decision No. 18/2007/QD-TTg on February 5, 2007)

The Vietnam Forestry Development Strategy (2006-2020) issued in 2007 sets the following overall objectives of the forestry sector toward 2020.

a. To establish, manage, protect, develop, and use 16.2 million of land for forestry in a sustainable manner;
b. To increase the forest cover up to 47% by 2020;
c. To ensure the participation of a wide range of stakeholders from various economic sectors and social organizations in forest development;
d. To contribute to socio-economic development, environmental protection, biodiversity conservation and provision of environmental services;
e. To reduce poverty and improve the livelihoods of rural people living in mountainous areas; and
f. To contribute to national defense and security.

To achieve the objectives toward 2020, a number of strategies and tasks are set from the economic, social, and environmental points of views. Among other things, the following tasks set by the strategy are consistent with the approaches and activities of the proposed project.

a. Forest protection and biodiversity conservation for watershed protection, natural disaster mitigation, erosion control, protection of water sources as well as environment, and increase values of environmental services;
b. Increase of forest cover; and
c. Reduction of slash and burn cultivation in forest lands.

(2) Forest Protection and Development Plan (2006-2020) (PM Decision No. 57/QD-TTg on January 9, 2012)

Likewise, the "Forest Protection and Development Plan (FPDP) for the Period 2011-2020" provides the objectives and tasks that the forestry sector should achieve and address from

2011 to 2020. The following table shows the relevance of the proposed project to the Forest Protection and Development Plan on a national level.

Comparison between the National FPDP and the Proposed Project (JICA 3)

National Forest Protection and Development Plan	Proposed Project (JICA3)
Objectives: ◆ To effectively manage available forest and land resources available for forestry in an effective and sustainable manner ◆ To increase the forest cover to 42-43% by 2015 and 44-45% by 2020, respectively; increase the productivity, quality, and values of forests; restructure the sector towards increasing added values; and meet basic demands for timber and forest products for domestic consumption and export ◆ To generate more job opportunities; improve income structure of forest-dependent households; contribute to hunger elimination and poverty reduction; and ensure national security and defense	Objectives: ◆ To restore and improve watershed forests in four provinces in the Northwest region for both economic and environmental purposes ◆ To strengthen the capacity of the local governments and owners of forests, such as, management boards of protection and special use forests, organizations, groups of households, and individuals for sustainable forest management ◆ To contribute to the achievement of the goal and objectives of the National REDD+ Action Plan, especially the reduction of greenhouse gas (GHG) emissions through reduction of deforestation and forest degradation in the Northwest region
Targets: ◆ To protect 13,388,000 ha of existing forest, 750,000 ha of regenerated forests, and 12,500,000 ha of new plantations; ◆ To develop 250,000 ha of new protection and special use forests, 1,000,000 ha of new production forests, and 1,350,000 ha of replanting after harvesting; ◆ To zone 750,000 ha of regeneration mainly in protection and special use forests; ◆ To rehabilitate 350,000 ha of critically poor natural forests ◆ To conduct supplemental planting of 500 million trees ◆ To improve quality of natural forests, productivity of plantation forests by 25% in 2020 compared with 2011	Targets: ◆ To protect 45,180 ha of existing natural forests in protection forests and nature reserves ◆ To develop 16,020 ha of new forests in bare lands, grasslands, or bushes in protection forests and nature reserves ◆ To rehabilitate 12,500 ha of degraded forests in protection forests and nature reserves
Key approaches: i) Strengthening of communication and enhancement of awareness; 2) Review of planning of forest lands and improvement of management of three types of forests; 3) Strengthening of institutional set-ups and law enforcement for forest protection; 4) Facilitation of forest allocation, lease contract, and co-management; 5) Strengthening of science, technology and forestry extension; 6) Coordination with international cooperation; 7) Strengthening of market chain of forest products; and 8) Development of a mechanism for mobilization of funding sources.	Basic approaches: i) Application of community-centered concept 2) Introduction of collaborative management with benefit sharing mechanism 3) Integration of livelihood development with forest development and improvement 4) Contribution to REDD+ activities in the provinces 5) Capacity development of relevant stakeholders 6) Synchronization with JICA-T/C project

Source: JICA Preparatory Team (2016)

It is concluded that the implementation of the proposed project would directly contribute to the execution of the national Forest Protection and Development Plan from the macro point of view.

(3) Forestry Sector Reform Proposal (MARD Decision No. 1565/QD-BNN-TCLN on July 8, 2013)

The Forestry Sector Reform Proposal was issued to reform the forest sector into an economically, socially, and environmentally sustainable sector. The following specific objectives are set in the document.

a. To improve the value-added forest products and services and increase the annual average production values by 4.0-4.5% by 2020;

b. To gradually meet the demand of timber and timber products in domestic and international markets; and
c. To contribute to job creation, poverty alleviation, livelihood improvement, ecologically environmental protection aiming for sustainable development.

As shown in the following table, the proposed project is considered consistent with the Forestry Sector Reform Proposal and crucial to the achievement of the targets set by the orientations of the restructuring, except "Increase of added values to forest products."

Comparison between the Forestry Sector Reform Proposal and the Proposed Project (JICA 3)

Orientation	Target up to 2020	Contribution of the proposed project
Forest status	Overall: 16.2-16.5 million ha ◆ Production forest: 8.1 million ha ◆ Protection forest: 5.8 million ha ◆ Special use forest: 2.3 million ha	◆ Increase of forests in protection and special use forests ◆ Protection of natural forests and maintenance of quality forests in protection and special use forests
Increase of added values to forestry products	◆ Adaptation to the chain-of-custody certification ◆ Improvement of quality and increase of the average harvesting volume/productivity in natural forests and plantations ◆ Development of timber processing industry	None
Economic development in the forestry sector	◆ Restructuring and strengthening of forest management entities ◆ Transformation of state-owned forest enterprises into the other state-owned organizations ◆ Development of forestry-based private and collective economic organizations	◆ The technical and financial capacities of 10 protection forest management boards (PFMBs) and six nature reserve management boards (SUFMBs) in the four provinces will be enhanced in the course of the proposed project as the main implementers of forest development and improvement activities. ◆ The proposed project will develop silviculture infrastructure in 10 protection forests and 6 nature reserves, to improve the function of the PFMBs and SUFMBs concerned.
Mobilization and utilization of financial resources	◆ ODA fund: 18-20% of the total demand with an annual average of 700-800 billion. ◆ Increase of non-state budget investment for development in the forest sector	◆ About 85 % of the project budget will be financed from Japanese ODA budgets. ◆ About 50 % of the total loan amount is expected to be used for forest development and improvement activities.
Development of forestry ecological economic regions (Northwest region)	◆ Development and fostering of watershed protection forests, special use forests, and natural production forests in the watersheds of hydropower plants to maximize protective efficiency and enable localities to get more benefits from PFES	◆ The main component of the project, "Improvement of watershed forests" mainly aims to restore, improve, and protect protection forests and special use forests in the critical watersheds of hydropower plants.

Source: JICA Preparatory Team (2016)

(4) National Action Program on REDD+ (2011-2020) (PM Decision No. 799/QD-TTg on June 27, 2012)

The National Action Program on REDD+ (2011-2020) was approved and issued to reduce GHG emissions by i) mitigating deforestation and forest degradation, ii) increasing GHG sequestration by forests, iii) achieving sustainable management of forest resources and conservation of biodiversity, and iv) implementing the national strategy on climate change along with poverty reduction. In the period of 2015-2020, the action program aims to:

◆ Accomplish the mechanisms, policies, organizational structures, and technical capacity to ensure the proper management, coordination, and effective operation of

projects and activities under the National REDD+ action program at the national level; and

- Reduce GHG emissions through i) reduction of deforestation and forest degradation, ii) increase of GHG sequestration by forests, iii) management and sustainable development of forest resources, iv) increase of the national forest cover ratio to 44-45%, v) conservation of biodiversity and vi) improvement of livelihoods of forest owners and households concerned with forests.

Given that the proposed project will restore forests of about 16,010 ha of bare lands/grasslands/bushes, rehabilitate 13,120 ha of degraded forests, and protect 45,180 ha of natural forests, along with introduction of a collaborative management mechanism with local communities for sustainable management in the post-project period, it is judged that the proposed project could directly contribute to the reduction of GHG emissions through reduction of deforestation and forest degradation and increase of GHG sequestration by afforestation.

(5) Provincial Forest Protection and Development Plan

As described in **Section 4.6.5** of Part I of the Final Report, each province has developed the Provincial Forest Protection and Development Plan (Provincial FPDP) based on the targets set by the national FPDP. All the provinces aims to increase the forest coverage to more than 50% of the total land in the provinces by 2020 (i.e., Dien Bien: 65%, Lai Chau: 52%, Son La: 55%, and Hoa Binh: 56%). Toward this end, each province set the physical targets of the forest protection and development activities by 2020. The following table shows the summaries of the physical targets for the period of 2016-2020 and those of the proposed projects in the four provinces.

Comparison between the Physical Targets of the Provincial FPDP and the Proposed Project (JICA 3)

Items	Physical Targets of Provincial FPDPs <1				Proposed Targets of the Project <2			
	Dine Bien	Lai Chau	Son La	Hoa Binh	Dien Bien	Lai Chau	Son La	Hoa Binh
Forest Protection								
- Special Use Forest	39,040	31,078	78,043	0	2,220	0	6,050	9,970
- Protection Forest	311,084	269,888	360,643	748,486	8,180	0	3,850	14,910
- Production Forest	163,019	174,910	340,909	653,364	0	0	0	0
Rehabilitation								
- Special Use Forest	150	5,000	6,228	11,867 *	190	0	1,350	240
- Protection Forest	47,860	7,500	44,949		1,840	7,500	780	600
Afforestation								
- Special Use Forest	0	0	1,240	6,195 *	0	0	1,060	1,020
- Protection Forest	32,076	10,400	11,000		3,160	6,550	2,160	2,060
- Production Forest	19,626	36,200	14,760	31,903	0	0	0	0

Note: * The figures target natural forests in special use forests and protection forests.

Source: <1 Provincial Forest Protection and Development Plans of Dien Bien (2009), Lai Chau (2011), Son La (2014), and Hoa Binh (2011)
<2 JICA Preparatory Survey Team (2016)

It is judged that the proposed project will significantly contribute to the implementation and achievement of the provincial FPDPs of the respective provinces.

2.1.2 Policies and Plans in the Socio-economic Development

The Socio Economic Development Strategy for the period of 2011-2020 (PM Decision No. 432/QD-TTg dated April 12, 2012) is the main guiding document for socio-economic

development for the period of 2011-2020 as described in **Section 2.6.1** of Part I of the Final Report. The strategy aims to achieve sustainable and effective economic growth balancing with social equality, environmental protection, socio-political stabilization, and territorial integrity of the country. The sustainable forest development is one of the key approaches to the implementation of the strategy; therefore, the proposed project could specifically contribute to the achievement of three development orientations, namely, "effective and sustainable agriculture development," "sustainable development and of urban and rural areas," and "improvement of environment quality," of the 12 socio-economic development orientations set by the strategy.

2.2 Compliance with International Conventions

GoV ratified several international conventions related to climate change, sustainable forest management, and biodiversity conservation, such as the United Nation Framework Convention on Climate Change (UNFCCC), the United Nation Convention to Combat Desertification (UNCCD), and Convention on Biological Biodiversity (CBD), and have actively participated in the international conferences and worked on key issues to be addressed in the respective fields.

Among others, GoV has put its emphasis on the climate change issues, especially on the mitigation of climate changes through reduction of GHG emissions. As described in **Section 3.1** of Part I of the Final Report, GoV pledges to reduce Vietnam's Greenhouse Gas (GHG) emissions by 8% by 2030 compared to a Business as Usual scenario (BAU) in the recent UNFCCC Conference of Parties (CoP) in Paris. The enhancement of forest carbon sequestration including REDD+ is one of the mitigation components promoted by GoV's policy initiatives.

In addition, GOV submitted the National Biodiversity Strategy to 2020, vision to 2013 (NBSAP Ver. 3, 2013) to CBD in 2013 by revising NBSAP submitted in 2007. The overall objectives of the strategy is to preserve and sustainably use the important ecosystems, rare and precious species, and genetic resources to contribute to the development of the green economy and actively respond to climate changes. Specifically, the strategy aims to: i) improve the quality and increase the areas of protected ecosystems; ii) increase populations of endangered, rare and precious species, and iii) compile inventory information, and iv) conserve native, endangered, rare, and precious genetic resources. The proposed project will directly contribute to the implementation of the activities relating to conservation of natural ecosystems, especially natural forests in nature reserves and protection forests.

2.3 Consistency with Japanese ODA Policy

In 2015, the Government of Japan officially released the new development cooperation charter replacing the ODA charter to i) address diversified and complex issues and challenges, ii) utilize several types of funding sources for development of developing countries, and iii) facilitate international cooperation to ensure peace and prosperity. The new charter puts priority on i) quality growth and poverty eradication through such growth, ii) sharing universal values and realizing a peaceful and secure society, and iii) building a sustainable and resilient international community through efforts to address global challenges. The proposed project is expected to contribute to the quality growth and poverty eradication in the northwest region of Vietnam as its main concept is to improve forests in critical watersheds for

hydropower power plants while improving socio-economic conditions of local communities in mountainous areas.

On the other hand, the ODA policy to Vietnam gives its focus on "promotion of economic growth and strengthening of international competitiveness," "response to fragility (response to the negative impacts brought by economic development)," and "good governance." Climate change is one of the key issues to be addressed to respond the negative impacts in addition to improvement of socio-economic disparity, reduction of poverty, and stabilization of social security especially in rural areas. The proposed project will contribute to the mitigation of climate change and improvement of socio-economic conditions, especially in hilly and mountainous areas, which mainly poor ethnic minorities have resided.

Consequently, the proposed project is considered consistent with the Japanese ODA policy as a whole and its country policy as well.

2.4 Necessity of the Project Interventions

2.4.1 Necessity of the Project

(1) Importance for the National Benefits

As described in the Forest Sector Reform Proposal (MARD Decision No. 1565/QD-BNN-TCLN on July 8, 2013), forests in the Northwest region have an important role in protecting watersheds of major hydropower plants in the region, such as Hoa Binh Dam and Son La Dam. Moreover, they have also contributed to the stabilization of river flow of the major rivers flowing into Hanoi (e.g., the Da river and other tributaries of the Red river). Lowering of the innate watershed functions due to deforestation and forest degradation in the area is a serious concern for the country. Hence, aggressive interventions for improving functions of watershed forests in the region is needed for economic and social stability in the country. As the project will directly address such concerns, its necessity is considered high in terms of the national socio-economy.

Furthermore, sustainable forest management is one of the 21 national target programs approved by the Government Resolution No. 73/NQ-CP on August 26, 2016. Its general objectives are as follows: i) improvement of productivity, quality and promoting values of three types of forests, ii) contribution to reduction of natural disaster, iii) protection of the eco-environment, iv) efficient and effect response to climate change, and v) contribution to poverty reduction and improvement of local livelihoods. These objectives can be shared with the proposed project, and the proposed project will be regarded as part of the program and incorporated in the medium term and annual plans for the program.

(2) Importance for the Regional and Provincial Benefits

The target provinces have planned and programmed several measures for forest restoration, improvement, and management into the provincial FPDPs. Nevertheless, PPCs/DARDs have faced difficulties in securing sufficient budgets to implement the activities programmed in the plans. Particularly, it has been difficult for DARDs in the target provinces to improve protection forests and special use forests on a large scale since there has been no large scale government program (such as 661 program) or donor-funded project focusing on protection and/or special use forests in the region recently. It is also necessary to strengthen the forest

protection activities in natural forests in the provinces although the significant part of natural forests have been under the scheme of PFES. The PFES payments range from about VND 10,000/ha/year to VND 260,000/ha/year in the target provinces except Lai Chau; therefore, the current payment level is not necessarily sufficient to motivate local communities to engage in forest protection activities in Son La and Hoa Binh.

It is, therefore, judged that the proposed project is the requisite intervention for PPCs/DARDs of the target provinces to restore and improve degraded forests/lands and maintain the quality of natural forests in the respective jurisdictions, especially in critical watersheds for major hydropower plants. Moreover, JICA has recently launched a new technical cooperation project named the Sustainable Natural Resource Management Project (SNRMP) with an aim to help the four provinces prepare the provincial REDD+ action plans and implement REDD+ pilot activities. The proposed project will also play an important role in the implementation of the provincial REDD+ action plans and scaling up the REDD+ pilot models developed by SNRMP.

2.4.2 Necessity of the Use of ODA Support

From a macro economic point of view, the forest protection and restoration should be promoted as part of public investments as they would produce significant benefits not only for local environment but also local and regional economy. In fact, its importance has been further heightened recently as the necessity of mitigating climate changes has been increased globally. Despite its increased importance, the government investments are limited. Likewise, the share of the forestry sector in the total ODA assistance for the agriculture and rural development sectors for the last five years (2010-2015) is also limited (3.8%) as compared to its tasks and economic contribution.

ODA Share in the Agriculture and Rural Development Sectors

Sub-sector	Amount (US$ Million)	Proportion (%)
Water supply	1,302.0	53.3
Rural development	628.5	25.7
Agriculture	416.3	17.0
Forestry	92.7	3.8
Fishery	30.3	1.2
Total	2,441.8	100.0

Source: Report No. 645/CP-BC (November 20, 2015) on the use of ODA loan from 2010 2015 and Article of Director of ICD, MARD on August 5, 2015 posed on electric information page of the central economy board/committee.

Given the fact that the share of the agriculture and rural development sectors is less than 10% among all the economic sectors (e.g., transport, urban development, energy, etc.), the provision of ODA support to the forestry sector is considered quite low. It is, however, rational to use the concessional ODA scheme (for environmental protection) for the proposed project because of its nature. The proposed project is not expected to generate substantial short-term returns unlike other infrastructure development projects, but would definitely contribute to the stabilization and improvement of the regional economy as well as environment.

2.5 Necessity of JICA's Assistance

JICA is one of the largest donors in the forestry sector and have been implementing a number of forestry projects in Vietnam as listed below.

- Sustainable Natural Resource Management Project (Technical Cooperation Type Project): 2015-2020
- Protection Forest Restoration and Sustainable Management Project (Loan): 2012-2021
- Dien Bien REDD+ Pilot Project (Technical Cooperation Type Project): 2012-2013
- The Project for Sustainable Forest Management in the Northwest Watershed Area (Technical Cooperation Type Project): 2010-2015
- Afforestation Planning and Implementation Capacity Strengthening Project (Development Study): 2010-2013
- The Project for Afforestation on the Coastal Sandy Area in Southern Central Vietnam (Grant Aid Project): 2009-2014
- The Study on Potential Forest and Land related to Climate Change and Forests in Vietnam (Development Study): 2009-2012
- The Study on Capacity Development for AR-CDM Promotion in Vietnam (Development Study): 2006-2008
- The Project on the Villagers Support for Sustainable Forest Management in Central Highland (Technical Cooperation Type Project): 2005-2008
- Capacity Building for Preparing Feasibility Study and Implementation for Afforestation Projects (Technical Cooperation Type Project): 2005-2007
- Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam (Technical Cooperation Type Project): 2003-2008
- Rural Infrastructure Development and Living Standard Improvement Project III (Loan): 2002-2008

Among others, the experiences gained and lessons learned from the Protection Forest Restoration and Sustainable Management Project can be fully used for the proposed project as its project framework and organizational structure are similar to those of the proposed project. Furthermore, the technical guidelines and manuals and human resources that the Sustainable Natural Resource Management Project will develop and enhance in the course of the project can be used for the implementation of the proposed project. Consequently, the experiences of JICA are best fit to the proposed project.

Chapter 3 The Project

3.1 Project Objectives and Basic Approaches

3.1.1 Overall Goal and Project Objectives

The overall goals of the Project are: i) sustainable development, management and protection of forests in the Northwest region; ii) improvement of the production values of forest products; iii) conservation of biodiversity; and iv) reduction of poverty and improvement of livelihoods of households living in mountainous areas. In order to achieve these overall goals, the Project specifically aims:

a. To restore and improve watershed forests in four provinces in the Northwest region for both economic and environmental purposes;
b. To strengthen the capacity of the local governments and owners of forests, such as, management boards of protection and special use forests, organizations, groups of households, and individuals for sustainable forest management; and
c. To contribute to the achievement of the goal and objectives of the National REDD+ Action Plan, especially the reduction of greenhouse gas (GHG) emissions through reduction of deforestation and forest degradation in the Northwest region.

3.1.2 Basic Approaches and Project Features

The following basic approaches are to be taken for efficient implementation of the proposed project and effective achievement of the project objectives.

(1) Community-centered

Local communities residing in and around the project areas will be the key actors in the implementation of the proposed project, not only the forest development and improvement activities during the project period, but also protection and management of natural and restored forests in the post-project period, as they have legitimate or customary land use rights over the majority of the project areas. Community-centered approach should be employed as the overarching concept of the proposed project for ensuring the long term sustainability as well as efficient implementation of the project. At the same time, such an approach is essential for minimizing the adverse social impacts on local communities in the target communes relating to the project areas.

The full and effective participation of local communities, especially ethnic minorities, in the project from its planning stage is requisite to meeting the requirements for REDD+ safeguard. In particular, close consultations with local communities, which are scheduled to be arranged in the beginning of the project to identify the project areas and associated households/individuals with recognition of their substantive land use rights, are crucial for avoiding potential adverse social impacts on local communities.

As described in the previous chapter, the economic activities of local communities are considered as the main drivers of forest degradation, it is, therefore, essential to i) enhance their awareness of the importance of forests, ii) foster a sense of ownership of the project outputs, such as forests, small scale rural infrastructures and livelihood development options, and iii) develop their capacity for not only sustainable forest management but also

improvement of their livelihoods. To this end, local communities should be involved in a wide range of the project activities, such as orientation and guidance, survey and planning, implementation of forest development activities, and development of livelihood options.

Furthermore, collaborative management with local communities with a benefit sharing mechanism is expected to be an essential scheme to ensure the sustainable management of natural forests and plantations in the project areas in the post-project period. The mechanism should be examined and refined in the course of the project in close consultation with local communities.

(2) Introduction of Benefit Sharing Mechanisms

Economic and farming activities of local communities living in hilly and mountainous areas are considered as the main drivers which directly or indirectly lead to deforestation and forest degradation in the target provinces. It is, therefore, necessary to develop a mechanism where local communities can get economic benefits from forests so that they are motivated to protect forests from further degradation even after the end of the project.

PFES has been an effective scheme to encourage local communities to engage in forest protection and management in the target provinces. However, the amount of payment in the provinces except Lai Chau is not necessarily high and only existing forests in the watersheds for hydropower plants are eligible for the payment. Therefore, additional benefit sharing schemes are needed for those with less amount of PFES and newly established plantations to motivate local communities to protect forests in the post-project period.

The benefit sharing mechanism that JICA2 plans to develop can be fully used in the proposed project for management of plantations developed in the protection forests. Another benefit sharing mechanism suitable for special use forests should be examined and developed in the course of the project for sustainable management of forests in the ecosystem restoration sub-zone of special use forests in collaboration with local communities. The benefit sharing mechanisms will be one of the crucial schemes to ensure the sustainable protection and management in the target protection forests and special use forests in addition to PFES.

(3) Integration of Livelihood Development with Forest Development and Improvement

In addition to the benefit sharing mechanism, livelihood development is another crucial element for ensuring the sustainability of the project effects. As mentioned above, local communities' economic activities, such as firewood collection, slash and burn farming, animal grazing, and forest fires caused by NTFPs collection, are considered as the major causes of forest degradation in the provinces. Without any interventions that could encourage them to change their practices by providing alternative sources of income or introducing new techniques to lessen adverse impact on forests, it would be difficult to maintain improved forest resources in the post project period.

Consequently, the proposed project should emphasize not only the improvement of forests but also development of local livelihoods through rehabilitation of small scale rural infrastructure and provision of agriculture and forestry extension services and/or skill training to local communities living in and around the target protection forests and special use forests. At the same time, the project will help local communities to wisely use and manage the payments

made by the project for additional income generating activities as well as forest protection activities in the post project period.

(4) Contribution to REDD+ Activities in the Provinces

As specified in the previous sub-section (**Section 3.1.1**), one of the aims of the proposed project is to reduce GHG emissions through reduction of deforestation and forest degradation in the target provinces. It is, therefore, necessary to pay attention to the provincial REDD+ action plans (PRAPs), which will be developed or revised in the target provinces with technical cooperation from SNRMP for promotion of the REDD+ activities in the provinces.

Specific focus of the proposed project is given to protection forests and special use forests (or special use forests) in the selection of the project areas, as there are still substantial natural forests remaining in these forest lands, but significant parts of forests have faced a constant threat of forest degradation caused by local communities residing in and around the forest areas. The project will also give due consideration to forest monitoring in the project areas so that relevant offices can collect, accumulate, and report forest monitoring data, which are required for development of the MRV system at the provincial level in the future.

(5) Capacity Development of the Relevant Stakeholders

All the relevant stakeholders at every level of the project structure need to enhance their technical and managerial skills and knowledge necessary for implementation and management of the project in the beginning of the project, so that the proposed project could be operated and managed in a proper, effective, and efficient manner. Capacity development of the relevant stakeholders is a crucial cross cutting issue to be addressed in the respective components. Learning-by-doing through the implementation of the respective components should be the main approach to effective and efficient capacity development of a wide range of the stakeholders. Hence, on-the-job-training (OJT) and periodic coaching by CPMB with assistance from the project consultant will be the key capacity development activities to be carried out in the project. This approach is also in line with the latest government policy which indicates that any training of the government officers for project implementation should not be financed by loan. As mentioned above, it is expected that the project consultant will pay an important role in OJT and periodic coaching of the government officers, especially those of CPMB and PPMBs.

(6) Synchronization with JICA-T/C

The main objective of the preceding JICA technical cooperation project, namely the Sustainable Natural Resource Management Project (SNRMP), is to help the target provinces develop the provincial REDD+ action plans (PRAPs), implement REDD+ pilot activities, and enhance the capacities of relevant stakeholders in the provinces. As there are many similarities between SNRMP and the proposed project in terms of activities as well as target areas, the experiences gained and lessons learned by SNRMP can be fully utilized for the proposed project. In particular, SNRMP is expected to i) produce technical manuals and guidelines based on field experiences, ii) develop potential income generating models which can be introduced in the project areas, and iii) enhance the capacities of relevant stakeholders mainly at the district and commune levels in the target provinces. Consequently, the proposed project should be implemented in close coordination and synchronization with SNRMP

especially in the beginning of the project to make full use of the knowledge and experiences gained by SNRMP for smooth operation of the project.

Table II-3-1 shows the proposed concepts of the collaboration between the proposed project and SNRMP.

3.2 Project Areas

The project areas were selected by the two-step selection method as explained in Section 6.1.1 of Part I of the Final Report (Please refer to the flowchart of selection of the project areas in the said section.) The results of the 1st selection of the potential target sites for improvement of watershed forests are described in **Section 6.1.2** and **Table I-6-3** of Part I of the Final Report. The following sections explain the results of the prioritization and selection of the project areas in the 2nd step.

(1) Proposed Areas and Potential Target Sites for Improvement of Watershed Forest

A total of 10 protection forests and six special use forests were proposed by DARDs of the four provinces as target areas for the project. After the initial assessment of the proposed areas and consultations with stakeholders in the respective provinces, the preparatory survey team made the 1st selection of the potential target sites for improvement of watershed forests.

(2) Prioritization of the Potential Target Sites

In order to examine an optimum plan of the proposed project, the preparatory survey team further assessed the potential target sites in terms of the following aspects for evaluation.

Size of the potential area for afforestation:	The specific priority is given to afforestation among the forest development and improvement activities to contribute to the implementation of FPDPs of the provinces.
Size of natural forests:	From the view point of REDD+, the commune with a large size of natural forests is prioritized.
Proportion to the proposed PF/SUF:	The priority should be given to the commune whose lands are significantly overlapped with the target protection forests or special use forests.
Trend of forest degradation:	The necessity of the project interventions should be higher in the commune where forest degradation has progressed for the last two decades.
Poverty ratio:	The higher the poverty ratio is, the higher the priority is. Poverty is considered as one of the underlying causes of the main drivers of forest degradation.

The results of the assessment of the communes relating to the potential target sites in the four provinces are shown below.

Results of the Evaluation of the Communes relating to the Potential Target Sites

Provinces/Proposed Areas	Communes	Size of Afforestation	Area of Natural Forest	Proportion of the area to Proposed Areas	Trend of Deforestation	Poverty Ratio
Dien Bien						
Dien Bien PF	Na Tong	High	Medium	High	Medium	Medium
	Phu Luong	High	Very Low	Medium	Low	Medium
	Muon Nha	High	High	High	Low	Low
Muong Chau PF	Muong Tung	High	High	High	High	Medium
Tuan Giao PF	Phinh Sang	Very Low	Medium	High	Low	Medium
	Ta Ma	High	High	High	High	Medium
Muong Phang SUF	Muong Phang	Very Low	Low	High	Low	Low
	Pa Khoang	Very Low	Medium	High	Low	Medium
Lai Chau						
Nam Ma PF	Hồng Thu	High	Very low	Low	Very Low	High
	Lùng Thàng	Very Low	Low	Low	Very Low	Low
	Ma Quai	Medium	Very low	Very low	Very Low	Low
	Nậm Cha	Very Low	Very low	Very low	Low	Medium
	Nậm Cuổi	High	Low	Medium	Low	Medium
	Nậm Hăn	Medium	Very low	Very low	Very Low	Medium
	Nậm Mạ	Medium	Very low	Very low	Very Low	Very Low
	Nậm Tăm	Medium	Very low	Medium	High	Low
	Noong Hẻo	High	Low	Medium	Very Low	Low
	Pa Khóa	Low	Low	Low	Low	Medium
	Phăng Sô Lin	High	Low	Medium	Very Low	Medium
	Phìn Hồ	Very Low	Low	Low	Low	Medium
	Pu Sam Cáp	High	Medium	Medium	Very Low	Medium
Nam Na PF	Chăn Nưa	High	Very low	Low	Very Low	Very Low
	Làng Mô	Low	High	High	Very Low	Medium
	Pa Tần	High	Medium	High	Low	Low
	Sà Dề Phìn	High	Very low	Low	Very Low	High
	Tà Ngảo	High	Low	Medium	Very Low	Medium
	Tà Phìn	Low	Very low	Very low	Low	Medium
	TT. Sìn Hồ	Low	Very low	Very low	Very Low	Very Low
	Tủa Sín Chải	High	Very low	High	Low	Medium
Tan Uyen PF	Hố Mít	High	Very low	Low	Low	High
	Mường Khoa	High	Very low	Low	High	Medium
	Nậm Cần	High	Very low	Medium	Low	Very Low
	Nậm Sỏ	High	Low	Medium	Low	Medium
	Pắc Ta	High	Very low	Very low	Very Low	Very Low
	Phúc Khoa	Medium	Very low	Very low	Very Low	Very Low
	Tà Mít	High	Very low	Medium	Very Low	Low
	Trung Đồng	High	Very low	Very low	Very Low	Low
	TT. Tân Uyên	High	Low	High	Meidum	Low
Than Uyen PF	Phúc Than	High	Low	Medium	Low	Low
	Hua Nà	Medium	Very low	Low	Very Low	Very Low
	Khoen On	High	Very low	Medium	Low	Medium
	Mường Kim	Medium	Very low	Low	Low	Medium
	Mường Mít	High	Very low	Medium	Very Low	Low
	Mường Than	High	Very low	Low	Very Low	Very Low
	Pha Mu	High	Very low	Low	Medium	Low
	Tà Gia	High	Very low	Low	Low	Low
	Tà Hừa	Medium	Very low	Low	Very Low	Medium
	Tà Mung	High	Very low	Medium	Low	High
Son La						
Copia SUF	Chiềng Bôm	High	Low	High	Low	Medium
	Co Mạ	Medium	Medium	High	Low	High
	Long Hẹ	Low	Low	Medium	Low	Medium
Thuan Chau PF	Nam Lau	High	Medium	High	Low	Medium
	Muong Bam	Low	Low	High	Very Low	Medium
	Bam Lam	High	Very Low	High	Very Low	Medium
Quynh Nhai PF	Ca Nang	Very Low	Medium	High	Very Low	Very Low
	Muong Giang	Low	Very Low	Medium	High	Very Low
	Muong Sai	High	Low	Medium	Very Low	Medium
	Muong Chien	Very Low	Very Low	Medium	Low	Very Low
	Ma Pha Khinh	Low	Very Low	Medium	Very Low	Low

Provinces/Proposed Areas	Communes	Size of Afforestation	Area of Natural Forest	Proportion of the area to Proposed Areas	Trend of Deforestation	Poverty Ratio
Xuan Nha SUF	Chiềng Xuân	Very Low	Medium	High	Very Low	Medium
	Tân Xuân	Medium	Very Low	High	Very Low	Medium
	Xuân Nha	Very Low	Low	Medium	Very Low	Low
	Chiềng Sơn	Low	Low	Medium	Low	Very Low
Hoa Binh						
Ngoc Son-Ngo Luong SUF	Ngoc Lau	Very Low	Medium	Medium	Very Low	Medium
	Ngoc Son	Very Low	High	Medium	Very Low	Medium
	Tan My	Low	Very Low	Very Low	Low	Very Low
	Tu Do	Very Low	High	High	Low	Medium
	Ngo Luong	High	High	High	Very Low	Medium
	Nom Son	Medium	Medium	Medium	Low	Low
	Bac San	Low	Low	Low	Low	Medium
Hang Kia - Pa Co SUF	Hang Kia	Very Low	Medium	High	Very Low	Medium
	Pa Co	Very Low	Low	High	Very Low	Very Low
	Tan Son	Low	Very Low	Medium	Very Low	Medium
	Bao La	Very Low	Very Low	Medium	Low	Low
	Cun Pheo	Very Low	Very Low	Medium	Low	Low
	Na Meo	Very Low	Very Low	Very Low	Very Low	Low
	Dong Bang	Very Low	Very Low	Very Low	Very Low	Very Low
	Pieng Ve	Very Low	Very Low	Very Low	Low	Low
Phu Canh SUF	Dong Chum	High	Medium	High	Low	Medium
	Tan Pheo	High	Low	Medium	Low	Medium
	Dong Ruong	Medium	Medium	High	Very Low	Medium
	Doan Ket	Low	Low	High	Low	Medium
Da River Watershed PF	Dong Nghe	Medium	Medium	Low	Very Low	Medium
	Dong Chum	Very Low	Medium	Low	Low	Medium
	Don Ruong	High	Low	Low	Very Low	Medium
	Murong Chieng	Medium	Low	Low	Low	Medium
	Murong Tuong	High	Very Low	Very Low	Low	Medium
	Suoi Nanh	Medium	Low	Low	Low	Medium
	Tien Phong	Medium	High	Medium	Very Low	Medium
	Vay Nura	High	Medium	Low	Low	Medium
	Yen Hoa	Very Low	Medium	Low	Very Low	Medium
	Trung Hoa	Medium	Medium	Low	Very Low	Medium
	Ngoi Hoa	Medium	Medium	Low	Very Low	Medium
	Ba Khan	Very Low	Low	Low	Low	Very Low
	Tan Dan	Very Low	Very Low	Low	Very Low	Low
	Tan Mai	Low	Medium	Low	Very Low	Medium
	Dong Bang	Medium	Medium	Very Low	Very Low	Low
	Phuc San	Very Low	Low	Very Low	Very Low	Medium
	Thung Nai	Low	Very Low	Very Low	Low	High
	Binh Thanh	Very Low	Very Low	Very Low	Low	High

Note: Evaluation criteria for the respective aspects are defined as follows:
- ◆ Afforestion: High: > 200 ha, Medium: 200-100 ha, Low: 100-50 ha, Very Low: <50 ha
- ◆ Size of natural forest: High: > 2,000 ha, Medium: 2,000-1,000 ha, Low: 1,000-500 ha, Very Low: <500 ha
- ◆ Proportion to the proposed areas: High: > 20%, Medium: 20-10%, Low: 10-5%, Very Low: <5%
- ◆ Trend of deforestation: High: > 100 ha/year, Medium: 100-50 ha/year, Low: 50-0 ha/year, Very Low: Increased
- ◆ Poverty ratio (Ratio of poverty households): High: > 75%, Medium: 75-50%, Low: 50-25%, Very Low: <25%

Source: JICA Preparatory Survey Team (2016)

A four point rating system, where the highest score was given 4 points while the lowest was given 1 point, was employed for scoring the evaluation results.

Furthermore, the evaluation criteria were given 3 to 7 weighting points so that the full score given to one commune could be 100. In order to give appropriate consideration to the needs of MBFPs/MARD, the size of potential area for afforestation was given the highest weight (7 points), while the poverty ratio was given the lowest point (3 points) since the implication of such a criterion is the same as the trend of deforestation indicates. The rest of the criteria were given intermediate point (5 points) equally.

After calculation of the total scores given to all the communes, they were classified into three groups based on their total scores according to the following criteria:

- Commune scoring more than 75 points: High priority
- Commune scoring 51 to 75 points: Medium priority
- Commune scoring 50 points and below: Low priority

Table II-3-2 attached to this report shows the results of the evaluation/prioritization of the communes. The result of the evaluation/prioritization is summarized below.

Results of Prioritization of the Potential Target Sites

Province	Priority Class	Communes	Targets for Forest Development and Improvement			
			Protection	ANR	Afforestation	Total
Dien Bien	High	4 communes	6,750	1,540	2,480	10,770
	Medium	4 communes	3,650	490	680	4,820
	Low	Nil	0	0	0	0
	Sub-total	**8 communes**	**10,400**	**2,030**	**3,160**	**15,590**
Lai Chau	High	1 commune	0	380	410	790
	Medium	21 communes	0	7,120	6,140	13,260
	Low	18 communes	0	4,400	60	4,460
	Sub-total	**40 communes**	**0**	**11,900**	**6,610**	**18,510**
Son La	High	3 communes	4,650	1,480	1,910	8,040
	Medium	8 communes	5,250	650	1,310	7,210
	Low	4 communes	2,670	380	90	3,140
	Sub-total	**15 communes**	**12,570**	**2,510**	**3,310**	**18,390**
Hoa Binh	High	2 communes	1,950	150	410	2,510
	Medium	23 communes	22,930	690	2,670	26,290
	Low	12 communes	4,700	400	190	5,290
	Sub-total	**34 communes <1**	**29,580**	**1,240**	**3,270**	**34,090**
Total	High	10 communes	13,350	3,550	5,210	22,110
	Medium	56 communes	31,830	8,950	10,800	51,580
	Low	34 communes	7,370	5,180	340	12,890
	Total	**97 communes <1**	**52,550**	**17,680**	**16,350**	**86,580**

Note: <1 Three communes relate to two target areas at the same time; therefore the total number of communes in in Hoa Binh and the four provinces are 34 and 97, respectively..

Source: JICA Preparatory Survey Team (2016)

(3) Project Areas

Having examined the optimum size of the project in terms of physical and financial aspects, the preparatory survey team, in close consultation with MBFPs/MARD, selected the target sites relating to communes classified into high and medium priority as the project areas. The details of the project areas in the respective provinces are shown in **Table II-3-3** attached to this report, and summarized below.

Summary of the Project Areas

Province	Proposed Areas	Protection <1	ANR <2	Afforestation <3	No. of communes
Dien Bien	Dien Bien PF	3,330	640	1,570	3
	Muong Cha PF	0	1,080	800	1
	Tuan Giao PF	4,850	400	790	2
	Muong Phang SUF	2,220	190	0	2
Sub-total		**10,400**	**2,310**	**3,160**	**8**
Lai Chau	Nam Ma PF	0	1,030	1,610	7
	Nam Na PF	0	2,840	1,750	6
	Tan Uyen PF	0	3,270	1,380	6
	Than Uyen PF	0	360	1,810	3
Sub-total		**0**	**7,500**	**6,550**	**22**
Son La	Copia SUF	3,300	1,270	820	3
	Thuan Chau PF	2,890	790	1,750	3
	Quynh Nhai PF	960	130	410	2

Province	Proposed Areas	Protection <1	ANR <2	Afforestation <3	No. of communes
	Xuan Nha SUF	2,750	280	240	3
Sub-total		**9,900**	**2,470**	**3,220**	**11**
Hoa Binh	Da River PF <1	14,910	600	2,060	14 <1
	Ngoc Son – Ngo Luong SUF	5,670	90	470	6
	Hang Kia – Pa Co SUF	1,000	0	0	1
	Phu Canh SUF <1	3,300	150	550	4 <1
Sub-total		**24,880**	**840**	**3,080**	**23 <1**
Total		**45,180**	**13,120**	**16,010**	**64**

Note: <1 Two (2) communes in Da River Watershed Protection Forest also relate to Phu Canh Nature Reserve; therefore, the total number of communes selected as target communes in Hoa Binh is 23.
Source: JICA Preparatory Survey Team (2016)

The following table shows a list of communes relating to the project areas selected in the target provinces.

List of the Communes relating to the Project Areas

Province	Proposed Areas	District	Communes
Dien Bien	Dien Bien PF	Dien Bien	Na Tong, Phu Luong, Muon Nha
	Muong Cha PF	Muong Cha	Muong Tung
	Tuan Giao PF	Tuan Giao	Phinh Sang, Ta Ma
	Muong Phang SUF	Dien Bien	Muong Phang, Pa Khoang
Sub-total	**3PFs and 1** SUF	**3 districts**	**8 communes**
Lai Chau	Nam Na PF	Sin Ho	Hong Thu, Nam Cuoi, Nam Han, Nam Tam, Pa Khoa, Phang So Lin, Pu Sam Cap
	Nam Ma PF		Chan Nua, Lang Mo, Pa Tan, Sa De Phin, Ta Ngao, Tua Sin Chai
	Tan Uyen PF	Tan Uyen	Ho Mit, Muong Khoa, Nam Can, Nam So, Ta Mit, TT.Tan Uyen,
	Than Uyen PF	Than Uyen	Muong Mit, Pha Mu, Ta Mung
Sub-total	**4PFs**	**3 districts**	**22 communes**
Son La	Copia SUF	Thuan Chau	Chieng Bom, Co Ma, Long He
	Thuan Chau PF		Nam Lau, Muong Bam, Bam Lam
	Quynh Nhai PF	Quynh Nhai	Muong Giang, Muong Sai
	Xuan Nha SUF	Van Ho	Chieng Xuan, Tan Xuan, Chieng Son
Sub-total	**2PFs and 2** SUF **s**	**3 districts**	**11 communes**
Hoa Binh	Da River PF <1	Da Bac	Dong Nghe, Dong Chum, Don Ruong, Murong Chien, Murong Tuong, Suoi Nanh, Tien Phong, Vay Nura
		Tan Lac	Trung Hoa, Ngoi Hoa
		Mai Chau	Ba Khan, Tan Dan, Tan Mai
		Cao Phong	Thung Nai
	Ngoc Son–Ngo Luong SUF	Lac Son	Ngoc Lau, Ngoc Son, Tu Do
		Tan Lac	Ngo Luong, Nom Son, Bac San
	Hang Kia– Pa Co SUF	Mai Chau	Hang Kia
	Phu Canh SUF <1	Da Bac	Dong Chum, Tan Pheo, Dong Ruong, Doan Ket
Sub-total	**1PF and 3 SUF s**	**5 districts**	**23 communes**
Total	**10PFs and 6 SUF s**	**11 districts**	**64 communes**

Note: <1 Two (2) communes in Da River Watershed Protection Forest are also those relating to Phu Canh SUF.
Source: JICA Preparatory Survey Team (2016)

Figure II-3-1 shows the location and present land use as well as forest status of the target 64 communes in the target protection forests and special use forests in the four provinces.

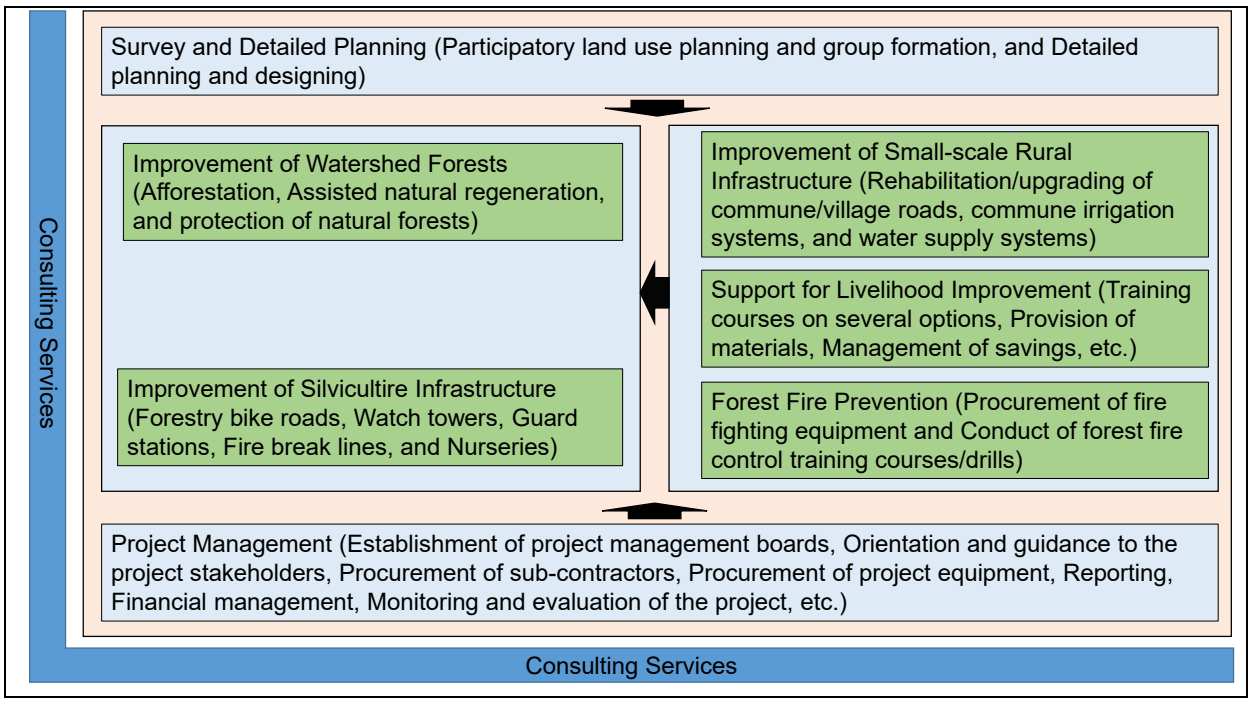
3.3 Project Works

3.3.1 Overview of Project Components

(1) Project components

The proposed project is composed of eight components: namely, i) survey and detailed planning; ii) improvement of watershed forests; iii) development of silviculture infrastructure, iv) improvement of small scale rural infrastructure, v) support for livelihood improvement, vi)

forest fire control, vii) project management, and viii) technical cooperation/consulting services. The project components will interrelate and interact with each other to generate synergy as shown below.



Overview of Project Components

Source: JICA Preparatory Survey Team (2016)

(2) Main purposes of the project components

The following table shows the purposes of each component proposed in the project.

Major Purposes of the Project Components

Component	Main purposes
Survey and detailed planning	- to purchase high resolution satellite images covering the target protection forests and special use forests. - to develop photo-like maps covering the target communes for the participatory land use planning (PLUP) - to conduct PLUP in the communes geographically relating to the target protection forests and special use forests to determine the project areas in a participatory manner. - to select local households and communities who will take part in the project and organize them into village working groups. - to prepare detailed plans and designs of forest development/improvement activities including silviculture infrastructure development - to prepare detailed plans and designs of small scale rural infrastructure development in the target communes.
Improvement of watershed forests	- to restore forests in bare lands/grasslands/bushes in the target protection forests and special use forests located in critical watersheds in a participatory manner. - to improve degraded forests and protect natural forests in the target protection forests and special use forests located in critical watersheds in a participatory manner. - to prepare regulations and decisions on benefit sharing mechanism and collaborative management system.
Improvement of silviculture infrastructure	- to develop and construct silviculture infrastructure, such as motorbike roads, watch towers, guard stations, fire break lines, and information boards, to enable forest owners to manage the target protection and special use forests in a proper and efficient manner.
Improvement of small-scale rural infrastructure	- to improve small-scale rural infrastructure, such as village roads, communal irrigation systems, and water supply systems, which could improve the marketing conditions and increase productivity or profitability of existing or potential income generating activities and/or contribute to the improvement of living conditions in the target communes/villages.

Component	Main purposes
Support for livelihood improvement	- to identify priority potential income generating/livelihood development activities in the target communes. - to develop strategies for marketing major forestry and agricultural products in the target provinces. - to develop the capacity of local communities to introduce new techniques and skills for improvement of agricultural production, sustainable forest management, utilization and processing of NTFPs, and production of any marketable commodities. - to help the village working groups/group members save a certain amount of payments made by the project for forest development, improvement and protection activities and to effectively use the savings for livelihood improvement of the members and forest protection in the post project period.
Forest fire control	- to capacitate forest rangers and local communities to prevent and control forest fires by provision of fire extinction equipment and training on forest fire control.
Project management	- to establish organizational structures at both the central and provincial levels and deploy/hire project officers for project implementation and management. - to prepare the project implementation guidelines/regulations for CPMB and PPMBs. - to prepare technical handbooks for PFMBs, SUFMBs, and village working groups. - to procure project equipment for CPMB and PPMBs. - to develop a GIS-based monitoring system. - to make CPMB, MBFPs, PPMBs, DARDs, PFMBs, and SUFMBs understand the project concept, guidelines/regulations and procedures for project implementation - to help CPMB, MBFPs, PPMBs, and DARDs implement and manage the project in a proper and effective manner. - to make CPCs and local communities in the target communes/villages aware of the project (outlines, concepts, activities, expected benefits and obligations of the communities). - to help PFMBs,SUFMBs, DPCs, CPCs, and extension workers provide technical assistance to local communities. - to check physical and financial progress of the project and detect issues/problems that would affect the project implementation at an early stage. - to provide adequate data and information to the project owners and project implementation agencies for proper project management on a timely manner. - to support the relevant forest management boards (PFMBs/SUFMBs) concerned in monitoring the changes of forest cover in the project areas and reporting the annual changes to DARDs/PPCs. - to evaluate the impact of the project.
Technical cooperation / Consulting services	- to assist CPMB and PPMBs in the implementation and management of the project in an effective and proper manner. - to provide necessary coaching and guidance to the relevant stakeholders, especially CPMB and PPMBs, for improvement and enhancement of their managerial, administrative, and technical capacities.

Source: JICA Preparatory Survey Team (2016)

(3) Work quantity of project components

Proposed work quantities for the respective project components are shown in **Table II-3-4** attached to this report, and summarized below.

Work Quantity of the Project Components

Component	Major works
Survey and detailed planning	◆ Procurement of the latest high resolution satellite images covering 4,681 km^2 ◆ Conduct of participatory land use planning activities with formation of village working groups in 64 communes ◆ Demarcation of about 16,010 ha of sites for afforestation with set-ups of land marks ◆ Conduct of baseline surveys in 64 communes ◆ Preparation of detailed designs for forest development and improvement activities
Improvement of watershed forests	◆ Conduct of the following forest development and improvement activities in 10 protection forests and 6 special use forests in the four provinces - Afforestation in 16,010 ha of bare lands, grasslands, and bushes - Assisted natural regeneration of 13,120 ha of degraded forests - Protection of 45,180 ha of natural forests ◆ Provision of guidance on collaborative management to PPMBs, DARDs, PFMBs, and SUFMBs ◆ Arrangement and organization of workshops for development of a forest management plan with 64 communes in the four provinces
Improvement of silviculture infrastructure	◆ Development and improvement of silviculture infrastructure: - Motorbike roads: 121.5 km - Footpaths: 30 km - Fire break lines (FBL): 278 km - Fire watch towers: 29 units - Forest management board office: 1 units

Component	Major works
	- Forest guard station: 33 units - Information boards: 59 units - Sign boards: 71 units - Nurseries: 10 units ◆ No physical development within areas designated as special use forest
Improvement of small-scale rural infrastructure	◆ Planning of improvement of small scale rural infrastructure in 64 communes in the four provinces, such as: - Rehabilitation of village roads: 61.4 km - Rehabilitation of irrigation systems: 28.3 km of canal - Rehabilitation of water supply systems: 14 units ◆ Conduct of ground surveys and detailed designing of the improvement of small scale rural infrastructure ◆ Construction for improvement of small scale rural infrastructure ◆ Provision of guidance on O&M of small scale rural infrastructure and livelihood development activities to CPCs, commune extension workers, and users' groups in 64 communes in the four provinces
Support for livelihood improvement	◆ Arrangement and conduct of a marketing survey to develop marketing strategies for major agricultural and forestry products ◆ Arrangement and organization of workshops for identification and selection of priority livelihood development options in 64 communes in the four provinces ◆ Development of demonstration/model plots for selected priority livelihood development options in 64 communes in the four provinces ◆ Provision of training courses on selected priority livelihood development options to i) DAECs and commune extension workers in 11 districts, ii) local communities at the demonstration/model plots developed in 64 communes in the four provinces ◆ Provision of guidance on the management of payments made by the project and the use of saving capitals for forest management and livelihood development in 64 communes in the four provinces ◆ Arrangement and organization of training courses on financial management for the village working groups organized in 64 communes in the four provinces ◆ Arrangement and organization of workshops on the preparation of business plans on potential income generating activities
Forest fire control	◆ Provision of equipment for forest fire control to 11 District Forest Ranger Offices and 16 PFMBs/SUFMBs in the four provinces ◆ Arrangement and organization of training courses on forest fire training for i) forest rangers in each province and ii) village leaders and members of the village working groups in 64 communes in the four provinces ◆ Assist trained forest rangers in the organization of forest fire drills twice in 64 communes in the four provinces in the course of the project
Project management	◆ Establishment of one CPMB and four (4) PPMBs at the central and provincial levels, respectively ◆ Allocation and employment of the project staff ◆ Development of a GIS-based monitoring system and forms/formats for regular monitoring ◆ Preparation and establishment of regulations and guidelines for implementation of the project ◆ Procurement of project equipment ◆ Development of draft TORs for the works to be contracted out to contractors for implementation of the project components ◆ Arrangement and organization of project orientations for i) CPMB and relevant departments of MARD, ii) PPMBs and DARDs of four provinces, iii) 10 PFMBs, 6 SUFMBs, 11 DPCs, and 64 CPCs in the four provinces ◆ Arrangement and organization of annual planning workshops with i) CPMB and ii) PPMBs in the four provinces ◆ Provision of orientation and guidance on annual work plan to i) 10 PFMBs, 6 SUFMBs and 11 DPCs and ii) 64 CPCs and the associated village working groups ◆ Provision of orientation and guidance on benefit sharing mechanism to i) CPMB and the relevant department of MARD, ii) PPMBs and DARDs of the four provinces, 10 PFMBs, and 6 SUFMBs, and iii) 11 DPCs, 64 CPCs, and the associated village working groups ◆ Production, publication, and distribution of project documents, such as project brief (overall and provincial projects), project newsletters (overall and provincial projects), and awareness raising materials. ◆ Arrangement and conduct of the following study tours twice each: - study tour to JICA2 sites for PPMBs, PFMBs, and SUFMBs - study tour to SNRMP target communes for PFMBs, SUFMBs, and village working groups - overseas study tours for CPMB/MBFPs and PPMBs and DARDs ◆ Provision of guidance on PLUP and use of GIS and GPS to PFMBs and SUFMBs each in the four provinces ◆ Arrangement and organization of bi-annual review meetings with i) CPMB and ii) PPMBs in the four provinces ◆ Establishment of monitoring, supervision and evaluation systems for the project ◆ Conduct of progress monitoring on a regular basis (monthly and quarterly) ◆ Conduct of periodic monitoring and evaluation of the project (initial, mid-term and terminal evaluation) ◆ Monitoring of forest resources (changes in forest resources) by using PFMS and its associated devices introduced by SNRMP in 11 districts

Component	Major works
Consulting Service	◆ Assistance in development and preparation of technical manuals, forms, and systems for proper and efficient implementation of the project ◆ Assistance in supervision and management of the project activities contracted out to contractors ◆ Provision of OJT and periodic coaching to the relevant stakeholders, especially CPMB and PPMBs, on the implementation and management of the project components

Source: JICA Preparatory Survey Team (2016)

More details of the work quantities and work plan of the respective project components are described in the following sections.

3.3.2 Survey and Detailed Planning

(1) Participatory Land Use Planning (PLUP) and Formation of Village Working Groups

Given that significant parts of the target protection forests and special use forests may have been used by local communities for farming with either legitimate land use rights or de facto/customary land use rights, close consultations with local communities and households who have been using the areas is a requisite step for determination of the project areas without any future conflict with local communities.

The participatory land use planning (PLUP) is proposed as a process of helping local communities assess the current land use and tenure status in the locality and develop a future land use plan of a village including the use of the target protection forests and special use forests in a participatory manner. The same process has been adopted by many community-based forest and natural resource management projects not only in Vietnam but also other Asian countries and proved effective in community involvement in forest management and development of a framework for collaborative forest management.

a. Objectives

The main objectives of "PLUP and formation of village working groups" are: i) to select the project areas for forest development and improvement activities in close consultation with local communities who have legitimate or customary land use rights over the protection / special use forests, ii) to have prior consents to the use of the project areas from these communities, and iii) to organize those who are willing to participate in the project and/or who agree to use their areas for the project into village working groups.

Specifically, the work aims to: i) develop present land use maps of villages including the project areas based on GIS-based photo-like maps, ii) develop future land use maps of villages with determination of areas which can be used for forest development and improvement, iii) identify and select households who have vested land use rights over the project areas and who are willing to participate in the project activities, iv) verify if the project areas can be used for the project on the ground with households/communities concerned, v) organize households who are willing to participate in the project into village working groups which will be sub-contractors for forest development and improvement activities, and vi) make agreements with village working groups on forest development and improvement activities in the project areas.

b. Procedures

PLUP and formation of village working groups will be carried out according to the following procedures. **Annex-B** attached to Volume II of the Final Report shows the draft terms of reference (TOR) for the work with its cost estimation.

i) Procurement of Satellite Images
Prior to the field activity, CPMB will purchase a set of the latest-cum-high resolution satellite images covering the project areas in the target provinces to develop photo-like maps covering the target 64 communes, which will be used as base maps for determination of the project areas in consultation with local communities in the participatory land use planning. Considering the purposes of use and its purchasing prices, the preparatory survey judges that the following satellite images are suited for this purpose.

Satellite Images recommended for Forest Inventory and Mapping

Satellite images	Resolution	Target Area	Supplier
Pleiades (Pan sharpened and colored images)	1.0 m	4,681 km^2	The National Remote Sensing Department

Source: JICA Preparatory Survey Team (2016)

The procurement of satellite images will be done in the second year (2018/2019) of the project by CPMB with technical assistance of the project consultant. The activity can also be contracted out to the contractors which will implement PLUP and formation of village working groups.

ii) Development of photo-like maps
Photo-like base maps covering the target communes will be developed and prepared on a scale of 1/5,000~1/10,000 by overlaying the existing GIS data of the topographic maps (such as contour lines, roads, rivers/streams, and boundaries of communes) collected from FIPI or DARDs concerned and those of the boundaries of the target protection forests/special use forests collected from PFMBs/SUFMBs concerned on the high resolution satellite images. Development of photo-like maps should be completed by the end of the second year so that the same maps can be fully used for PLUP. This activities will be incorporated into the activities contracted out to the contractor for PLUP and formation of village working groups.

iii) Consultation with commune leaders and leaders of villages
A one-day meeting will be held at the commune center with the participation of commune leaders and heads of villages in the commune to have prior consent to the project and PLUP activities from the leaders and to identify villages geographically relating to the target protection/special use forests. In the meeting, the participants will identify village(s) whose territories are overlapped with the target protection/special use forests after having introduction of the project (objectives, major activities, expected benefits, and potential restriction on the use of forests) and outline of PLUP (objectives and major activities).

iv) Preparation of present land use maps of the villages relating to the target protection/special use forests
A one-day meeting will be held each at the villages geographically relating to the target protection/special use forest to help local communities prepare a present land use map using a photo-like map covering each village. Village leaders, representatives of mass organizations, and other communities, especially those who

have legitimate or customary land use rights over the areas overlapped with the target protection/special use forest will participate in the meeting.

v) Determination of the project areas with development of a future land use map
Another one-day meeting will be held each at the same villages with the same participants and PFMB/SUFMB concerning to the target protection/special use forest. In the meeting, the participants will discuss and examine if the areas located in the target protection/special use forest can be used for forest development activities, such as afforestation and ANR. Clear explanation about restrictions on the land use and benefits from the project along with rights and obligations of households / communities who participate in the project should be made before the discussions. The participants will also be encouraged to select a certain size of consolidated area for the project, so as to make the operation and management of the project activities in the village rather easy.

After determination of the project areas for afforestation, ANR, and protection of natural forests, the participants will also identify communities/households who have either legitimate land use rights or costmary land use rights over the areas in the village. At the same time, they will also discuss and determine the future land use of the village by discussing: i) whether natural forests but outside the protection/special use forest could be protected as they are, ii) whether shifting cultivation and upland crop farms could be improved and converted into sustainable forms of use, iii) how sparse forests and shrubs could be improved, and vi) whether rice field could be maintained as rice field in the future.

vi) Organization of a village working group
A one-day meeting will be further held at the same village with village leaders and communes/households identified as land users/stakeholders of the project areas to organize them into a village working group, visit the selected project areas to measure the boundaries of the areas with GPS, and get stakeholders' consent on the draft agreement on forest development and improvement activities.

c. Expected outputs

The following outputs are expected to be produced through the activities described above.

- Present land use maps and future land use maps on a scale of 1/5,000~1/10,000 of villages relating to the project areas in the target communes
- Rules on forest management and land use in the target communes
- List of households with rules of the village working groups organized in the target communes/villages
- Draft agreements with village working groups on the forest development and improvement activities in the project areas

d. Implementation method and timeframe

The activities will be carried out in all the target communes and villages relating to the project areas from the second to the fourth years (2018/2019 to 2020/2021) of the project. Each PPMB will hire a contractor capable to carry out the activities. In case there is no competent institute/organization found in the provinces, CPMB will contract out the work to an institute or organization at the national level.

(2) Site Demarcation and Set-ups of Land Marks

PFMBs/SUFMBs together with members of the village working groups will conduct perimeter surveys at the selected project areas by using GPS. During the perimeter surveys, they will also set wooden poles on the boundaries of the project areas for afforestation and put marks on standing trees or rocks along the boundaries of those for ANR and protection of natural forests at regular intervals. The locations of the landmarks (either wooden poles/marks on trees or rocks) will also be recorded by GPS so that data can be converted into GIS data and reflected to the base map of the GIS-based monitoring system.

The draft specification of the perimeter survey with set-ups of land marks is outlined below.

Specification of the Perimeter Survey with Set-ups of Land Marks

Activities	Target	Method
Perimeter survey	Contiguous project areas in the respective villages/communes within the target protection/special use forests	To walk through the boundaries of the project areas with GPS
Set-ups of land marks	Same as above.	Area for afforestation Pile wooden stakes at 50 meter intervals on the boundaries of the project areas in parallel with the perimeter surveys Area for ANR and protection of natural forests Make marks on standing trees or big rocks along the boundaries of the project areas in parallel with the perimeter surveys

Source: JICA Preparatory Survey Team (2016)

(3) Socio-economic Baseline Survey

A socio-economic baseline survey will be carried out in the target communes with the aim of: i) grasping the socio-economic conditions of local communities living in the target communes, ii) developing baselines of socio-economic indicators of households targeted by the project, and iii) clarifying the gender differences in forest management and protection in the communes. The socio-economic baseline survey will comprise the following activities.

i) Consultation with and interview to commune and village leaders
A one-day meeting will be held at the center of the commune with commune and village leaders to collect general socio-economic information of the commune and select sampled households and women in the commune. Socio-economic data to be collected from the interview to commune and village leaders shall include, but not limited to, the following:

- Demographic conditions
- Agricultural, forestry, and fishery production and other sources of livelihoods
- Access to rural finance or existence of village funds
- Existing rural and social infrastructure
- Existing mass organizations
- Existing activities and organizations for forest management
- Development needs of the commune

A total of 24 households and six women will be selected from the different socio-economic strata for a household interview survey and a gender sensitive analysis, respectively, in consultation with commune and village leaders.

ii) Interviews to households for the household interview survey
A set of questionnaires, which cover the following topics, will be developed and prepared prior to the interview survey in the field.

Topics to be covered by the Interview Survey

Topics	Survey Items
General background	Size of family, Ethnicity, History of family, Information of family members (age, educational background, occupation, etc.)
Assets and facilities, and access to social services	Major assets owned by household, Type and size of house, Access to water supply system, electricity, healthcare services, etc.
Income and expenditures	Annual (or monthly) income level, Main sources of income, Annual (or monthly) expenditure
Land tenure	Land holding size, Land tenure
Agricultural production	Cropped areas, Farming types (shifting cultivation/permanent farms), Major staple and cash crops, Production, Yields, Selling prices, Farm inputs, etc.
Forest use and management	Forest areas owned by household, Major forestry products (including NTFPs), Selling prices, Forest management activities, Collection of fire wood
Livestock and fisheries	Number of livestock animals owned, Selling prices, Any fishery activities and production, etc.
Any concerns about the project activities	Any foreseeable conflicts which might be caused by the project with their socio-economic/livelihood activities, Any suggestions to the project, etc.

Source: JICA Preparatory Survey Team (2016)

The household interview survey will interview each of the selected 24 households in all the target communes using the pre-set questionnaires.

iii) Interviews to selected women for the gender sensitive analysis
Likewise, a set of questionnaires for interviews to women shall be developed and prepared prior to the field survey. The survey points in the questionnaires shall include, but not be limited to, the following.

- Main roles played by women in forest use and management
- Gender differences in access to and control over forest resources
- Gender differences in decision making processes relating to forest management
- Prioritized points given by women to forests and forest management
- Possible benefits that women might be able to obtain from forest management and protection
- Possible impacts caused by the project to women

The survey will interview each of the selected six women in all the target communes with the pre-set questionnaires.

The socio-economic baseline survey will be conducted by the contractor hired by CPMB in the third and fourth year (2019/2020 and 2020/2021) after the project areas are determined and the village working groups are formed in the course of PLUP. The draft terms of reference (TOR) for the baseline survey and its draft cost estimation are shown in **Annex-B** attached to Volume II of the Final Report.

(4) Detailed Designing of Forest Development and Improvement Activities including Improvement of Silviculture Infrastructure

After determination of the project areas through PLUP, PPMBs will package detailed design works for the forest development and improvement activities and improvement of silviculture infrastructure per management board and contract them out to contractors that have experiences in similar designing works in the respective provinces. It is recommended that PPMBs should be responsible for the detailed designing works in the proposed project unlike the JICA2 Project, where the designing works have been carried out by the project consultant. As pointed out in **Section 5.2.1** of Part 1 of the Final Report, PPMBs might not be responsible

for the results of the design works and also miss chances to enhance their capacity for project management if the works were under the responsibility of the project consultant.

The contents of the detailed design should include, but not be limited to, the following.

Forest Development and Improvement Activities

- Location map based on the latest NFI&S Maps
- General information (location, area, slope, elevation, soil type, and other natural conditions) of the project areas
- Lists of compartments/divisions with associated information (e.g., compartment/division ID, areas, location, present land use/forest status, proposed design) per sub-contract package which will be further contracted out to village working groups
- Design of plantation to be developed by afforestation
- Lists of silvicultuel activities to be carried out in afforestation, ANR, and protection of natural forest
- Unit costs for each forest development/improvement sub-component
- Costs for the respective contract packages to village working groups and total cost for all the activities in the management board

Sivicultuel Structures Development and Improvement Activities

- Location map
- Results of necessary ground surveys
- Specification of each silvicultuel structure
- Designs of silvicultuel structures (plan view drawing, Cross section drawing, longitudinal profile, and structure drawing, etc.)
- Material and work quantity calculation for each silvicutuel structure
- Unit cost estimation for each silvicutuel structure

The detailed design works will be divided into three batches in accordance with the schedule of the forest development and improvement activities. The first batch of the design work will be conducted in third year (2019/2020) of the project, while the last batch of the work is scheduled to be done in fifth year (2021/2022) of the project.

(5) Detailed Designing of Improvement of Small Scale Rural Infrastructure

Likewise, PPMBs will outsource detailed design works for improvement of small scale rural infrastructure, namely community road, irrigation systems, and water supply systems, to contractors based in the respective provinces. Technical design centers, consulting service centers of DARDs, and private consulting firms are likely the potential contractors for the works. The contents of the detailed design should include, but not be limited to, the following.

- Location map
- Results of necessary ground surveys
- Specification of each small-scale infrastructure
- Designs of small-scale structures (plan view drawing, line distribution drawing, Cross section drawing, longitudinal profile, and structure drawing, etc.)
- Material and work quantity calculation for each small-scale structure
- Unit cost estimation for each small-scale structure

Types of small scale rural infrastructure and procedures for implementation of the component including detailed designing are described in detail in **Section 3.3.5** of this report.

3.3.3 Improvement of Watershed Forests

(1) Proposed Technical Interventions and Physical Targets

With the aim to improve and maintain the functions of forests in critical watersheds in the target provinces, the following technical interventions are proposed based on the existing MARD technical guidelines and experiences of the past and on-going forestry projects.

- Afforestation
- Assisted natural regeneration (ANR) without enrichment planting
- Protection of natural forests

Afforestation is to be applied to bare lands/grass lands and bushes/scrubs, which are categorized as "Ia" and "Ib", respectively, in the classification of the National Forest Inventory in 2012 (2012 NFI)[1], while ANR without enrichment planting is to be applied to woodlots categorized as "Ic" in the same classification. All the types of natural forests, namely, regenerating/recovering young forests, natural forests impacted by human activities, and mature secondary forests/primary forests, which are categorized as "II (IIa or IIb)," "III (IIIa or IIIb)," and "IV (IVa or IVb)" in the 2012 NFI classification, are considered as potential targets for protection of natural forest.

The following table shows the technical interventions proposed and the forest status/vegetation types of the 2012 NFI classification.

Proposed Technical Interventions based on the Forest Classifications

2012 NFI Category	Characteristics	Proposed Technical Interventions		
		Afforestation	ANR w/o enrichment	Protection
Group I	Lands without forest or with less forest cover (less than 30%)			
Ia (bare lands / grass lands)	Bare lands and grass land with or without bushy vegetation	Applied	-	-
Ib (bushes / scrubs)	Bushes and grass lands with sparse scrubs and small native trees or bamboo	Applied	-	-
Ic (woodlots)	Woodlots with more than 1,000 small timber trees (around 1 meter high) per ha	-	Applied	-
Group II	Regenerating/recovering forests with small trees			
IIa	Regenerating/recovering after shifting cultivation	-	-	Applied
IIb	Regenerating/recovering after over exploitation	-	-	Applied
Group III	Natural forests impacted by human activities			
IIIa	Forests impacted and fully damaged by over exploitation	-	-	Applied
IIIb	Forests impacted by selective cutting	-	-	Applied
Group IV	Primary forests or matured secondary forests			
IVa	Primary forests	-	-	Applied
IVb	Matured secondary forests	-	-	Applied

Source: JICA Preparatory Survey Team (2016)

As described in **Section 3.2** in this chapter, the physical targets of the respective technical interventions in the respective provinces are shown below.

[1] National Forest Inventory and Statistics in 2015 has not been officially approved by MARD by the time when the preparatory survey conducted the field survey and prepared the final report; therefore, the team used the classification of the National Forest Inventory in 2012 for determination of the proposed technical interventions.

Physical Targets of the Technical Interventions

Province	Protection	ANR	Afforestation
Dien Bien	10,400	2,310	3,160
Lai Chau	0	7,500	6,550
Son La	9,900	2,470	3,220
Hoa Binh	24,880	840	3,080
Total	45,180	13,120	16,010

Source: JICA Preparatory Survey Team (2016)

The standard designs and cost estimates of the respective technical interventions under this component will be presented in **Annex-C** attached to Volume II of the Final Report of the preparatory survey.

(2) Afforestation

Afforestation aims to proactively restore forests of indigenous species in bare lands, grass lands, bushes, and lands with scattering scrubs. As the project areas are located in both protection forests and special use forests, two types of standard design of afforestation are developed in accordance with MARD technical guidelines (MARD Decision No. 38/2005/QD-BNN, 06/07/2005). The following table shows the outline of the standard designs proposed for afforestation in protection forests and special use forests.

Standard Designs of Afforestation in Protection Forests and Special Use Forests

a. Afforestation in Protection Forests

Design/Specification	Description
1. Target forest status	Bare lands, Grass lands, and Bushes (Ia and Ib according to 2012 NFI classification)
2. Density of trees planted	1,600 trees/ha
3. Tree species planted	◆ Mixed planting of indigenous (main) species and fast growing (subordinate) species ◆ Indigenous species: *Alnus napalensis, Canarium album, Chukrasia tabularis, Docynia indica etc*. *Schima walichii* ◆ Subordinate species: *Acacia auriculiformis, Acacia hybrid, Acacia mangium, Manglietia glauca, Pinus massoniana,* etc. ◆ Proportion of indigenous species and subordinate species: 600: 1000
4. Tending and protection	Spot weeding and clearing are continued for three years after planting.
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target at maturity	Multi-layered forest of indigenous species at the density of 400~600 trees/ha
7. Remarks	Subordinate species are planted to make the favorite conditions for the growth of indigenous species in the initial stage. They will be gradually harvested by thinning from the 7th year after planting.

b. Afforestation in Special Use Forest

Design/Specification	Description
1. Target forest status and target areas	Bare lands, Grass lands, and Bushes (Ia and Ib according to 2012 NFI classification) in the ecosystem restoration sub-zone in special use forest
2. Density of trees planted	600 trees/ha
3. Tree species planted	Mono-planting of indigenous species: *Alnus nepalensis*, *Canarium album*, *Chukrasia tabulris*, *Schima walichii*
4. Tending and protection	Spot weeding and clearing are continued for three years after planting.
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target at maturity	Multi-layered forest of indigenous species at the density of 400~600 trees/ha
7. Remarks	Existing shrubs in the target areas will be maintained and used as shade for indigenous species planted. Planting of fast growing species and cutting/extracting of standing trees are prohibited in special use forests in principle.

Source: JICA Preparatory Survey Team (2016)

Forest development and improvement activities will be contracted out to PFMBs/SUFMBs like in the case of the JICA2 project. Likewise, afforestation activities will be further sub-contracted to the village working groups composed of local households who have vested land use rights over the project areas. PFMBs/SUFMBs will provide necessary technical

guidance to the village working groups before and during the establishment of plantations and also conduct field validation to check the accomplishments made by the groups periodically.

(3) Assisted Natural Regeneration (ANR) without Enrichment

Assisted natural regeneration (ANR) without enrichment is to be applied to woodlots or severely damaged forests where there are still a number of small indigenous trees remaining in the plots. Based on the lessons learned from the JICA 2 project as well as PASCA 2, which suggest that ANR with enrichment might not necessarily be cost-effective as compared to other activities, ANR without enrichment is proposed as the technical intervention to upgrade woodlots to recovering forests (class II) or forests impacted by human activities (class III). The standard design of ANR without enrichment in protection forests and special use forests is outlined below.

Standard Design of ANR without Enrichment in Protection Forests and Special Use Forests

Design/Specification	Description
1. Target forest status	Woodlots (1c according to the 2012 NFIS character) in protection forests and the same in the ecosystem restoration sub-zone in special use forests
2. Major silviculture activities	◆ Clearing climbers and insects affect trees, ◆ Spot weeding and clearing for existing indigenous trees ◆ Protection of the areas
3. Period	Two years for ANR and three years for protection
4. Target at maturity	Multi-layered-cum-mixed forest of indigenous species at the different densities (Conversion of the forest status from "Ic" to "II" or "III")
5. Remarks	ANR will be introduced only in the ecosystem restoration sub-zone in special use forests.

Source: JICA Preparatory Survey Team (2016)

ANR will also be carried out in the same manner as afforestation activities will be done. The village working groups who have vested land use rights over the project areas will be the main field implementers. Proper guidance and technical assistance should be provided by PFMBs/SUFMBs in a timely manner along with periodic field validation.

(4) Protection of Natural Forests

Protection of natural forests will target the existing natural forests classified into "II," "III," and "IV" in the 2012 NFI classification, with an aim to protect natural forests from forest degradation caused by forest fire, illegal exploitation, collection of fire wood, and animal grazing.

In general, the majority of the project areas are under the PFES scheme; therefore forest owners, either PFMBs/SUFMBs or communities/households, have received the financial incentives from PFES in exchange for protection of forests. However, the amount of PFES paid in 2015, which ranges from VND 10,000 to VND 260,000/ha/year in most of the areas except Lai Chau, are rather lower for local communities to get motivated to engage in forest protection activities. Furthermore, the new PM decree on "Mechanism and Policy of Forest Development associated with the Policy on Sustainable and Rapid Reduction and Assistance to Ethnic Minorities for the Period 2015-2020" (PM Decree No. 75/2015/ND-CP) clearly states that the contracted amount for forest protection in mountainous or poor areas should be set at VND 400,000/ha/year. Consequently, the project will aim to fill in the gap between the existing PFES payments in the project areas and the amount set by Decree No. 75/2015/ND-CP, so that PFMBs/SUFMBs could make forest protection contracts with the village working groups at a rate of VND 400,000/ha/year.

The standard works for protection of natural forests are summarized in the following table.

Standard Works for Protection of Natural Forests

Design/Specification	Description
1. Target forest status	Regenerating/recovering forests with small trees (II), Natural forests impacted by human activities (III), and Primary forests or matured secondary forests (IV)
2. Major Silviculture Activities	◆ Patrolling and reporting ◆ Maintenance of the sign board for forest protection
3. Period	Five years
4. Target at maturity	Improvement and upgrading of degraded forests, namely from class II to class III and/or from class III to class IV
5. Remarks	◆ Members of village working groups should be allowed to collect and use non-timber forest products from their assigned areas under the collaborative management agreement between the working groups and PFMBs/SUFMBs. ◆ Natural forests in the ecosystem restoration sub-zone are the considered as targets for protection of natural forests in special use forest, as those in the strict conservation zone should be protected and conserved from any human interventions.

Source: JICA Preparatory Survey Team (2016)

(5) Implementation of the Component

a. Implementers of the Component

Forest development and improvement activities under the component will be contracted out to PFMBs or SUFMBs concerned with the project areas. PFMBs and SUFMBs are responsible for development, management, and protection of the target protection forests and special use forests in the target provinces in principle. It is, therefore, reasonable that PFMBs/SUFMBs responsible for the project areas will carry out the forest development and improvement activities in the respective jurisdictions. In fact, the SPL-3 Afforestation Project and the JICA 2 Project have been implemented in the same manner and proved that such an arrangement would be not only effective for ensuring the quality of the works but also efficient in project management as PFMBs/SUFMBs could play the same function as the district-level project management board will do.

As described in the previous sub-section the field activities of the forest development and improvement, namely afforestation, ANR, and protection of natural forests, will be sublet to local communities, especially the village working groups organized by local communities who have vested land use rights over the project areas. Such an arrangement will be the basis of the collaborative management agreement, which will be proposed by the project for the sustainable management of forests in collaboration with local communities in the post-project period.

b. Phased Implementation

As local communities in the target communes have less experience in large scale forest development and improvement activities but will be the main field implementers of the component, it is necessary to give due consideration to their capacity and experience when the project plan is designed. In fact, it may be impossible for one household to develop several hectares of plantations in a year as it requires considerable amount of laborers. In order to ensure the quality of plantations, the workload should be split into reasonable and managerial sizes which local communities can handle and also PFMBs/SUFMBs can manage in a year.

Considering the experiences of the JICA2 Project and past achievements made by PFMBs and SUFMBs of the target protection forests and special use forests under the Provincial FPDPs as well as other past afforestation programs, the preparatory survey team proposes to implement

the component in a phased manner by allocating the targets according to the following manner.

- 4th year: 20% of the targets
- 5th year: 40% of the targets
- 6th year: 40% of the targets

By doing this, it is also expected that local communities and PFMBs/SUFMBs will enhance their technical and managerial knowledge and capacity as they could learn a lot through the implementation of the activities in the 4th year.

(6) Phase-out/phase-in activities

The phase-out/phase-in activities aims to help PFMBs/SUFMBs, CPCs concerned, and the village working groups prepare themselves in the post-project period. Since part of the forest management and protection activities are expected to be handed over to local communities, especially the village working groups, in the post-project period, the following activities will be carried out to lay the foundation for introduction of the benefit sharing mechanism and collaborative management system in the project areas.

- Guidance on Collaborative Management to PPMBs, DARDs, and PFMBs/SUFMBs
- Workshops for Development of Forest Management Plan at the Commune/Village Level

Furthermore, commune and village leaders will be given the guidance on the operation and maintenance (O&M) of small scale rural infrastructure so that they could enhance their understanding of the necessity of O&M and their responsibility for long-term use of the facilities. The following table shows the outline of the phase-in and phase-out activities to be carried out in the course of the project.

Phase-in and Phase-out Activities

Title	Participants/time	Topics	Venue	Duration & Frequency	Timing	Impl. Method
Guidance on collaborative management (CM)	PPMBs. DARDs, PFMBs, and SUFMBs (50 participants)	Objectives, concepts, and necessity of CM Roles, responsibilities, obligations, and rights of communities and PFMBs/SUFMBs	Provincial capital	1 day x 1 time/ province	8th year (2024/2025)	By administration (CPMB/project consultant)
Workshop for development of forest management plan	Communes and village working groups (50 participants)	Confirmation and update of the future land use map of the village and development of forest management plan	Village	2~3 days x 1 time/ village	8th year (2024/2025) and 9th year (2025/2026)	Contract-out (PAEC/University /NGOs, etc.)
Guidance on O&M of small scale rural infrastructure	CPC and village leaders, users' groups (50 participants)	Necessity of O&M, roles and responsibilities of CPCs and users of the facilities	Commune center	1 day x 1 time/ commune	8th year (2024/2025)	By administration (PPMBs) or Contract-out (PAEC/University /NGOs, etc.)

Source: JICA Preparatory Survey Team (2016)

3.3.4 Improvement of Silviculture Infrastructure

To facilitate the implementation of the forestry development and management activities and sustainable management of the project areas, several types of silviculture infrastructure need to be newly constructed or upgraded in the target protection forests and special use forests. After a careful review of the proposals submitted by the PFMBs/SUFMBs and DARDs of the four provinces, the volume of the works relating to the improvement of silviculture infrastructure in the respective protection forests and special use forests were determined as follows.

Province	District	PFMB	Forestry Road	Foot pass	Fire Breakline	Fire watch tower	Forest Guard Office	Forest Guard Station	Information board	Nursery
			km	km	km	no.	no.	no.	no.	no.
Dien Bien	Dien Bien	Dien Bien PFMB	13.8	0.0	28.0	0	0	2	3	0
		Muong Phang NRMB	0.0	0.0	0.0	0	0	4	0	0
	Muong Cha	Muong Cha PFMB	0.0	0.0	16.0	0	0	2	3	1
		Muong Cha PFMB (Unallocated)	20.6	0.0	0.0	0	0	3	0	0
	Tuan Giao	Tuan Giao PFMB	13.6	0.0	16.0	4	0	3	4	0
	Subtotal		48.0	0.0	60.0	4	0	14	10	1
Lai Cahi	Sin Ho	Nam Ma PFMB	12.0	0.0	27.0	4	0	2	7	0
		Nam Na PFMB	12.0	0.0	30.0	2	0	2	2	1
	Than Uyen	Than Uyen PFMB	12.0	0.0	36.0	3	0	1	2	1
	Tan Uyen	Tan Uyen PFMB	12.0	0.0	21.0	2	0	3	3	2
	Subtotal		48.0	0.0	114.0	11		8		4
Son La	Thuan Chau	Copia SUFMB	2.0	6.0	11.0	3	1	2	9	0
	Xuna Nha	Thuan Chau PFMB	11.5	0.0	30.0	3	0	1	0	3
	Moc Chau Van Ho	Xuan Nha SUFMB	0.0	18.0	0.0	2	0	1	4	0
	Quynh Nhai	Quynh Nhai PFMB	0.0	6.0	7.0	2	0	1	4	0
	Subtotal		13.5	30.0	48.0	10	1	5	17	3
Hoa Binh	Da Bac	Phu Canh NRMB	0.0	0.0	11.0	1	0	2	0	1
		Da river PFMB	12.0	0.0	36.0	0	0	1	11	1
	Lac sonTan Lac	Ngoc Son - Ngo Luong NRMB	0.0	0.0	9.0	1	0	2	6	0
	Mai Chau	Hang Kia - Pa Co NRMB	0.0	0.0	0.0	2	0	1	1	0
	Subtotal		12.0	0.0	56.0	4	0	6	18	2
Total			121.5	30.0	278.0	29	1	33	45	10

Source: JICA Preparatory Survey Team based on the lists provided by District offices (2016)

Aside from the above-listed infrastructure, PFMBs in Lai Chau and Son La proposed the installation of signboard and the survey team confirmed that a total of 71 signboards needed to be installed in the project areas (23 units for Nam Na PFMB in Lai Chau and 48 units for Da Ba River PFMB in Hoa Binh). However, the preparatory survey team judges that such an intervention should be covered by the management fee of PFMBs since it is part of the daily management activities and also its cost is minimal.

(1) Types of Silviculture Infrastructure

a. Motorbike road (Forestry road)

Forest access road is inevitable for smooth operations of the forest development and improvement activities, especially for transportation of seedlings for afforestation. Hence, construction of forest road is one of the requisite activities for any afforestation projects. It is, however, not recommendable to adopt the standard design of forest road in the target protection forests in principle as they are located in mountainous areas with steep terrains, where slope failure easily occur unless proper slope protection measures are introduced.

Instead, motorbike roads are considered more suitable for the target protection forests considering its cost effectiveness and environmental soundness. In order to prevent slope failures or soil erosion during and after the construction of forest roads in steep sloping areas,

a significant part of slopes should be cut and proper slope protection measures should be applied. The former causes a large size of deforestation, while the latter leads to high construction costs which is not suitable for forest roads. Neither motorbike road nor forestry road is not planned in special use forests from the environmental point of view.

The proposed motorbike road is a pave road made of crushed stones 2.5 m wide and 0.5 m thick. The total width of the road should be 3 m considering 0.5 m of road shoulder. Drainage canals with a culvert should be introduced in the steep sloping parts at 250 m intervals to protect the road from being damage caused by land slide, flash flood, and inundation.

It is judged that PFMBs could transport seedlings to the target areas for afforestation according to the following ways even though the forest road is only for passing of motorbikes.

- Seedlings are transported from a permanent nursery to a temporary nursery located at the boundary of the target protection forests by truck through provincial/district road.
- They are transported from the temporary nursery to points near from the target areas for afforestation by motorbike through the motorbike road.
- Member of the village working group will manually carry seedlings from the point where they are unloaded to the target area for afforestation.

Although the motorbike road is generally recommendable from the environmental point of view, it is also possible to apply the standard design of forestry road in the areas where no adverse environmental impact is foreseen or no huge construction cost for protection works are required. In such cases, the standard design for Grade IV forestry road as shown below should be applied in consideration of the sloping conditions of the target areas.

The Standard Design of Forest Road

Item	Grade of forest road			
	I	II	III	**IV**
Speed (km.hr) (not steep mountain - steep mountain)	25 - 30	20 - 25	15 - 20	**10 - 10**
Slope (%) (not steep mountain - steep mountain)	8- 9	9 - 10	10 - 11	**11 -12**
Lane	2	1	1	**1**
Wide (m)	3.0	3.5	3.0	**-**
Road shoulder (m) x 2	0.5	0.5	0.75	**-**
Total width (m)	7.0	6.5	4.5	**4.5**

Source: TCVN 7025, 2002, the Directorate for Standards, Metrology and Quality proposal, the Ministry of Science, Technology and Environment

Unless the following conditions can be fulfilled, the forestry road, even Grade IV, should be avoided but the motorbike road is advisable instead.

- There is no forest vegetation in the proposed route;
- There is no resettlement, loss of livelihood, or land acquisition caused by development of the forest road; and
- The sites where the proposed route is planned are not too steep to develop the 4-meter wide road.

b. Footpath

As mentioned above, even the motorbike road is not recommendable in the special use forests in consideration of its potential environmental impact to the ecosystem of the special use forest. As the main purpose of the roads in the special use forest is to support monitoring and patrolling of the SUFMBs and the village working groups/forest protection groups, it is more advisable to construct footpaths in the special use forests from economic and environmental

points of view. No earthwork is required for construction of footpath as it is just an open path 80 cm wide. In some areas, clearing of bushes and grasses may be required.

c. Forest Firebreak line

Forests in the target provinces are always exposed to risk of wild fire. As farms and residential areas are located in and around the target protection forests and special use forests, the risk of wild fire is considered rather high in the target areas.

Among forests, young plantations (less than five years) are particularly vulnerable to fire damage. In fact, the high mortality in newly established plantations has been often caused by wild fires. As the areas for afforestation are located adjacent to existing farms or residential areas, it is particularly necessary to apply a fire break line, which is a cleared line 10m wide, in the newly established plantations. The total estimated area of fire break lines to be developed in the target protection forests and special use forests is estimated at 2% of the total area for afforestation.

d. Fire watch tower

The main purpose of the construction of fire watch tower is to detect fire in the early stage to extinguish forest fire before its spreading out to the adjacent areas. Fire watch towers should be constructed at strategic locations where the surrounding areas can be viewed from. It will be 10 m high and made of reinforced concrete frame.

e. Forest guard station

Forest guard station will be used for a site office-cum-rest house for the staff of PFMB/ SUFMBs and the place for meetings with local communities (e.g., forest protection groups, village working groups). It should be built at the strategic locations adjacent to or within the project areas. One story building with bed room, meeting room, office room, kitchen and toilet is the standard design for the station.

f. Forest management board office

The forest guard office will be built only for Copia Special Use Forest Management Board in Son La, which has no own office so far as the SUFMB has been just established recently.

g. Information board

Information board will be set up around the project site to notify the public that the area is classified as either protection forest or special use forest and being protected/managed by PFMB/SUFMB. The information board to be installed will be about 3 m wide and 2.5 m high with the foundation 0.5 m high. The regulations or rule defined by PFMB/SUFMB and any rules on forest management defined by the communes/villages concerned will be displayed in the board.

h. Nursery

Afforestation will require a large quantity of seedlings at a time. Most of the seedlings will be purchased from the seedling providers. However, some afforestation sites located in a remote area require temporary nurseries to prevent the damages caused by long transportation from existing nurseries. Nurseries should also be constructed at strategic locations so that seedlings produced can be transported to the project areas efficiently. The standard capacity of the nursery is about 60,000 seedlings per annum.

(2) Implementation of Silviculture Infrastructure

The component will be implemented by contracting out to PFMBs/SUFMBs concerned from the third year (2019/2020) to the sixth year (2022/2023). Like in the case of the component of "Improvement of Watershed Forest," construction works will be divided into three batches with the following workload allocation.

- 1st batch: 20% of the works
- 2nd batch: 40% of the works
- 3rd batch: 40% of the works

Each batch of the work will be implemented in the following manner:

i) PPMBs in collaboration with PFMBs and SUFMBs concerned will develop a plan/proposal of silviculture infrastructure development in the respective protection and special use forests and submit the same to CPMB;
ii) CPMB with technical assistance from the project consultant will review and assess the necessity and validity of the plans/proposals submitted by PPMBs and revise/finalize the plans/proposals for submission to JICA for concurrent;
iii) PPMBs will contract out the survey and detailed design works to local contractors; and
iv) PFMBs and SUFMBs will be responsible for construction and improvement of silviculture infrastructure packaged for the respective areas,

(3) Typical Designs and Estimated Unit Costs

Annex-D attached to Volume II of the Final Report shows the typical designs and standard work quantities of the respective types of silviculture infrastructure based on the existing silviculture infrastructure in the target provinces and the experiences of the JICA 2 project. The unit costs of the respective types of silviculture infrastructure are also estimated by using the construction unit prices based on the government cost norms in the same annex.

(4) Environmental Aspects

No physical development, such as construction of motorbike road and building of forest guard stations, will be made within the areas designated as special use forests. As the alignments of motorbike roads will be placed on the existing paths and/or abandoned areas, the size of forest clearance would be minimal (less than 5 ha per site) even if the allighnments are placed within the terriotiries of protection forests. Furthermore, land acquisition will not be basically required as all the areas of the target protection forests except Da River Watershed Protection Forest are either the allocated areas to PFMBs or managed by CPCs concerned. In the case of the Da River Watershed Protection Forest, all the proposed sites for forestry/motor bike roads are existing village roads or those planned to be used for village roads; therefore, no compulsory land acquisition is expected to occur at this moment.

It is, however, necessary to assess potential risks caused by development and improvement of silviculture infrastructure when the alignments of motor bike roads and locations of the other types of silviculture infrastructure are decided after the project areas are selected in the beginning of the project. The Site-level Implementation Plan Environmental Checklist

presented in **Annex-J attached to Volume II of the Final Report** will be used for screening of the potential risks.

3.3.5 Improvement of Small-Scale Infrastructure

(1) Long-list of the Potential Small-Scale Infrastructure Development proposed by the Districts

A variety of the development needs for rural small-scale infrastructure, such as commune/village roads, commune/village irrigation systems, water supply systems, electricity supply system, village meeting hall, and school building, were confirmed in the target districts during the field surveys. Among others, the following types of small-scale infrastructure are selected as priority ones in consideration of their effectiveness in the improvement of local livelihoods and contribution to forest protection and management activities.

- Commune/village roads
- Commune/village irrigation system
- Commune/village water supply system

The total number of proposals submitted by the respective district offices is 1,741 for 64 target communes in the 15 districts as shown below.

Summary of Long List if Rural Small-Scale Infrastructure

Province	District	No. of Target Commune	Road Works		Irrigation Works		Water Suplly Works		Total
			No. of sub-projects	Qt (km)	No. of sub-projects	Qt (canal) (km)	No. of sub-projects	Qt (system)	No. of sub-projects
Dien Bien	Dien Bien	5	396	506	96	90	4	16	496
	Muong Cha	1	38	81	22	8	0	0	60
	Tuan Giao	2	89	115	6	7	2	2	97
	Subtotal	8	523	702	124	105	6	18	653
Lai Chau	Sin Ho	13	125	515	42	81	9	9	176
	Tan Uyen	6	52	84	33	73	7	7	92
	Than Uyen	3	6	15	3	3	4	4	13
	Subtotal	22	183	614	78	157	20	20	281
Son La	Moc Chau	1	7	12	0	0	0	0	7
	Quynh Nhai	2	7	47	5	7	5	5	17
	Thuan Chau	6	370	6,611	118	252	102	102	590
	Van Ho	2	7	144	3	6	16	44	26
	Subtotal	11	391	6,814	126	265	123	151	640
Hoa Binh	Cao phong	1	11	62	7	NA	1	1	19
	Da Bac	10	51	197	3	4	4	4	58
	Lac Son	3	10	39	4	4	0	0	14
	Mai Cahu	4	38	26	12	8	12	12	62
	Tan Lac	5	11	45	2	1	1	1	14
	Subtotal	23	121	369	28	17	18	18	167
Total		64	1,218	8,499	356	544	167	207	1,741

Source: JICA Preparatory Survey Team based on the lists provided by District Offices (2016)

(2) Short-listing of the Priority Project Activities

a. Criteria for short-listing

The following points were considered and discussed for short-listing the potential small scale infrastructure development options proposed by the districts.

- ◆ Upgrading of existing facility is prioritized than new construction

The priority is given to "upgrading of the existing facilities" rather than "new construction of the facilities" since it is more cost effective and environmentally friend. In fact, there are many proposals of upgrading the existing small scale infrastructure facilities, especially commune/village roads and village irrigation systems. The majority of commune/village roads are earth roads as described in **Section 1.3.7** of this report; therefore, they get easily damaged by heavy rains, floods, and landslides. Village irrigation systems are generally

composed of a small reservoirs with stone gabion dikes and earth canals. They are also easily damaged by heavy rains and seasonal floods/inundations. Rehabilitation and upgrading of those malfunctioned facilities are expected to produce the same results as the new construction can bring.

Furthermore, the potential environmental impact caused by rehabilitation and upgrading of facilities is far smaller than the potential adverse impacts caused by new construction. For instance, the construction of a new commune road might cause a certain size of deforestation and/or land acquisition, while no land acquisition or large-scale clearing is expected to occur in upgrading/rehabilitation of existing facilities, such as village/commune roads, irrigation systems (or canals), and water supply system. It is, however, necessary to assess the potential environmental and social risks when the proposed sub-projects of the component are determined. In addition to the prior screening of potential impacts/risks, the environmental code of practice (ECOP) described in Annex-I attached to Volume II of the Final Report (Environmental Social and Management Framework) should be applied during the construction period to minimize the potential adverse environmental and social impacts caused by construction works for small scale rural and silviculture infrastructure.

◆ Location of the sub-projects

Any infrastructure development planted within the territory of the special use forests, even rehabilitation/upgrading of the existing facilities, should be rejected to avoid any adverse environmental impact on the ecosystems in the special use forests.

◆ Budget ceiling

Based on the experiences of the JICA2 Project and the proposal made by MARD for the proposed project, the total budget to be allocated to the component is set at less than 10% of the total project budget. As such budget allocation needs to cover the development needs of 64 communes, the budget will be dispersed to each commune. Hence, a large-scale intervention, such as rehabilitation/upgrading of long length of commune/village road, is given lower priority.

◆ Provision of support to as many communes as possible

Although the budget allocated to the component is rather limited, the component should cover all the 64 communes, at least one option for one commune, unless there is no appropriate option available in the commune. Even though the scale of the intervention is small, the component is essential for encouraging local communities to actively participate in the forest management activities.

◆ Length of road and canal:

The total length of commune/village road or irrigation canal proposed for upgrading might be shorten in the case where a certain positive effect on livelihood improvement is expected, so that the total budget for proposed option can fit in the budget allocation.

b. Selection of the priority options

All the long-listed options were evaluated and classified into three categories: A (high), B (medium), and C (low), and those classified as A were selected as priority options. The following guidelines were employed in the evaluation.

i) Any project which meets any of the following conditions shall be classified as C.
- The project area is located within or adjacent to special use forests.
- The project includes new construction of facilities.
- The project can be classified as higher categories in terms of its scale (e.g., district/provincial roads and large scale irrigation systems).
- The project meets more than two condition of Class B described below.

ii) Any project which meets any of the following conditions shall be classified as B.
- The total length of roads to be improved is more than 2 km.
- The total irrigation command area is more than 100 ha.
- The total length of irrigation canals to be improved is more than 2 km.
- The total number of households covered by a water supply system is more than 250 households.

iii) Any project which does not meet any of the conditions listed above shall be classified as A.

Details of the results of the evaluation are described in **Annex-E** attached to Volume II of the Final Report. As a result, a total of 104 development options were short-listed as priority ones in the 64 target communes as summarized below.

Summary of Short List of Rural Small-Scale Infrastructure

Province	District	No. of Target Commune	Road Works		Irrigation Works		Water Suplly Works		Total
			No. of sub-projects	Qt (km)	No. of sub-projects	Qt (canal) (km)	No. of sub-projects	Qt (system)	No. of sub-projects
Dien Bien	Dien Bien	5	10	4.5	5	3.2	0	0	15
	Muong Cha	1	2	0.6	2	0.9	0	0	4
	Tuan Giao	2	5	2.4	1	0.7	0	0	6
	Subtotal	8	17	7.5	8	4.8	0	0	25
Lai Chau	Sin Ho	13	9	10.1	2	5.0	3	3	14
	Tan Uyen	6	2	2.5	3	6.1	3	3	8
	Than Uyen	3	3	3.0	1	0.7	0	0	4
	Subtotal	22	14	15.6	6	11.8	6	6	26
Son La	Moc Chau	1	1	1.5	0	0.0	0	0	1
	Quynh Nhai	2	2	2.0	0	0.0	1	1	3
	Thuan Chau	6	3	2.4	4	5.6	4	4	11
	Van Ho	2	1	2.5	0	0.0	0	0	1
	Subtotal	11	7	8.4	4	5.6	5	5	16
Hoa Binh	Cao phong	1	1	1.0	0	0.0	1	1	2
	Da Bac	10	9	15.0	0	0.0	1	1	10
	Lac Son	3	3	3.5	2	1.8	0	0	5
	Mai Chau	4	7	3.9	4	3.1	1	1	12
	Tan Lac	5	5	6.5	3	1.2	0	0	8
	Subtotal	23	25	29.9	9	6.1	3	3	37
Total		64	63	61.4	27	28.3	14	14	104

Source: JICA Preparatory Survey Team (2016)

(3) Main features of the Short-listed Infrastructure Improvement Options

The main features of the short-listed infrastructure improvement options are summarized in the following table.

Main Features of the Short-listed Infrastructure Development Options

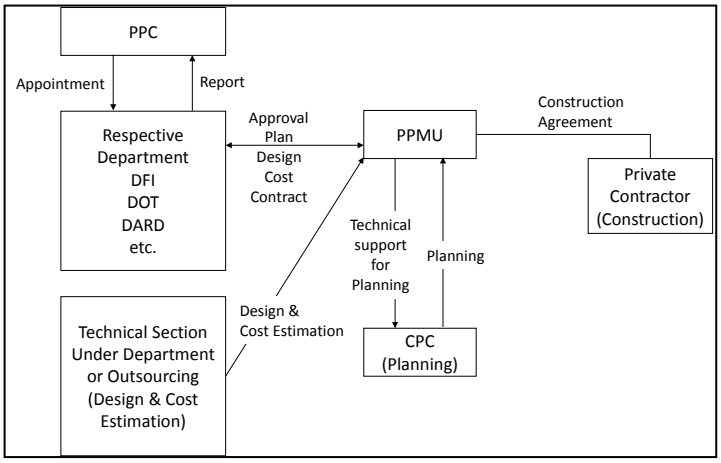
Type of options	Typical Component of the Work
1) Road works	(1) Stripping of top soils by motor grader and removal of soils in the defective portion (2) Replacement of road bed material by macadam and then compaction of the surface (3) Formation of the existing road and placement of the concrete pavement with 3.0 m width and 0.16m thickness on the surface of the existing road (4) Construction of necessary side drains to drain rain water and/or inundated water when a flood takes place (5) Construction of new culverts and installation of retaining walls on the proper location if necessary
2) irrigation	(1) Replace the stone and soil check dam to concrete check dam on the mountain stream with a scouring sluice and wooden stop log (2) Installation of concrete steep slope straight canals with three supports to lead the water to gentle slope area (3) Installation of retention pool to reserve water tentatively before distribute it to the main canal (4) Construction of rectangular open concrete lining canals for irrigation (5) Construction of necessary related canal structures such as drop, culvert and turnout on the irrigation canal (6) Drainage arrangement, if necessary
3) Water supply works	(1) Replace existing concrete intake to new one (type 1) or installation of the pumping system on the reservoir (type 2) (2) Replace damaged or simple treatment tank to improved tank (3) Replace damaged PVC pipes (main pipes, sub-pipes and distribution pipes) to new ones (4) Replace damaged connectors between pipe to pipe

Source: JICA Preparatory Survey Team (2016)

(4) Typical Designs of the Short-listed Small-Scale Rural Infrastructures

Typical designs of the short-listed rural small-scale infrastructure are presented in **Annex-E** attached to Volume II of the Final Report. The volume of works and quantity of materials were estimated based on the typical designs of the proposed facilities as shown in the same annex.

(5) Implementation Procedures for Small Scale Infrastructure Development



The construction of rural infrastructure is to be implemented in accordance with "Law on Construction (No. 50/2014-QH13)," "Decree on Management of Construction Projects (No.59/2015/ND-CP)", and "Decree on Construction Cost Management (No.32/2015/ND-CP)" and their relevant decrees. As shown in the drawing right, several departments are involved in the process of approval of infrastructure development on a provincial level. It is, therefore, recommended that the capacity of the relevant departments in the provinces should be enhanced to make decisions and approval to shorten the time for the approval process.

a. Planning

Although the short-listed small-scale rural infrastructure development options are selected from the proposals submitted by the district offices concerned in the four provinces, the development needs of small-scale rural infrastructure should be reviewed and re-examined with local communities in the target communes in the beginning of the project. To this end, PPMBs will arrange and hold meetings with local communities and CPCs as well as

PFMBs/SUFMBs concerned to determine the priority infrastructure development in the respective communes. It is possible to incorporate this process in the workshop to be held by external contractors for identification of priority livelihood improvement options under the component of "Support for Livelihood Improvement."

Infrastructure development options which directly link to the priority income generating activities introduced in the target communes should be prioritized. PPMBs will prepare proposals/development plans of small-scale rural infrastructure development options of the respective target communes based on the discussions with local communities. CPMB should review the proposals/development plans and endorse the final version of the plans to JICA Vietnam for its approval.

b. Detailed design

The survey and detailed designing works with cost estimation of the selected small-scale rural infrastructure development options will be outsourced to contractors. Since all the options short-listed are small and rather simple, existing potential contractors at the provincial level, such as the technical design centers or consulting service centers of DARDs, are judged capable enough to fulfill such tasks.

c. Tender

In accordance with Law on Bidding (No. 43/2013/QH13), the open tendering or designated tendering should be adopted for the nature and scale of the short-listed development options in principle. As tendering is considered as a time-consuming process, it is necessary to capacitate PPMBs to prepare the necessary documents and follow the proper procedure. It is also important for the project consultant to provide technical assistance and coaching to PPMBs so that they can select the contractors in an appropriate and timely manner.

d. Construction

The construction of the small-scale rural infrastructure are mainly composed of earth and concrete works without any special equipment, machines, or highly skilled laborers. Hence, the works can be undertaken by contractors at the local level (either provincial or district level). Utilization of local contractors may also be effective in maintenance and operations of the infrastructure facilities developed by the project in the post-project period. The duration for construction of short-listed infrastructures will range from two to six months depending on the availability of machineries and equipment required for construction.

e. Overall implementing schedule

The small-scale rural infrastructure development will be implemented in a phased manner. The options will be divided into three batches evenly. The following table shows the draft work schedule of the above-mentioned options in the respective batches.

Overall Schedule of the Component

Work Items	Duration	Timing		
		1st batch	2nd batch	3rd batch
Survey and DD	3~6 months	4th year (2020)	4th/5th year (2020/21)	5th/6th year (2021/22)
Tendering	3~4 months	4th year (2020)	5th year (2021)	6th year (2022)
Construction	3~6 months	4th/5th year (2020/21)	5th year (2021)	6th year (2022)

Source: JICA Preparatory Survey Team (2016)

(6) Operation and Maintenance Plan

The operation and maintenance of rural small-infrastructures will be carried out based on the relevant regulations stipulated by the PPCs concerned. In general, local government units,

namely CPCs, and local communities who would have benefit from the infrastructure facilities will have the primary responsibility for O&M of the facilities developed especially in the post-project period. In particular, local communities will play a vital role in the operations and daily maintenance of the irrigation and water supply facilities, while CPCs will take the initiative in O&M of commune/village roads in collaboration with leaders of the villages concerned with the road. The following table shows the ownership and responsibilities for O&M of the respective types of the small-scale rural infrastructure development options.

Ownership and O&M Responsibility of Short Listed Infrastructure

Type of Infrastructure	Ownership	Operation	Overall maintenance	Daily maintenance
Commune/Village Road	CPC	CPC	CPC	CPC
Irrigation System	CPC	Community group	CPC	Community group
Water Supply System	CPC	Community group	CPC	Community group

Source: JICA Preparatory Survey Team (2016)

The costs for O&M will be shouldered by CPCs which will be the main users of the facilities. The following table shows the estimated O&M costs and the assumptions made for the estimation.

Estimated O&M Costs of the Types of Infrastructure

O&M Activities	Estimated O&M Cost	Responsibility	Assumption made
Daily maintenance	No financial cost	Communities (users of facilities)	Community/user groups in communes/villages shall be responsible for daily maintenance, such as cleaning of canals, removing/weeding grasses, etc.
Minor replacement	1% of construction cost	Communes	Communes shall be responsible for minor repair and replacement of parts of the facilities. Minor repair and replacement will be made from one year after the installation of the facilities (from the 7th year of the project).

Source: JICA Preparatory Survey Team (2016)

Prior to the hand-over of the responsibility for O&M of infrastructure facilities to CPCs concerned, PPMBs will provide guidance on the O&M of small-scale rural infrastructure to CPCs and village leaders of the concerned communes as well as local communities which will use and benefit from the facilities in the eighth year (2024) of the project.

3.3.6 Support for Livelihood Development

(1) Basic Concepts for the Component

This component is requisite for achievement of sustainable protection and management of forests in the target protection forests and special use forests as this aims to address the major drivers of forest degradation and their underlying causes along with improvement of small scale rural infrastructure. To effectively bring about positive and direct effects for sustainable forest management, the component is designed with the following basic concepts:

- ✧ Minimization of human pressures on forest resources;
- ✧ Enhancement of local communities' motivation to protect and manage forests; and
- ✧ Creation of an enabling environment for community participation in sustainable forest management.

a. Minimization of human pressures on forest resources

Human pressures, namely conversion of forests to farms, forest fires caused by slash and burn farming, and illegal exploitation of firewood and logs, are the major drivers of forest degradation in the target protection forests and special use forests as described in **Section**

1.4.1 of this report. They are closely related to the current livelihoods and lifestyle of local communities, particularly ethnic minorities who have customarily used forest resources and generally live at subsistent level. As it is not easy for local communities to give up their livelihoods or change their lifestyles immediately, a special emphasis in the selection of livelihood options is placed on the reduction of adverse effects on forests without drastic changes in the local livelihoods/lifestyles.

Introduction of a fuel saving stove and installation of a household biogas system are possible options to reduce firewood consumption of local communities. They are also effective in lessening the burden imposed on women by reducing the time spent for firewood collection and improving health conditions of family members by reducing the chance of being exposed to smoke.

Introduction of agroforestry techniques along with sloping agriculture techniques is another option to be considered to prevent local communities from converting forests for farming by guiding local communities toward sustainable agriculture in fixed plots.

b. Enhancement of local communities' motivation to protect and manage forests

It is important to give local communities a good incentive to protect and manage forests in the framework of livelihood improvement, so that they could regard forests their valuable assets which could generate substantial profits for them in the long run. It is, therefore, advisable to design and introduce forest/natural resource-based livelihood options to motivate local communities to protect and wisely use forest resources in their localities.

In addition to the use of forest and natural resources for livelihood improvement, a market-oriented approach will be introduced. A market survey or research to be carried out in the initial stage of the project is expected to identify market needs for major forestry products and clarify the current business environment associated with potential forestry products. Consequently, the livelihood options, which are based on forests and natural resources available in the localities and rather promising in terms of marketing, are expected to be selected by local communities as potential options.

The payment from the PFES scheme is one of the crucial incentives for local communities to protect and manage natural forests. In order for them to sustainably manage and protect forests and wisely use the PFES payment, it is also essential to enhance the capacity of local communities for proper use and management of the payments so that they could continue forest protection activities after the completion of the project and even invest in any promising livelihood development/income generating activities which can contribute to the reduction of human pressures on forests.

c. Creation of an enabling environment for community participation in sustainable forest management

Sustainable forest protection and management will not be realized without local communities' participation as well as strong support from local government agencies concerned. However, under the difficult circumstances, the participation of the local communities in forest management has been limited so far. Hence, the component will aim to ease financial burden of local communities by providing them necessary technical training and opportunity to engage in alternative income generating options by themselves.

A participatory approach will be employed in the selection of income generating options in consideration of lessons learned in the past experiences where a top-down approach did not necessarily meet the needs of local communities.

In order to ensure that local communities could develop alternative sources of income by engaging in livelihood development/income generating options proposed by the project, small-scale rural infrastructure, especially commune/village roads, should be improved effectively. Improvement of small scale rural infrastructure is another crucial component that could create an enabling environment for successful livelihood improvement and also sustainable forest management eventually.

(2) Overall Framework of the Component

The component will focus on the enhancement of the capacity of local communities rather than provision of materials/input, so that they could operate livelihood improvement /income generating activities in a sustainable manner even without external support and large input after the project. The overall framework of the component is summarized below.

- ✧ Local communities will identify potential options effective for improvement of local livelihoods and suitable for the respective localities based on the results of the participatory land use planning.
- ✧ Local communities will evaluate and prioritize the long-listed potential options in a participatory manner, considering the availability of resources needed, technical feasibility, marketability of products/commodities, and their preferences.
- ✧ In particular, due consideration should be given to the marketing potential of products/commodities to be developed or produced by operations of potential livelihood development options.
- ✧ Two to three priority options will be selected at the commune level based on the results of the evaluation/prioritization above.
- ✧ Hands-on technical training courses on the selected options will be arranged and conducted for local communities along with the development of demonstration/model plots where local communities can observe and confirm the effectiveness of skills/techniques that they have learned in the training courses.
- ✧ Financial management capacity of local communities will also be enhanced by the component. The training module contains i) the overall guidance on the mode of payments from PFMBs/SUFMBs, ii) training on financial management including bookkeeping, and iii) budget planning for their activities for forest protection and management as well as income generating.

  The target communes will be divided into two batches. Those which can complete the process of PLUP by the middle of the fourth year (2020/2021) will be grouped as batch one communes, while the rest, where PLUP will be completed by the end of the fifth year (2021/2022) will be grouped as batch two. About 50% of the total target communes are expected to be grouped as batch 1 communes.

(3) Target of livelihood improvement support

As the principal aim of the component is to contribute to the enhancement of forest protection and management, the first priority should be given to local communities who participate in forest protection and improvement activities of the project. It is however essential to involve other communities who will not participate in forest development and improvement activities in the livelihood development activities, to lessen the pressures on forests and also to develop a framework for sustainable forest management at the commune/village level. In particular, due attention should be given to the economically and socially vulnerable and women in the selection of the target groups. Hence, the training courses will be open to anybody in communes/villages in principle so that any households, even marginalized families, such as the poor and woman-headed families, can take part in the courses as long as they have interest in the topics.

(4) Long-list of potential livelihood improvement support

Possible options for livelihood improvement are tentatively identified as listed in the table below in consideration of the possible effect to forest protection and the needs of local communities. As shown below, the potential activities are categorized into four groups: i) reduction of firewood consumption, ii) diversification of sources of income, iii) introduction of alternative livelihood improvement options, and iv) improvement of financial management capacity.

Long-list of potential livelihood improvement support

Objectives	Potential livelihood improvement support	Justification & Notes
i) Reduction of firewood consumption	i)-1 Introduction of fuel saving stove	✧ It will contribute to not only minimizing firewood consumption but also improving living conditions of local communities by reducing their time spent for collection of firewood and the chance to be exposed to smoke. ✧ It will be suitable for the lifestyle of Thai group, but not for H'mong group as they tend to live a large family over generations and require a big fire place.
	i)-2 Introduction of household biogas facility	✧ To install the biogas facility, various conditions for installation (i.e., sufficient number of animals for securing raw materials, location and area suitable for installation of the facility, masons for construction, etc.) should be satisfied. ✧ The users should be responsible as well as capable enough to conduct proper and frequent maintenance of the facility for sustainable use of the same.
ii) Diversification of sources of income	ii)-1 Technical training in producing and marketing spice/ medical plant/ indigenous fruit tree	✧ Market needs should be determined prior to the selection of target products. ✧ Bamboo, rattan and indigenous fruit also are popular NTFPs produced in the target communes. Recently, cardamom and its co-specific species have been marketed in the areas owing to a high demand for the same product in China. Market needs for medicinal plans has been increasing in the domestic market in response to the increase of health conscious consumers. ✧ The variety of spice/medical herbs/indigenous fruits should be identified on the basis of the market needs and opportunities in the respective target communes/districts. ✧ It will be effective in forest protection as forests need to be protected for continuous harvest of the products.
	ii)-2 Technical training in keeping honey bee and producing honey	✧ Honey is one of the valuable NTFPs to generate income and increase nutrition of families. ✧ Introduction of apiculture may also contribute to the reduction of forest fires as harvest of wild honey by using fire is one of the causes of forest fires.
	ii)-3 Technical training	✧ Production of cash crops by contracting with private companies is one

Objectives	Potential livelihood improvement support	Justification & Notes
	in producing and marketing cash crops	of the potential options for income generating. A variety of crops should be examined on the basis of the marketing potential as well as suitability in the target communities/district. For example, purple garlic is one of the potential crops, which is in demand and suitable in Hoa Binh.
	ii)-4 Technical training in post-harvesting	✧ It is reported that local communities tend to sell maize and cassava at lower prices due to a lack of post-harvesting facilities (drying yard and storage). ✧ Value-added ways, such as installation of a drying yard and other simple processing methods, will be introduced in the technical training course. ✧ In case that a certain facility is installed as a pilot case, the communal land for the facility should be available to avoid future conflict over land use.
iii) Introduction of alternative livelihood improvement options	iii)-1 Technical training in introduction of a home vegetable garden model	✧ The life of local communities in the target communes is at subsistence level in general, and poor households face a shortage of food for several months in a year. Stable production of vegetables can increase the food for family and reduce the expenses for food. ✧ The vegetable garden model can be introduced even by landless households; hence, the option can be effective in improving livelihoods of landless farmers. ✧ Likewise, the option does not require a large scale of investment and requires only simple techniques, which can be easily introduced by a wide range of local communities to improve nutritious condition of families.
	iii)-2 Technical training in introduction of fodder grass planting model	✧ As cattle free grazing is one of the causes of forest degradation in the target communes/districts, introduction of the stall feeding method with production of fodder grasses is highly recommended from the view point of sustainable forest management. ✧ Planting fodder grasses on sloping land (particularly along the contour lines) can also be one of the soil conservation measures to prevent soil erosion in farmland.
	iii)-3 Technical training in introduction of agro-forestry model (combination of economically valuable trees with cash crops)	✧ Agro-forestry model in combination with cash crops and fruit trees may be an effective way to improve agricultural productivity in sloping land and increase alternative income of upland farmers. ✧ Peanut is one of the potential crops used for the agroforestry model in the target area. Other potential crops should be identified in consideration of the market needs and crop suitability in the areas.
iv) Improvement of financial management capacity	iv)-1 Guidance and training on financial /fund management	✧ Local communities will be guided on how to manage and use the payments made for forest development and improvement activities. Use of a saving account for management of the payments is one of the options to be introduced. ✧ They will be given the training courses on financial management and business planning to enhance their capacity for use and management of the payments in a wise and proper manner. ✧ All communities who participate in the project will be targeted by the training courses.

Source: JICA Preparatory Survey Team (2016)

Various existing programs and projects have provided livestock such as cow, buffalo, and pig to support local people, as this type of support is considered crucial for improvement of livelihoods of local communities. Nevertheless, the provision of animals is not recommendable for the proposed project, since it may cause the increase of animal grazing and there are potential risks of failure caused by high mortality of animals due to diseases, cold damage, and malnutrition as many cases have reported. Rather, introduction of value-added agriculture and forestry products should be examined as an essential alternative livelihood option from market-oriented point of view.

(5) Draft Scopes of the Potential Livelihood Options

Although the target communes will select their priority livelihood options in a participatory but systematic manner in the beginning of the project, the following livelihood options are recommended by the preparatory survey team as effective means of not only improving local livelihoods but also reducing the causes of forest degradation.

i) Introduction of fuel saving stove
ii) Production of spices/medical herbs/indigenous fruit trees
iii) Introduction of simple post-harvest techniques/facilities
iv) Introduction of apiculture/honey bee keeping
v) Development of home vegetable garden
vi) Production of fodder grasses

The draft scope of the respective activities are summarized below.

Scope of the Major Potential Livelihood Improvement Options

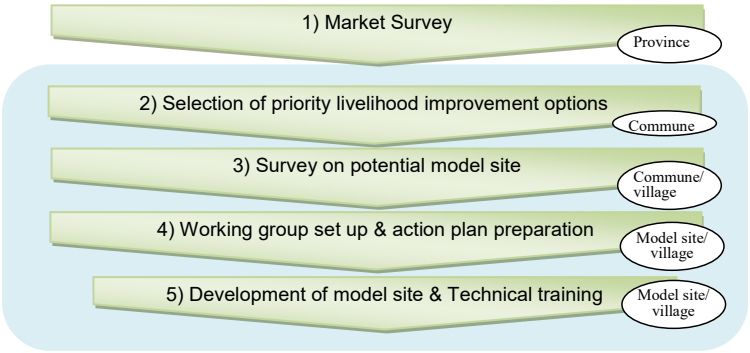
Potential livelihood improvement support	Scope of activities
i) Introduction of fuel saving stove	50 households/model site, 1 model site/commune
ii) Production of medical plant (Morinda officinalis)	5ha/model site, 30 households/model site
iii)Introduction of honey bee keeping	120 hives of native bee, 40 households (3 hives/household) in 2 plots
iv)Introduction of simple post-harvest techniques/facilities	60 m^2/site (4m x15m)
v) Development of home vegetable garden	50 farmer's garden/model (equivalent to 1ha in total)
vi)Production of fodder grasses	1.5ha /model site, 30 households/model site

Source: JICA Preparatory Survey Team (2016)

Assistance in business matching and promotion of contact farming will also be provided along with the training courses on ii), iii), and iv) to help local communities earn cash income from operating such livelihood development options after the training courses.

(6) Implementation procedure

The process of the component at the commune level is illustrated below.



Source: JICA Preparatory Survey Team (2016)

Procedures for the Livelihood Improvement Support

Basically, the training courses will be held at the demonstration/model plots in the target communes. Commune and village leaders will select the most visible sites as the demonstration/model plots. **Annex-F** attached to Volume II of the Final Report shows the unit costs of the respective activities and the total estimated cost of the whole component.

a. Selection of priority livelihood improvement options

Each target commune will identify priority livelihood improvement options based on the future land use map developed through the participatory land use planning (PLUP) process. The results of the market survey/research will also be fully reviewed in the evaluation and prioritization of the potential livelihood options. Each commune will select three types of options at the maximum from the long-listed options. The following table outlines the workshop to be held for selection of the priority livelihood improvement options at the commune level.

Outline of the workshop for Selection of Priority Livelihood Improvement Options

Title	Participants	Objectives	Venue	Duration & Frequency	Timing	Impl. Method
Selection of priority livelihood improvement options	● Commune leaders ● Village leaders ● Representative of mass organizations ● PFMB/SUFMB ● DAEC (70 participants)	● To identify the priority activities ● To select the potential model sites ● To reach a consensus among communes and village representatives	Commune center	1 day x 1 time/ commune	Fourth year (2020/2021) for 1st batch Fifth year (2021/2022) for 2nd batch	Contract-out

Source: JICA Preparatory Survey Team (2016)

b. Market Survey

The main objectives of the market research are: i) to understand the current marketing conditions of agriculture and forest (wood and non-timber) products in the target provinces, ii) to identify potential marketable products, and iii) to make strategies for promoting the potential products and business models, which would be considered as potential livelihood development activities to be introduced in the target communes. Specifically, the market survey aims to collect the following data and information listed below.

Major items to be surveyed in the Market Research

Theme	Major items	Information source
Policy	✧ Government policies/decisions/circulars on socio-economic development, support for agricultural and forestry production, processing, and marketing of the products	✧ Ministry of Trade and Industry and MARD ✧ DARD and Department of Industry and Trade of the target provinces
Production and Trading data	✧ Major agricultural and forestry products (crops, fruits, other agricultural products, wood, NTFPs, and their processed commodities) in the country and in the target provinces. ✧ Volumes of trade of major products at the national, provincial, and district levels	✧ Sub-department of DARD ✧ Processing factories ✧ Trading companies and middle persons ✧ Raw material suppliers
Major market information	✧ Value chain of the major agricultural and forestry products in the target provinces ✧ Key players in marketing the major agricultural and forestry products (such as raw material suppliers, middle persons, processing factories, trading companies, etc.) in the target provinces and also the potential marketing areas ✧ Companies which may make contract farming arrangements for procurement of raw materials ✧ Accessibility to potential markets from the project areas ✧ Marketing prices of the major agricultural and forestry products from farm gate to consumers (prices at each players in market chain) ✧ Market trend of the major agricultural and forestry products in the target provinces for the recent years ✧ Potentials and issues	✧ Processing and trading companies and middle persons at the national, provincial and district levels and in the Red-river delta region ✧ Raw material suppliers
Others	✧ Experiences gained and lessons learned from on-going and past programs/projects aiming to promote the major agriculture and forestry products	✧ DARD, private companies, funding institutions/donors, & NGOs concerned

Source: JICA Preparatory Survey Team (2016)

Collection of secondary data on the items listed above and interviews to key informants will be carried out at the provincial and district levels in the target provinces and in the potential marketing places, namely Hanoi and Red River Region.

The market survey is expected to clarify the whole picture of value chains of the selected potential agricultural and forestry products in the target provinces and the potential marketing places. Furthermore, marketing strategies for promotion of the selected potential agricultural and forestry products will be developed. The contents that the market survey should cover will include, but not be limited to, the following:

- Current conditions of major agricultural and forestry products in the target provinces;
- Value chains/marketing flows of the major agricultural and forestry products;
- Assessment of the value chains (overview, main players, constrains, socio economic and environmental concerns, etc.) of the major agricultural and forestry products;
- Suggestions for improvement of value chains of the major agricultural and forestry products; and
- Marketing strategies for promoting the major agricultural and forestry products considering i) introduction of contract farming, ii) development of market linkages with potential buyers, and iii) promotion of the products to the potential marketing provinces

The market survey will be carried out by a contractor for 10 months in the third year of the project (2019/2020). **Annex-F** attached to Volume II of the Final Report presents the draft terms of reference (TOR) of the survey with the estimated cost of the work.

c. Survey on the potential/ model demonstration site

As mentioned above, three types of models will be selected by each target commune. Model/ demonstration sites will be selected in consultation with commune and village leaders. In the selection of the model/ demonstration sites, due consideration will be given to the accessibility and visibility of the sites from villages in the commune to ensure the demonstration effects.

To assess the feasibility of the priority livelihood options and the adequacy of the selected model/ demonstration sites, the following meeting/workshop will be held at the target communes from the fourth year (2020/2021) to sixth year (2022/2023) of the project. The following table summarizes the outline of the meeting/workshop held at the respective communes.

Outline of the survey on the potential model site

Title	Participants	Objectives	Venue	Duration & Frequency	Timing	Impl. Method
Survey on the potential model sites	● Village leaders ● Potential participants for the livelihood improvement activities in the selected site ● Commune representative ● DAEC (30 participants)	● To confirm the feasibility of the site (natural condition, access to market, etc.) ● To confirm the capacity and responsibility of the participants	Commune center (potential model sites)	1 day x 1 time/ commune	Fourth year (2020/2021) for 1st batch Fifth year (2021/2022) for 2nd batch	Contract-out

Source: JICA Preparatory Survey Team (2016)

d. Working group set up and action plan preparation

After identifying the potential model site, a livelihood working group will be organized each for the livelihood models introduced. Local communities should be involved in all the processes from planning to implementation, so that they could: i) select the most appropriate input for sustainable operation of the models/options, ii) learn the procurement process (including potential market, etc.), and iii) enhance the sense of ownership of the livelihood development models/options. The working group will also discuss and prepare an action plan of the livelihood development model including a cost-sharing mechanism with assistance of external facilitators. The following table summarizes the outline of the workshops to be held for group formation and action planning.

Outline of the Working Group Set Up and Action Plan Preparation

Title	Participants	Objectives	Venue	Duration & Frequency	Timing	Impl. Method
Action plan preparation	● Participating HHs. ● Respective village leaders ● PFMB/SUFMB ● DAEC (30 participants)	● To establish a working group at each site ● To conclude the membership and discuss internal regulation	Commune center (potential model sites)	0.5 day x 1 time/ commune	Fourth year (2020/2021) for 1st batch Fifth year (2021/2022) for 2nd batch	Contract-out
Action plan preparation	● Participating HHs. ● Respective village leaders ● PFMB/SUFMB ● DAEC (30 participants)	● To visit a potential market to confirm the market needs ● To discuss and prepare business plan	Commune center (potential model sites)	0.5 day x 1 time/ commune	Fourth year (2020/2021) for 1st batch Fifth year (2021/2022) for 2nd batch	Contract-out

Source: JICA Preparatory Survey Team (2016)

e. Development of model/demonstration site and technical training of the livelihood options

Model/ demonstration sites for the livelihood development options will be developed at the commune or village level with technical assistance of contractors employed by PPMBs for this work. Simultaneously, the model sites will be used as the venues for training; therefore, a series of technical training courses will be organized for the working groups at the model/demonstration sits. The standard content of the technical training courses is composed of five sessions as outlined below. Nevertheless, detailed contents will vary with the types of livelihood development options selected.

Outline of the Technical Training at Model Sites of Livelihood Options

Title	Participants	Objectives	Venue	Duration & Frequency	Timing	Impl. Method
On-site technical training	● Participating HHs. ● Respective village leaders ● PFMB/SUFMB ● DAEC (20-50 participants)	S1: Introduction and guidance S2: Preparation of the site (including procurement of inputs) S3-S4:On-site technical training S5: Wrap up for diffusion	Potential model sites)	1 day x 1 session/ commune x 5 sessions	2020~2021 for 1st batch 2021~2022 for 2nd batch	Contract-out

Source: JICA Preparatory Survey Team (2016)

(7) Guidance and Training on Financial Management

In order to enable the working groups to pool and save certain amount of payments made by the project for future livelihood improvement or forest management activities in the post project period, the following guidance and training sessions will be held at the target

communes. The sessions contain: i) guidance on fund saving, ii) discussion on the use of saving funds, iii) training on financial management, and iv) training in making a business plan. The following table shows the outline of the sessions.

Outline of the Guidance and Training on Financial Management

Title	Participants	Objectives	Venue	Duration & Frequency	Timing	Impl. Method
Guidance and training on financial management	● Commune leaders ● Village leaders ● Representative of mass organizations ● PFMB/SUFMB ● DAEC (70 participants)	S1: Guidance on the mode of payments from PFMBs/SUFMBs to the village working groups S2: Discussion on the use of saving fund of the village working group (setting rule, future vision, etc.) S3: Training on financial management (basic accounting knowledge) S4: Business plan preparation	Commune center	1 day x 1 session/ commune x 4 sessions	Fourth year (2020~202) 1 for 1st batch Fifth year (2021~202 2) for 2nd batch	Contract-out

Source: JICA Preparatory Survey Team (2016)

In addition to the use and saving of the payments made by the project, the savings from the cost sharing mechanism, which will be introduced in one of the potential livelihood improvement options, namely "introduction of fuel saving cooking stove", should be discussed in the workshops mentioned above. In the option, the users of fuel saving cooking stove will shoulder 50% of its cost; therefore, the payments made by the users can be saved for operations of other livelihood activities or communal purposes.

(8) Inter District/Province Cross Field visits

Inter-provincial cross visits will be organized to provide local communities opportunities to learn from each other by observing other groups' activities and exchanging experiences and lessons from the livelihood development activities. It would be one of the most effective ways to motivate local communities to learn from other communities' activities. The outline of the inter-provincial cross visit is shown below.

Outline of Inter District/Province Cross Field Visit

Title	Participants	Objectives	Venue	Duration & Frequency	Timing	Impl. Method
Inter-district/ province Cross field visit	● Respective livelihood option's working group members (30 participants)	● To learn from good practice, and exchanging experiences among participants	One of the target communes	1 night & 2 days x 1 time/year x 4 years	Sixth to Eighth year (2020~2023)	Contract-out

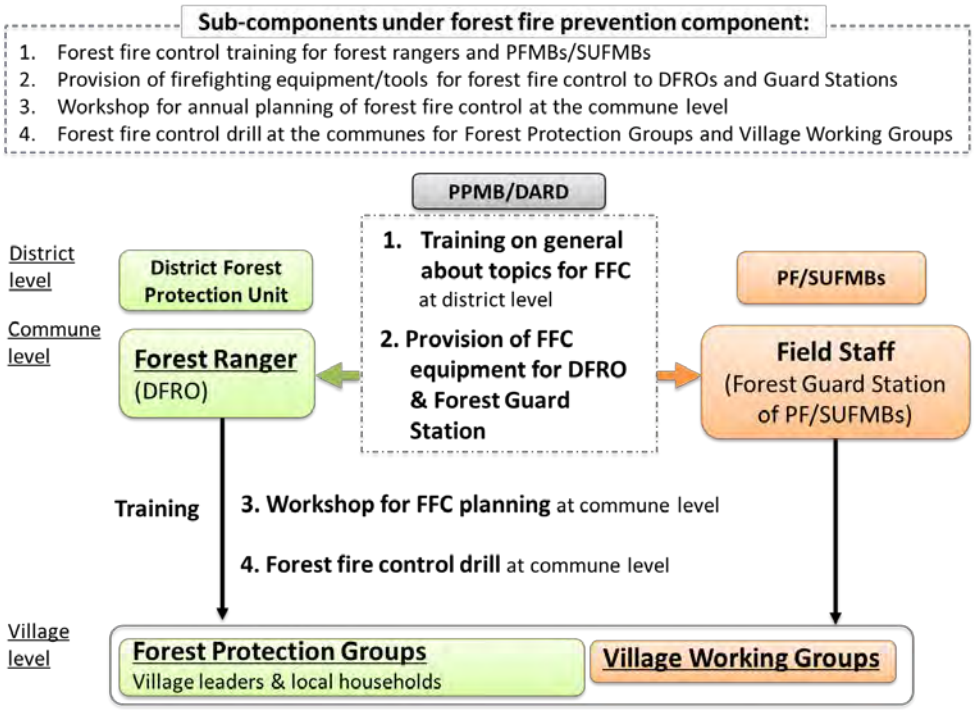
Source: JICA Preparatory Survey Team (2016)

3.3.7 Forest Fire Control

(1) Basic Concepts of the Component

As forest fire has frequently occurred and been the major driver of deforestation and forest degradation in the northwest region, forest fire control (FFC) is important, if anything, more important than that in the JICA2 project. In order to effectively control and prevent forest fires in poor accessible areas, the specific focus of forest fire control should be placed on the

enhancement of the capacity of stakeholders at the field level. The basic concept of forest fire control of the proposed project is illustrated below.



Outline of Forest Fire Control Component

Source: JICA Preparatory Survey Team (2016)

It is necessary to address the factors that cause combustion, such as "oxygen," "combustible or dry matter," "chances of ignition," and "environment that continues high temperature or heating," when enhancing local capacities for fire control. Among others, the emphasis should be given to the application of temporary fire break lines to isolate the fire point from combustible matters as it may not be necessarily easy for local communities to use water for fire extinction in the field due to its terrain conditions.

(2) Outline of the Component

a. Activities of the Component

The following activities will be carried out in the component to strengthen the capacity of local stakeholders for fire control and extinction.

- Training of forest rangers/guards of District Forest Ranger Offices (DFROs) and PFMBs/SUFMBs concerned to become trainers for local communities on forest fire control,
- Provision of initial firefighting equipment/tools at the local level, and
- Training of village leaders and members of the forest protection groups on forest fire fighting

b. Target groups of the activities

This component will target two groups: i) forest rangers of DFROs and forest guards of PFMBs/SUFMBs responsible for management of the project areas and ii) village leaders, members of the forest protection groups and/or village working groups, and other local households. Forest rangers and guards are to be responsible for fire control in their jurisdiction; therefore, they should function as mobile fire fighting team to help local people

extinguish fires and also as trainers/coaches in forest fire drills/field training on forest fire control for the forest protection groups/village working groups. The following table shows the summary of the target groups of the component.

Target Groups of the Activities

Target Group	Expected Function	Project Activates
District Forest Ranger Offices	◆ Mobile fire team ◆ Trainers for forest fire drills for local communities	◆ Provision of fire control equipment and tools for training on forest fire control and spare tools for any deficit at the village level ◆ Provision of training of trainers for fire drills / forest fire control
Forest protection groups (5-20 members/group), and village working groups	◆ Frontline teams against forest fires	◆ Provision of fire control equipment and tools for suppression of forest fires ◆ Provision of forest fire drills/training on forest fire control

Source: JICA Preparatory Survey Team (2016)

c. Provision of forest fire control tools and equipment

PPMBs will procure different a set of first fire control equipment and tools each for DFROs and PFMBs/SUFMBs concerned with the project areas in the respective provinces. Types and specification of forest fire control equipment and tools to be provided to each office are shown below.

Amount of FFC Equipment/Tools per One Set for each FRO/Guard Station of FMB

Unit: piece/set

No.	Equipment/Tool	Amount	Purpose of use	Remarks
1.	Vegetation cutting machine	3	For making fire break lines	-
2.	Chainsaw	3	Ditto	Compact size easy to carry
3.	Clearing knife	20	Ditto	-
4.	Swatter	20	For prevention of fires from spreading	Compact size easy to carry
5.	Portable Shovel	20	For making fire break lines	-
6.	Hand Fire Extinguisher/ Water Sprayer/Jet shooter	3	For firefighting and extinguishment	Compact size easy to carry
7.	Portable water container (for personal use)	20	For making fire break lines	1 litter
8.	(Handy) Loud Speaker	3	For firefighting/extinguishment and training	-
9.	Protection clothes+ shoes+helmet+torch+bag	20	For firefighting and extinguishment	-
10.	Binoculars	1	Ditto	-
11.	Binoculars (Night)	1	Ditto	-
12.	GPS Digital Camera	1	For firefighting/extinguishment and training	-

Source: JICA Preparatory Survey Team (2016)

The tools and equipment are selected in consideration of the use in hilly and mountainous areas; hence, those easy carrying and usable should be selected as the equipment and tools unlike the conventional ones that the DARD have procured.

The following table shows the total set of the equipment and tools to be provided to DFROs in the four provinces.

Set Amount Options for Targeted DFROs/Guard station of FMBs

Unit: set

Province	No. of sets to be provided to DFROs	No. of sets to be provided to PFMBs/SUFMBs	Total
Dien Bien	3	4	7
Lai Chau	3	4	7
Son La	3	4	7
Hoa Binh	4	4	8
Total	11	16	29

Source: JICA Preparatory Survey Team (2016)

In addition to the above-listed equipment, the following transportation equipment will be procured for each PPMB.

Transportation Equipment for Each PPMB

Unit: piece/set

No.	Equipment/Tool	Amount	Purpose of use
1.	4 x 4 Vehicle	1	For carrying the forest fire control equipment
2.	4 x 4 Pick-up	1	For carrying the forest fire control equipment
3.	Off-road-type Motorbike	5	For mobilization of forest rangers

Source: JICA Preparatory Survey Team (2016)

d. Training of forest rangers and local communities on forest fire control

PPMBs will first arrange and organize training courses on forest fire control for forest rangers of DFROs and PFMBs/SUFMBs concerned with the target protection forests/special use forests after provision of the forest fire control equipment and tools to DFROs and PFMBs/SUFMBs in the fourth year (2020/2021) of the project. After training of forest rangers of DFROs and PFMBs/SUFMBs, the capacities of village leaders and members of forest protection groups/village working groups will be enhanced through two types of training, namely i) workshop for annual planning of forest fire control and ii) forest fire drill. Forest rangers trained by the project will be trainers in both training courses for local communities. The training courses planned under the component are outlined below.

Phase-in and Phase-out Activities

Title	Participants/time	Topics	Venue	Duration & Frequency	Timing	Impl. Method
Training on forest fire control	Forest rangers of DFROs and PFMBs/SUFMBs relating to the project areas (30 participants)	Activities for forest fire control (forest protection, forest fire prevention, forest fire fighting) Facilitation skills Concept of community forestry or collaborative management Responsibilities of local communities for detection and initial suppression of fire	District capital	2 days x 1 time/ province	4th year (2020/2021)	By administration (PPMBs/DARDs)
Workshop for annual planning of forest fire control	Commune and village leaders, members of forest protection groups, and members of village working groups (50 participants)	Outline of fire prevention, District and commune forest fire control plans Development of commune forest fire control and initial firefighting plans Field practice of fire fighting	Commune	2 days x 1 time/ commune	4th year (2020/2021)	By administration (DFROs)
Forest fire drill	Commune and village leaders, members of forest protection groups, and members of village working groups (50 participants)	Use of forest fire control equipment and tools Field practice of fire fighting Outline of communes forest fire control and initial firefighting plans	Commune	1 day x 1 time/ commune x 2 times	4th year (2020/2021) and 6th year (2022/2023)	By administration (DFROs)

Source: JICA Preparatory Survey Team (2016)

3.3.8 Project Management

The following activities will be carried out under this component by using the counterpart fund. Detailed cost estimates and draft terms of references (TORs) for some of the activities listed below are shown in Annex-G attached to Volume II of the Final Report.

a. Preparatory works
b. Information dissemination to relevant stakeholders

c. Production and publication of project documents
d. Study tours
e. Technical guidance to the stakeholders
f. Review meetings
g. Monitoring and evaluation of the project performance
h. Forest monitoring

(1) Preparatory Work

a. Establishment of the Project Management Boards including Allocation or Employment of Project Staff

After the loan agreement is effective, MARD, as the governing body of the proposed project, will decide the organization structure of the project including the steering committees at the central and provincial levels and issue the decision on the establishment of the structure. In response to the decision, MBFPs and PPCs concerned will issue the decision on the formation of the Central Project Management Board (CPMB) and Provincial Project Management Boards (PPMBs) at the central and provincial levels, respectively.

The proposed compositions of the steering committees and project management boards at the respective levels are shown below. The members of the steering committees and the staff project management boards will be further deliberated and finalized in the beginning of the project.

Staff/Member Composition of Steering Committees and CPMB/PPMB

Organizations	Composition of the organization
Central Steering Committee (CSC)	- Chairperson: Vice Minister of MARD - Vice Chairperson: Head of ICD - Secretariat: MBFPs - Members: MBFPs, VNFOREST (Dept. of Forest Development, Dept. of Forest Protection, Dept. of Nature Conservation, Dept. of Science, Technologies & International Cooperation), MPI, MoF, and PPCs concerned
Central Project Management Board (CPMB)	- 1 Director - 1 Deputy Director - 1 Planning officer - 3 Accountants - 3 Technical staffs - 1 Administration staff - 2 Drivers
Provincial Steering Committee (PSC)	- Chairperson: Vice Chairman of PPC - Secretariat: DARD - Members: PPMB, DARD, DONRE, DPI, DOIT, DOST, DPCs, Provincial State Treasury, etc.
Provincial Project Management Board (PPMB)	- 1 Director - 1 Deputy Director - 1 Planning officer - 5 Accountants - 2 Technical staffs - 1 Administration staff - 1 Driver

Note: MPI: Ministry of Planning and Investment, MOF: Ministry of Finance, DPI: Department of Planning and Investment, DOIT: Department of Industry and Trade, DOST: Department of Science and Technologies, and DPCs: District People's Committees
Source: JICA Preparatory Survey Team(2016)

MBFPs and PPCs/DARDs will secure the staff of CPMB and PPMBs by either allocation of MBFPs and DARDs officers or new recruitment on a contractual basis. Job descriptions and terms of references (TOR) of the respective positions of CPMB and PPMBs, which specify qualifications, scope of responsibilities, and authorities given to the positions, will be developed before allocation of the staff, so that MBFPs and DARDs concerned could select

applicants based on their qualifications and expertise as compared to those required for the vacant positions in compliance with the national laws/regulations as well as the agreement between GoV and JICA.

b. Development of Guidelines and Regulations for Implementation of the Project

A set of project implementation guidelines/regulations will be prepared by CPMB in the beginning of the project. The implementation guidelines/regulations will stipulate principles, rules and regulations on project management, and procedures for implementation of the project in accordance with existing government regulations at the central and provincial levels. They cover a wide range of aspects on project management, such as administrative and financial management, accounting, project management, and monitoring and evaluation. The topics to be covered by the guidelines/regulations include, but not limited to, the following:

a. Project management
b. Monitoring and evaluation
c. Billing and fund management
d. Identification of the project areas and formation of community organization
e. Survey and detailed planning
f. Information dissemination and extension
g. Capacity development
h. Forest development and improvement
i. Silviculture infrastructure development
j. Small scale infrastructure development
k. Support for livelihood development
l. Forest fire control
m. Benefit sharing, collaborative management, and forest management planning

Having drafted the implementation guidelines/regulations, CPMB will submit and present the draft guidelines/regulations to the central and provincial steering committees for their reviews. The guidelines/regulations will be issued and notified by MARD as a ministerial circular after ratification of the central steering committee.

c. Development of a Monitoring System

In addition to the implementation guidelines/regulations, a GIS-based monitoring system will be developed with monitoring forms and data collection and management systems at the central and provincial levels. The GIS-based monitoring system will enable CPMB and PPMBs to manage monitoring data in a cost-effective manner and also to make necessary decisions for project operations in a timely manner.

Photo-like maps covering the project areas which will be developed in the project activity of "PLUP and formation of village working groups" will be used as base maps of the GIS-based monitoring system. Spatial data together with photos taken through the field activities, such as "demarcation of boundaries of the project areas," "field validation of forest development activities," and "forest monitoring," will be incorporated into the GIS-based system so that the progress of the project and status of the project areas could be easily confirmed and monitored.

The monitoring system should be synchronized with the activities of SNRMP, as the same project plans to introduce the Provincial Forest Management System (PFMS) with the provision of skill training in the target provinces and districts in the course of the said project.

In particular, forest monitoring data collected by forest rangers in the target protection forest and special use forests can also be shared with the PFMS database at the provincial level. Eventually, the monitoring system of the project should be incorporated into or integrated to a PFMS database which will be the basis for measurement and reporting of provincial REDD+ activities.

The project consultant will assist CPMB in the development of the GIS-based monitoring system and provide necessary guidance and orientation to CPMB as well as PPMBs on the use and management of the GIS-based monitoring system in the second year (2018/2019) of the project.

d. Reassessment of the Target Protection Forests and Special Use Forests

Although a total of 64 communes in 10 protection forests and six special use forests are selected as the project areas in the four provinces, PPMBs need to re-examine the necessity of the project in the selected project areas by interviewing the relevant stakeholders such as PFMBs and SUFMBs and DFROs concerned.

e. Procurement of Project Equipment

In the first year (2017/2018) of the project, CPMB and PPMBs will purchase the following project equipment necessary for operations and management of the project at the respective levels.

Lists of Project Equipment to be procured at the Central and Provincial Levels

Project Equipment	CPMB	PPMBs
Desktop PC + software	6 units	4 units/PPMB
Laptop PC + software	2 units	1 unit/PPMB
Printer (A4/A3)	1 unit	1 unit/PPMB
Inkjet Printer (A4/A3)	1 unit	1 unit/PPMB
GIS software (MapInfo)	-	1 unit/PPMB
Photocopy Machine	1 unit	1 unit/PPMB
UPS (1000VA)	6 units	4 units/PPMB
A0 plotter	-	1 unit/PPMB
Digital handycam	1 unit	1 unit/PPMB
GPS	-	5 units/PPMB
Digital camera	2 units	2 units/PPMB
Binoculars	-	2 units/PPMB
Projector	1 unit	1 unit/PPMB

Source: JICA Preparatory Survey Team (2016)

f. Development of Draft Terms of References for the Contractual Works

CPMB with technical assistance of the project consultant will prepare the templates of terms of references (TORs) for the activities which will be contracted out to external contractors (central or provincial public or private competent institutions/organizations), such as PLUP and formation of village working groups, socio-economic baseline survey, and marketing survey, so that CPMB or PPMBs could smoothly proceed to the procurement of contractors for the respective works.

(2) Information Dissemination to Relevant Stakeholders

Information dissemination aims to enhance stakeholders' awareness of the project, especially the concepts, principles, regulations/guidelines, and work plans of the project, in the beginning of the project, so that key stakeholders, namely CPMB/MBFPs, PPMBs/DARDs, DPCs, CPCs, PFMBs/SUFMBs, and local communities, could have the same understanding of the project in the beginning of the project. Furthermore, specific focus should be put on the

dissemination of the idea of benefit sharing and collaborative management between PFMBs / SUFMBs and local communities for sustainable protection and management of plantations and natural forests in the project areas in the post project period. To this end, the following workshops and meetings will be organized and held in the course of the project implementation.

a. Orientation of the project for CPMB/MBFPs, PPMBs/DARDs, PFMBs/SUFMBs, DPCs, CPCs, and village working groups

Since the implementation and management of a yen-loan project will be new to the majority of the stakeholders involved in the proposed project, project orientation workshops will be organized and held to introduce the objectives, concepts, principles and major activities of the projects with regulations/guidelines on project implementation for the relevant stakeholders at the different levels, namely CPMB/MBFPs, relevant departments of MARD, PPMBs/DARDs, relevant provincial departments, PFMBs/SUFMBs, DPCs and CPCs concerned, and village working groups formed. A one-day workshop will be held by MBFPs, CBMB, and PPMBs with assistance from the project consultant in the second year (2018/2019) of the project. The following table shows the outlines of the orientation workshops planned at the respective levels.

Project Orientation Workshops at the Respective Levels

Title	Participants	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Project orientation workshops	CPMB, MBFPs, and the relevant departments of MARD (30 participants)	Outline of the project (objectives, concepts, principles, project components and activities, implementation schedule, and organizational structure) Regulations / guidelines / manuals for implementation of the project	Hanoi	1 day x 1 time	2nd year (2018/2019)	By administration (project consultant)
	PPMBs, DARD, and and the relevant departments of PPCs (30 participants)		Provincial capital	1 day x 1 time/ province		By administration (CPMB with project consultant)
	PFMBs/SUFMBs, DPCs (30 participants)		District center	1 day x 1 time/ district		By administration (PPMBs)
	CPCs, and Village working groups (60 participants)		Commune center	1 day x 1 time/ commune		By administration (PPMBs with PFMBs/SUFMBs)

Source: JICA Preparatory Survey Team (2016)

b. Planning with CPMB and PPMBs

In order to help the project staff of CPMB and PPMBs get a clear picture of the project activities and work schedule of the project, another one-day workshop for discussions on the work plan of the project will be held at the respective levels. In the workshop, the participants from CPMB are expected to develop an overall work plan and an annual work and budget plan of the entire project, while those from PPMBs will develop the same of the project components at the provincial level. The outline of the workshops are summarized below.

Planning Workshops at the Central and Provincial Levels

Title	Participants	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Planning workshops	CPMB (30 participants)	Discussion on an overall work plan of the project considering major activities, necessary input and arrangements, work schedule, etc. Discussion on an annual work and budget plan based on the overall work plan	Hanoi	1 day x 1 time	2nd year (2018/2019)	By administration (project consultant)
	PPMBs (30 participants)		Provincial capital	1 day x 1 time/ province		By administration (CPMB with project consultant)

Source: JICA Preparatory Survey Team (2016)

c. Orientation and guidance on work plans to FMBs/SUFMBs, DPCs, CPCs, and village working groups

The work plans developed by PPMBs should be further introduced to and discussed with field implementers and stakeholders at the district and commune levels to enable them to deepen their understandings of the project activities and their responsibilities. A one-day workshop will be organized and held each at the provincial and district levels to this end.

Orientation on Work Plans at the Provincial and District Levels

Title	Participants	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Orientation and guidance on project plans	PFMBs/SUFMBs (30 participants/time)	Introduction of the work plan of the components related to the participants, such as improvement of watershed forest, support for livelihood development, and small scale rural infrastructure development	Provincial capital	1 day/time×1 time/province	2nd year (2018/2019)	By administration (PPMBs)
	DPCs and CPCs concerned, village working groups (60 participants/time)		District center	1 day/time×1 time/district		By administration (PPMBs)

Source: JICA Preparatory Survey Team (2016)

d. Orientation and guidance on benefit sharing mechanism and collaborative management system to CPMB/MBFPs, PPMBs/DARDs, PFMBs/SUFMBs, DPCs, CPCs, and village working groups

The benefit sharing mechanism is the crucial scheme for sustainable management of plantations and natural forests in the target protection forests and special use forests especially after the end of the project. CPMB with technical assistance from the project consultant will first review the existing case studies and trials on benefit sharing and collaborative management in protection forests and special use forests in the county, and draft the regulations/guidelines on the benefit sharing mechanism through field trial by the seventh year (2023/2024) of the project.

To further discuss the draft mechanism, orientation and consultation workshops on the benefit sharing mechanism will also be held at all levels to exchange opinions and ideas on the same topics with a wide range of stakeholders. The following table shows the outline of the orientation and consultation workshops on the benefit sharing mechanism.

Project Orientation Workshops at the Respective Levels

Title	Participants/time	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Orientation and consultation workshop on the benefit sharing mechanism	CPMU, MBFPs, and relevant departments of MARD (30 participants)	Objectives and concepts of the benefit sharing mechanism and collaborative management system, Rules on the benefit sharing, Rights and obligations of parties involved in benefit sharing / collaborative management, etc.	Hanoi	1 day x 1 time	7th year (2023/2024)	By administration (project consultant)
	PPMUs, DARDs, and relevant department of PPCs (30 participants)		Provincial capital	1 day x 1 time/ province		By administration (CPMB with project consultant)
	PFMBs/SUFMBs, and DPCs (60 participants)		District center	1 day x 1 time/ district		By administration (PPMBs)
	CPCs and village working groups (60 participants)		Commune center	1 day x 1 time/ commune		By administration (PPMBs with PFMBs/SUFMBs)

Source: JICA Preparatory Survey (2016)

e. Orientation and guidance on the Environmental Social and Management Framework (ESMF) Implementation and Monitoring for CPMB/MARD, PPMBs/DARD, PFMBs, and SUFMBs

In order to properly manage and monitor the environmental and social safeguard issues and their associated procedures, it is crucial to enhance the capacity of various agencies and stakeholders in the initial stage of the project. To this end, the following orientation and guidance sessions should be arranged and provided to the relevant project officers, such as CPMB/MARD, PPMBs/DARDs, PFMBs, and SUFMBs concerned.

Orientation on ESMF Implementation and Monitoring for CPMB, PPMBs, and PFMBs/SUFMBs

Course	Participants	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Safeguard Implementation and Compliance	CPMB/MARD, PPMBs/DARDs, PFMBs & SUFMBs (15 participants)	■ Legal framework on environmental and social safeguards of Vietnam and JICA ■ UNFCCC REDD+ Safeguards ■ Environmental and social considerations and potential impacts ■ ESMF procedures	Provincial center	3 days per time per province (once a year in the first 3 years)	from the 1st to 3rd year	By administration (CPMB with project consultant)
Co-management and Participatory Forestry and REDD+	PFMBs & SUFMBs (15 participants)	■ Community-based Natural Resource Management/ Participatory Forestry ■ REDD+ (including REDD+ Safeguards) ■ Sustainable livelihood and PRA skills ■ Free, Prior and Informed Consultation / Consent (FPIC) ■ Participatory Land / Resource Use Mapping ■ Land/Resource Conflict Management ■ Co-management ■ Gender issues	Provincial center	2 days per time per province (once a year in the first 3 years)	from the 1st to 3rd year	By administration (CPMB with project consultant)

Source: JICA Preparatory Survey Team (2016)

The orientation sessions described above will be arranged and held in the first three years (from 2018/2019 to 2020/2021) by CPMB with technical assistance from the project consultant. Detailed concepts of the orientation sessions are further described in the Environmental and Social Management Framework (ESMF) shown in Annex I attached to Volume II of the Final Report.

(3) Production and publication of project documents

The main aims of production and publication of project documents are to enhance the public awareness of the project and to help relevant stakeholders understand the procedures and/or skills necessary for implementation of the project activities. Hence, different types of publication are to be developed to get messages across to a wide range of people. CPMB and PPMBs will develop the following materials with technical assistance from the project consultant and/or the contractors that have experiences in production of materials similar to the project documents planned.

Project Documents to be developed and produced

Materials	Type of materials	Responsible organization	Possible assisting organization	Targets	Timing
Project Brief (overall)	Print (leaflet)	CPMB	Project consultant	MARD, PPCs, Public	2nd year (2018/2019)
Project Brief (sub-project)	Print (leaflet)	PPMBs	Project consultant, contractors (PAEC)	DARD, DONRE, DOST, PFMBs, SUFMBs, DPCs, CPCs	Ditto
Annual newsletters (overall)	Print (leaflet)	CPMB	Project consultant	MARD, PPCs, Public	From 2nd year (2018/2019) to 8th year (2024/2025)
Annual newsletters (sub-project)	Print (leaflet)	PPMBs	Project consultant, contractors (PAEC)	DARD, DONRE, DOST, DPCs, CPCs	Ditto
Awareness raising materials	Poster, Booklets, DVD/VCD	PPMBs	Project consultant, contractors (PAEC)	Local communities, households, youths	4th year (2020/2021)

Source: JICA Preparatory Survey Team (2016)

The materials targeting local communities should be developed with pictures, drawings, photos, and images so that they are visually understandable to general public, especially those who have less literacy. The project consultant will review and finalize the materials drafted by CPMB and PPMBs to ensure the effectiveness of the materials.

(4) Study Tours

The study tours will be organized for the project staff of CPMB and PPMBs as well as key officers of MBFPs, VNFOREST, DARDs, and PPCs. The following study tours will be arranged for the different targets in the course of the project.

Study Tours arranged and organized for CPMB, PPMBs, MBFPs, VNFOREST, DARDs, and PPCs

Study Tours	Targets	Responsible organization	Possible assisting organization	Objectives	Frequency and Timing
Study tours to target provinces of the JICA 2 project	PPMBs, DARDs, PFMBs, SUFMBs	CPMB	Project consultant	To have a clear image of the project To learn project management practices and useful lessons in project management	1 time in 2nd year (2018/2019) and 5th year (2021/2022)
Study tours to the pilot sites of SNRMP	PFMBs, SUFMBs, CPCs, and village working groups	PPMBs	Project consultant	To have an image of some of the project activities, especially those relating to livelihood development	1 time in 3rd year (2019/2020) and 4th year (2020/2012)
Overseas study tours	CPMB, MBFPs, VNFOREST, DARDs, PPCs	CPMB	Project consultant	To learn community participation in forest management, development and management of forest users' groups, and income generating activities	1 time in 4th year (2020/2021) and 6th year (2022/2023)

Source: JICA Preparatory Survey Team (2016)

As the majority of the project staff and key officers of DARDs and PPCs of the target provinces are not familiar with the concept of community-based forest management and collaborative forest and natural resource management, it is particularly important to give them opportunities to directly observe the existing cases of community-based forest management and learn experiences and lessons through exchanging opinions with communities who have participated in forest management in the field, so that they could have an idea on collaborative forest management applicable to the project areas.

(5) Technical Guidance to the Stakeholders

In order to ensure the quality of the work, the following technical guidance will be given to PPMBs, PFMBs/SUFMBs, and/or other contractors.

- Guidance on PLUP (including the use of GPS)
- Guidance on the use of GIS

For each topic, a two-day workshop will be organized and held in the respective provinces. The following table shows the outline of the respective sessions.

Guidances on PLUP and Use of GIS

Title	Participants	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Guidance on PLUP and GPS	PPMBs, PFMBs / SUFMBs, and contractors (about 30 persons)	Outline of PLUP, Procedures for PLUP, Expected outputs of PLUP, and Use of GPS	Provincial Capital	2 days x 1 time/ province	2nd / 3rd years (2018/2019 & 2019/2020)	By administration or Contract out
Guidance on use of GIS	PFMBs / SUFMBs (20 participants / session)	Management of data of the perimeter survey using GIS	Provincial Capital	2 days x 1 time/ province	3rd year (2019/2020)	By administration or Contract-out

Source: JICA Preparatory Survey Team (2016)

In addition to the formal guidance, PFMBs and SUFMBs will be given regular coaching and technical assistance on silviculture techniques by the project consultant so that PFMBs/SUFMBs could further provide technical assistance and guidance to the village working groups for establishment of quality plantations in a proper manner.

(6) Review meetings

The project review meetings will be convened every six months at both the central and provincial levels. CPMB and the relevant departments of VNFOREST/MARD will be the main participants in the meeting at the central level, while PPMB, DARD, and PFMBs/SUFMBs and DPCs will periodically review the component projects at the provincial level. In the meeting, the participants will review, confirm and discuss the activities and accomplishments made in the last six months, any issues and concerns observed in the course of the project, lessons learned, and activities planned in the next six months. Such periodic reviews would help CPMB/MBFPs and PPMBs/DARDs monitor the progress of the project in a timely manner, and also give good opportunities for CPMB and PPMBs to solve any difficulties in the project operations. The outline of the review meetings are summarized below.

Review Meetings at the Central and Provincial Levels

Title	Participants	Topics	Venue	Duration and Frequency	Timing	Impl. Method
Review meeting at the central and provincial levels	CPMB, MBFPs, and the relevant departments of MARD (30 participants)	Review, confirmation, and discussions of the progress of the project (activities and accomplishments made), issues and concerns, lessons learned, and activities planned in the following six months	Hanoi	1 day/time×2 times/year from the end of 1st year to the middle of 10th year	1st year (2017/2018) to 10th year (2026/2027)	By administration (CPMB)
	PPMB, DARD, PFMBs/SUFMBs , DPCs (30 participants)		Provincial center	ditto		By administration (PPMBs)

Source: JICA Preparatory Survey Team (2016)

(7) Monitoring and Evaluation of the Project Performance

a. Objectives of M&E

The main objectives of M&E are: i) to systematically manage the project implementation and project resources in an effective and efficient manner, ii) to assess the project impact adequately, and iii) to ensure the sustainability of the project effects. As the results of monitoring are relevant to project management, it should be basically carried out by the project implementer as a part of the project management activities in the course of the project. On the other hand, the evaluation should be carried out on a periodic or ad on basis by the third party as it is mainly aimed at the assessment of the project impact and sustainability.

b. Outline of the M&E activities

In accordance with the latest government decree on management and use of ODA (Decision No. 16/2016/ND-CP dated March 16, 2016), the following M&E activities shall be carried out.

i) Regular monitoring and supervision
ii) Initial assessment, monitoring, and evaluation
iii) Mid-term assessment, monitoring, and evaluation
iv) Terminal assessment monitoring, and evaluation
v) Irregular assessment (if necessary)

More details of the respective activities are described in the following sub-sections.

c. Regular monitoring and supervision

PPMBs of the target provinces will monitor and supervise the progress and performance of the component projects periodically and prepare the following monitoring reports for submissions to PPCs concerned and CPMB at the central level.

- Monthly progress report
- Quarterly progress report
- Yearly progress report
- Project completion report

The information and data covered by the monitoring reports will include, but not limited to, the following:

- Physical and financial accomplishments
- Progress of key monitoring indicators
- Progress and results of procurement
- Any negative environmental and social impacts caused by the project activities
- Any issues and concerns on project implementation
- Recommendations

Location data (GPS/GIS data) of physical accomplishments with photos taken in the field will be attached to the report so that the GIS-based monitoring system could be updated periodically.

d. Initial evaluation

The initial evaluation is to be carried out immediately after the commencement of the project. The main aims of the initial evaluation are to review the actual situation of the target

protection forests and special use forests as well as communes relevant to the areas, to assess if the project design is still relevant, and to examine the consistency of the project concepts, approaches, and framework with the government policies and strategies. To this end, the following data and information will be collected and analyzed:

- Status of CPMB and PPMBs (current resources assigned and allocated to CPMB and PPMBs, and level of staff);
- Socio-economic situation of the target communes;
- Present land use / forest cover in the target protection forests and special use forests; and
- Any emerging issues, suggested solutions, and proposed changes.

The results of the initial evaluation will be used for updating/revising the overall implementation plan. The evaluation will be carried out by CPMB and PPMBs in the first year (2017/2018) of the project.

e. Mid-term evaluation

The mid-term evaluation will be carried out in the middle of the project life, which is at the fifth year (2021/2022) of the project. The primary purpose of the mid-term evaluation is to verify if the project has been implemented on the right track to achieve its goals and objectives in an efficient and effective manner. In addition, the mid-term evaluation aims to determine any difficulties and issues in the implementation of the project and figure out possible solutions for improvement of the project design. The major activities to be carried out in the mid-term evaluation of the project are outlined below.

i) Confirmation and analysis of the progress of the project as compared to the plan
ii) Field validation of the accomplishments made under the component of improvement of watershed forests
iii) Evaluation of general social impact on the target communes
iv) Evaluation of economic impact on local households
v) Evaluation of the performance of the project
vi) Lessons learned though the project implementation
vii) Recommendations on project designs

Among the activities of the mid-term evaluation, draft specifications of the field works, namely field validation of the accomplishments, evaluation of general social impact on the target communes, and evaluation of economic impact on local households, are described in **Annex-G** attached to Volume II of the Final Report, and summarized below.

Draft Specifications of the Field Works of the Mid-term Evaluation

Work Items	Outline
Field validation	1. Targets of field validation of physical accomplishments (1) Afforestation: 2% of the planted areas will be targeted and the size of one sample plot is 400 m^2/plot. (2) ANR: 1% of the planted areas will be targeted and the size of one sample plot is 500 m^2/plot. 2. Survey times (1) Afforestation: i) year of planting, ii) number of trees planted and survival rate of trees planted in the selected plantations, iii) height of trees and diameter of tree trunk, iv) quality of planted trees, and v) growing stock of trees. (2) ANR: i) year of contract, ii) vegetation covers, iii) height of trees and diameter of tree trunk, and growing stock of trees.
Evaluation of general social impact	The following data and information will be collected from the target communes. - Number of the communes and households involved in the project - Number of the village working groups organized - Any changes in forest management practices/forest resource uses in the communes

Work Items	Outline
	- Number of beneficiaries involved in the livelihood development activities - Livelihood improvement activities introduced
Evaluation of economic impact on local households	A half of the beneficiary households involved in the project in two-fifth (40%) of the target communes will be sampled and the following data and information will be collected by an interview survey. - Cash income generated by the project - Income generating activities additionally introduced

Source: JICA Preparatory Survey (2016)

The mid-term evaluation including the field works mentioned above will be contracted out by CPMB to a contractor, either a public institution/university/private firm who is financially and technically capable to conduct the works.

f. Terminal evaluation

The terminal evaluation will be carried out one year before the completion of the project. The purpose of the terminal evaluation are: i) to evaluate the design of the project, process of implementation, management performance, level of achievement of the project goals and objectives and efficiency in using the resources; ii) to evaluate the benefits of the project, possible impacts, and sustainability; and iii) to discuss the lessons learned and recommendations. Like in the case of the mid-term evaluation, the terminal evaluation will be outsourced to a contractor. Since the terminal evaluation will require in-depth surveys on physical accomplishments made by the project and socio-economic impacts made on households in the target communes in the four provinces, two types of surveys, namely i) forestry inventory survey and ii) socio-economic interview survey, will be carried out separately. The draft terms of references (TORs) of both surveys and socio-economic interview survey are presented in **Annex-G** attached to Volume II of the Final Report, and summarized below.

Draft Specifications of the Forest Inventory Survey

<table>
<tr><th>Work Items</th><th>Outline</th></tr>
<tr><td>Review of project design and framework</td><td>The following data and information will be collected and reviewed.
- Project designs and overall framework;
- Progress of the project activities that have been implemented in the four provinces as compared to the original plans;
- Implementation process of the project.</td></tr>
<tr><td>Analysis of satellite images</td><td>The latest land use and forest cover maps will be developed through the following steps:
- Purchase of the medium resolution satellite images covering the project areas;
- Analysis of the satellite images to clarify the present land use and forest cover the project areas;
- Development of latest land use and forest cover maps with GIS data on contour lines, roads, administrative boundaries, etc., by using GIS; and
- Revision and finalization of the latest land use and forest cover maps based on the results of ground truth surveys and forest inventory survey</td></tr>
<tr><td>Forest Inventory</td><td>The forest inventory will be carried out in accordance with the following guidelines.
<table>
<tr><th>Target</th><th colspan="2">Specifications of the survey</th></tr>
<tr><td>Areas for afforestation</td><td>Sampling rate:
Size of sampling plot:
Survey items:</td><td>0.5 % of the total areas developed as afforestation
400 m^2/plot (20mx20m)
Total area of the plantations developed, species planted, survival rate, density of seedlings planted, height and breast height diameter of trees planted, forest status, and estimated carbon stock.</td></tr>
<tr><td>Areas for ANR and protection</td><td>Sampling rate:
Size of sampling plot:
Survey items (ANR):

Survey items (protection):</td><td>5 plots each from the project areas in the target commune
500 m2/plot (25 mx20m)
Total area of areas rehabilitated, species planted, survival rate, density of seedlings planted, height and breast height diameter of trees planted, forest status, and estimated carbon stock increased
Total area of natural forests protected and forest status</td></tr>
</table></td></tr>
<tr><td>Evaluation of the efficiency of input and activities</td><td>The efficiency of the following project activities will be reviewed and assessed.
- Forest inventory, mapping, and detailed designing
- Forest development and improvement activities
- Silviculture infrastructure development
- Forest fire prevention</td></tr>
<tr><td>Sustainability of</td><td>The sustainability of the project will be assessed by analyzing the following points.</td></tr>
</table>

Work Items	Outline
the project	- Technical and financial capacities of PFMBs and SUFMBs for management of forests within their jurisdiction - Technical and financial capacities of PFMBs and SUFMBs for operation and maintenance of silviculture infrastructure developed within their jurisdiction - Technical, financial, and organizational capacities of the village working groups that would make collaborative management agreements with PFMBs or SUFMBs for management and protection of the assigned forests in a proper manner.

Source: JICA Preparatory Survey (2016)

Draft Specifications of the Socio-Economic Baseline Survey

Work Items	Outline
Household interview survey	1. Target Sites: All the communes where the project areas are located 2. Sample size: 24 households each in the target communes (the same households that the baseline survey sampled.) 3. Survey items/topics: The following topics will be covered by the interview survey. - General background - Assets and facilities, and access to social services - Income and expenditures - Land tenure - Agricultural production - Forest use and management - Livestock and fisheries - Recommendations for sustainability of the project
Interview to commune and village leaders	1. Target Sites: All the communes where the project areas are located 2. Interviewees: Commune and village leaders of the target communes 3. Survey items/topics: The following topics will be covered by the interviews. - Demographic conditions (villages, population, households, and ethnicity) - Agricultural production (cropped areas, major crops, production, and number of livestock animas) - Forestry production (area of production forests, major forestry products (including non-timber forest products), and sources of non-timber forest products) - Fishery production and other sources of livelihoods - Access to rural finance or existence of village funds - Existing rural and social infrastructure (roads, irrigation systems, electricity, water supply systems, marketing, school, and health clinic, etc.) - Any ongoing projects on poverty alleviation ad commune development - Existing mass organizations - Existing activities and organizations for forest management - Development needs of the commune
Interview to women	1. Target Sites: All the communes where the project areas are located 2. Interviewees: Six women each in the target communes (the same women that the baseline survey sampled) 3. Survey items/topics: The following topics will be covered by the interviews. - Main roles played by women in forest use and management - Gender differences in access to and control over forest resources - Gender differences in decision making processes relating to forest management - Benefits that women have obtained from forest management and protection - Impacts caused by the project to women

Source: JICA Preparatory Survey (2016)

f. Irregular evaluation

The irregular evaluation may be conducted if there are unpredictable difficulties, problems and impacts observed in the course of the project. It is aimed at analyzing the actual situations with emerging issues/difficulties and providing necessary solutions and recommendations for smooth project operations.

g. Monitoring formats and information management

A simplified monitoring format shall be developed prior to the implementation of the component projects in the field. The formats should be easy to apply, but at the same time should cover all the items to be monitored by PPMBs. For efficient management of the monitoring data and effective use of the data for decision making, the GIS-based monitoring system should be developed in the preparatory stage. All the data should be interlinked with

geographical data so that the progress and results of the project could be visualized and data could be easily managed systematically.

(8) Forest Monitoring

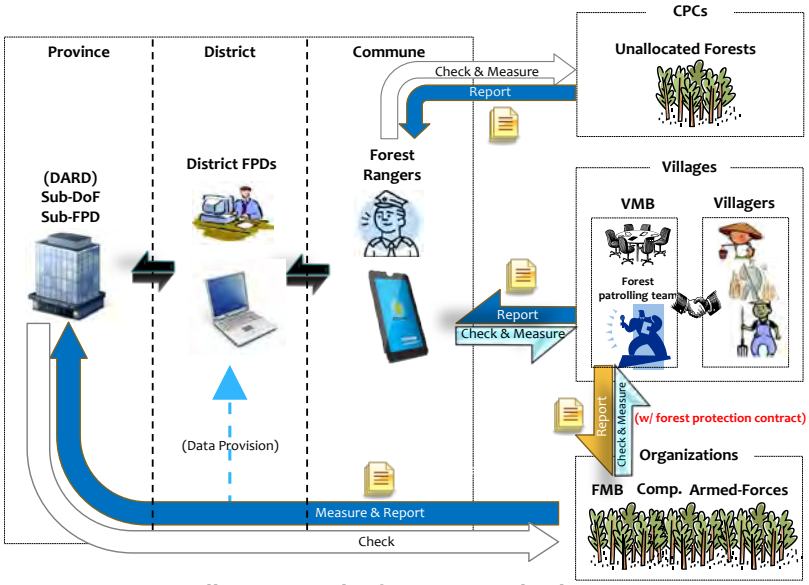
In the context of REDD+ all the forest activities listed below should be monitored.

a. Reduction of emissions from deforestation
b. Reduction of emissions from forest degradation
c. Carbon stock enhancement
d. Conservation of forests
e. Sustainable management of forests

The above-listed activities except (d) can be measured in the framework of the annual forest monitoring system, while item (d) can be monitored through field validation of the project activities to be carried out by PFMBs/SUFMBs in the course of the project implementation.

a. Annual Forest Monitoring

Annual forest monitoring will be carried out as part of the regular tasks of provincial and district officers in the target provinces. As described in **Section 2.4.2** of Part I of the Final Report, the annual forest change monitoring, such as field monitoring, data compilation, and reporting, is one of the official mandates of forest rangers of PFMBs/SUFMBs/DFROs, District FPDs, and DARD, respectively. The past and on-going JICA-T/C projects, namely SUSFORM-NOW and SNRMP, have assisted and will assist DARDs and concerned District FPDs in the four provinces in the improvement of the forest monitoring systems with introduction of the GIS-based monitoring database and the field data collecting system using tablet-PC. The overall framework of the improved forest monitoring system is illustrated below.



Overall Framework of Forest Monitoring System

Source: JICA Sustainable Natural Resource Monitoring Project

By 2018/2019, all the four provinces are expected to develop the updated monitoring framework and equip forest rangers in the 15 districts in the provinces with tablet-PC and necessary skills for forest monitoring with assistance from SNRMP. It is, therefore, expected that forest changes in the target protection forests and special use forests will be monitored in

accordance with the updated monitoring framework on the initiatives of PFMBs/SUFMBs and DFROs concerned.

b. Validation of project activities

PFMBs and SUFMBs will carry out field validation of the forest development and improvement activities (i.e., afforestation, ANR, and protection of natural forests) carried out by the village working groups in the course of the project. The results of the field validation can also be used for monitoring of forest conservation and increase of forest areas.

Forest rangers of PFMBs/SUFMBs will measure the boundaries of the plantations developed or regenerated forests under ANR with GPS or tablet-PC. The location data and photos of the project areas will also be submitted to PPMBs, so that the digital data of the field validation can also be transferred to the provincial forest monitoring system database.

3.3.9 Consulting Services

(1) Rationale

As the project covers a variety of components, a wide range of expertise is necessary for smooth operations of the project. CPMB and PPMBs will hire a number of contractors to implement the respective project components and activities, but it may be quite difficult for them to efficiently manage, monitor and supervise the works of the contractors, as the majority of the CPMB and PPMB officers may not necessarily have the expertise relating to the project activities or be familiar with the management of a large scale ODA project. It is judged that the project consultant should be hired for overall technical and managerial assistance in smooth implementation of the project. Particularly, the following expertise are in need for effective project management.

- Project management
- Forest development, planning, and monitoring
- REDD+ safeguard and community-based/collaborative management
- Livelihood development and NTFP production
- Infrastructure development
- Institutional development
- GIS and information system management

(2) Draft Scope of Works

The project consultant is expected to provide CPMB and PPMBs overall technical, managerial, administrative assistance in project implementation. The main objective of the assistance is to ensure that CPMB and PPMBs could effectively achieve the project objectives, efficiently implement the project activities, and secure the project sustainability with quality accomplishments.

The draft scope of services of the project consultant is summarized below.

a. Assist CPMB and PPMBs in managing the project in an effective and efficient manner.
b. Assist CPMB and PPMBs in understanding and using the project regulations and guidelines on project implementation.

c. Assist CPMB in developing a GIS-based monitoring system with a user friendly database and simplified monitoring formats necessary for regular monitoring.
d. Assist CPMB and PPMBs in improving the monitoring system by periodically checking the use of the system.
e. Assist CPMB and PPMBs in formulating overall project implementation plans of the project in the beginning of the project.
f. Assist CPMB and PPMBs in preparing annual work and budget plans based on the appropriate estimation of work quantity as well as unit costs of the respective inputs.
g. Assist CPMB enhance the awareness of collaborative management and benefit sharing mechanism among key stakeholders, namely PPMBs, DARDs, PFMBs, SUFMBs, and CPCs.
h. Assist CPMB, PPMBs, and DARDs in reviewing, assessing, and formulating the regulations on collaborative management and benefit sharing in the target protection forests and special use forests based on the field trials in the course of the project.
i. Assist CPMB and PPMBs in procuring the project equipment.
j. Assist CPMB and PPMBs in periodically monitoring the project activities with the monitoring formats and improving the project design, framework, and systems based on the monitoring data stored in the GIS-based monitoring system.
k. Assist CPMB in the proper fund management and smooth communication/ coordination with JICA.
l. Assist CPMBs in providing guidance and orientation to PPMBs and DARDs on managerial and technical aspects necessary for implementation of the projects.
m. Provide periodic coaching to CPMB and PPMBs to strengthen their technical, managerial, and administrative capacities for implementation and management of the project.
n. Assist CPMB and PPMBs in preparing TOR for the project activities to be outsourced to the contractors.
o. Assist CPMB and PPMBs in monitoring and supervising the contractors' works to secure the expected outputs.
p. Assist CPMB and PPMBs in providing orientation, technical guidance, and advice to PFMBs/SUFMBs and other contractors for the effective implementation of the project activities.
q. Assist CPMB and PPMBs in preparing, designing, and developing information dissemination project materials.
r. Assist PPMBs, PFMBs/SUFMBs and relevant stakeholders in developing strategies and work plans for operation and management of the target protection forests and special use forests in the post-project period as well as O&M plans for small scale rural infrastructure in the same period.
s. Assist CPMB and PPMBs in monitoring and supervising the implementation of the environmental management plan (EMP) and environmental monitoring plan (EMoP) prepared in accordance with the Environmental and Social Management Framework.
t. Assist PPMBs, PFMBs, SUFMBs, and other relevant stakeholders in ensuring that local communities could obtain the maximum benefit from the project activities and forest management activities in the post project period.
u. Assist CPMB and PPMBs in monitoring the progress of the project, assessing the results and effects of the project activities, solving any issues and problems that might

hinder the effective and efficient operations of the project, and draw lessons learned from the implementation of the project over the course of the project.

v Assist CPMB in reviewing, assessing, and evaluating the validity of the plans submitted by PPMBs for the project components necessary for concurrence from JICA prior to the detailed design works, namely Improvement of Small Scale Rural Infrastructure and Improvement of Silviculture Infrastructure.

w. Assist CPMB in preparing and submitting the plans for the same components to JICA for approval.

x. Provide technical assistance to CPMB, PPMBs, PFMBs/SUFMBs, and the contractors in execution of their respective works.

y. Review, analyze, and recommend improvement/revision of existing related regulations and guidelines (e.g., circulars and decisions).

z. Assist CPMB in reporting any matters to JICA.

(3) Required Man-months of the required Specialists

The total inputs of the project consultant for seven years are expected to be 83 man-months for international experts, 262 man-months for national experts, and 200 man-months for national support staff. The draft assignment schedule of the experts is presented in **Figure II-3-2** attached to this report. **Table II-3-5** attached to this report, shows the cost breakdown of the consulting services with the required man-month based on the draft assignment schedule. The following table shows the summary of the required man-months of the respective experts.

Required Man-Months for the respective Experts

International experts	MM	National expert	MM
Team Leader	55	Forest Development and Management	68
Forest Development Planning & Management	6	REDD+ Safeguard and Community Organization	43
REDD+ Safeguard and Collaborative Management	20	Livelihood Development	42
GIS and Monitoring System	2	Institutional and Capacity Development	9
Sub-total	**83**	Infrastructure Development (1)	37
National Supporting Staff	**MM**	Infrastructure Development (2)	15
Administrative Officer	84	NTFP Development	12
Interpreter	63	GIS	36
Secretary	53	**Sub-total**	**262**
Sub-total	**200**		

Source: JICA Preparatory Survey (2016)

3.4 Institutional Arrangement of Implementation of the Project

3.4.1 Organizational Set-up for Implementation of the Project

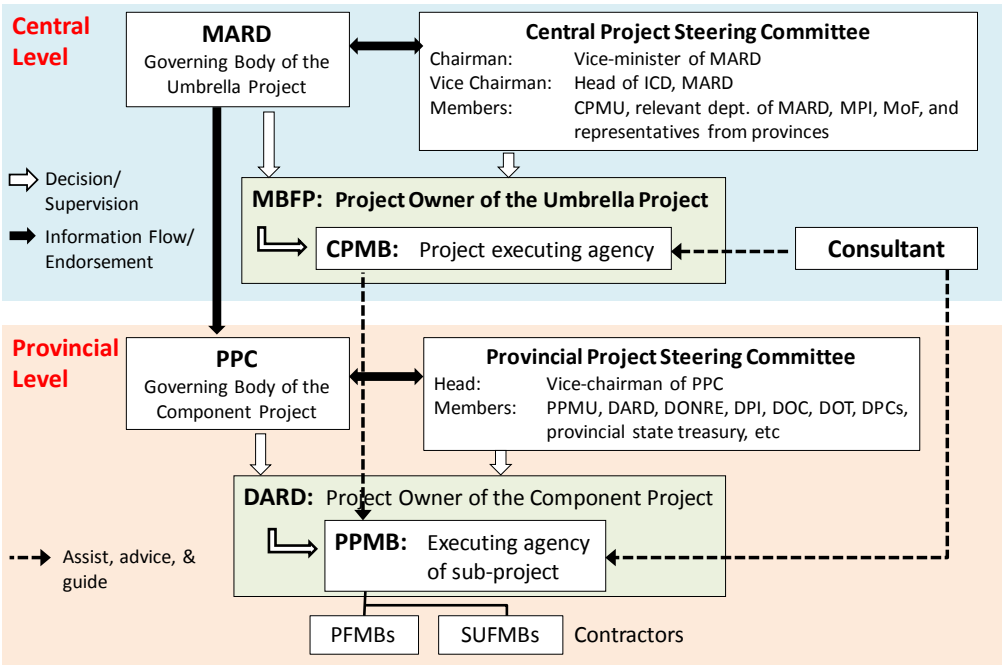
(1) Overview of Organizational Set-up

Based on the review of the institutional set-ups of the past and on-going forestry projects similar to the proposed project and the relevant government regulations as described in **Section 6.3** of Part I of this report, the two-layer management system, where the project management units are established at the central and provincial levels, are proposed.

In accordance with Decree No. 16/2016/ND-CP (PM Decree on Management and Utilization of Official Development Assistance (ODA) and Concessional Loans granted by Foreign Sponsors), the project is categorized as a "umbrella program/project," where MARD and PPCs concerned, as the governing bodies," will have the overall responsibility for the joint

project and the component projects in the target provinces, respectively. MBFPs and DARDs will be assigned as the project owners of the umbrella project and the component projects, respectively. The CPMB and PPMBs will be established at the central and provincial levels to assist the project owners in managing and implementing the umbrella project and component projects in the respective levels.

The following figure shows the proposed institutional set-up for the implementation of the project.



Institutional Set-up for Project Implementation

Source: JICA Preparatory Survey Team (2016)

(2) Staffing and Constitution of the Steering Committees and Project Management Units

a. Central Project Steering Committee (CPSC)

The Central Project Steering Committee (CPSC) is to be organized at the ministerial level to approve the overall plans and project regulations, solve inter-sectoral issues, and facilitate the coordination and collaboration between/among the departments and sub-departments under MARD for enhancing synergy and convergence effects. The preparatory survey team proposes that CPSC should be chaired by Vice Minister of MARD considering the nature of the tasks given to CPSC. The proposed constitution of CPSC is shown below.

Proposed Constitution of CPSC

Position	Organizations/Personnel responsible for position
Chair person	Vice Minister of MARD
Secretariat	Head of ICD, MARD
Members	CPMB, MBFPs, MPI. MOF, Relevant departments of MARD (e.g., Financial Dept., Planning Dept., Dept of Construction and Management, Legislation Dept.), VNFOREST (including relevant departments of VNFOREST), Representatives of the target provinces

Source: JICA Preparatory Survey Team (2016)

b. Central Project Management Board (CPMB)

The Central Project Management Board (CPMB), as the project implementing body at the central level, will be responsible for i) coordinating component projects at the provincial level with DARD and the Provincial Project Management Boards of the target provinces, ii) supervising and monitoring the component projects, and iii) providing guidance and orientation, and assistance to PPMBs and other implementers at the provincial level for smooth operations and maintenance of quality of the project activities. The proposed constitution of CPMB is shown below.

Proposed Constitution of CPMB

Position/Section	No. of staff	Roles and Responsibilities
Director	1	■ Be responsible for overall management and supervision of the board ■ Be responsible for implementation of the entire project and coordination with MBFPs, DARDs, and PPMBs of the target provinces
Vice director	1	■ Assist Director in fulfilling its tasks. ■ Act as Director in case Director cannot perform or fulfill its tasks.
Planning	1	■ Develop an overall work plan and detailed annual work plans. ■ Prepare the project regulations and guidelines. ■ Manage biddings and contracts ■ Monitor the overall progress of the project.
Accounting	3	■ Manage project budgets and assets. ■ Keep and manage financial records. ■ Handle and process billing documents.
Technical	3	■ Monitor and supervise the performance and progress of the component projects at the provincial level. ■ Supervise and monitor the performance of the contractors. ■ Provide technical and managerial advice and guidance to PPMBs/DARDs of the target provinces. ■ Supervise and oversee any technical matters.
Administration	3	■ Be responsible for management of administrative and organizational issues/matters.

Source: JICA Preparatory Survey Team (2016)

c. Provincial Project Steering Committee (PPSC)

The Provincial Project Steering Committee (PPSC) is to be organized at the provincial level to approve the overall and annual plans of the component projects, approve project regulations and guidelines at the provincial level, solve any cross sectoral issues, and facilitate inter-department coordination between/among the departments and sub-departments under PPC. Likewise, PPSC should be chaired by Vice Chairperson who is appropriate for taking the leading role of PPSC. The composition of PPSC is proposed below.

Proposed Constitution of PPSC

Position	Organizations/Personnel responsible for position
Chair person	Vice Chairperson of PPC
Secretariat	PPMU/DARD
Members	Vice Directors of DARD, DPI, DOF, DONRE, DOIT, and DOST, Vice Chairperson of DPCs concerned, Provincial state treasury, Director of Sub-department of Forest Protection, Director of Planning and Finance Section, etc.

Source: JICA Preparatory Survey Team (2016)

d. Provincial Project Management Board (PPMB)

The Provincial Project Management Board (PPMB) will be responsible for execution of the component projects at the provincial level. The major tasks of PPMB are: i) preparation of the project, ii) procurement of contractors, iii) management, monitoring, and supervision of the works of contractors, iv) processing of documents for billing and disbursement, v) report to DARD, PPC, and CPMB, and vi) coordination with relevant organizations/agencies, especially DPCs concerned. The constitution of PPMB and roles of the respective persons and sections of the organization should be similar to those of CPMB as summarized below.

Proposed Constitution of PPMB

Position/Section	No. of staff	Roles and Responsibilities
Director	1	■ Be responsible for overall management and supervision of the board ■ Be responsible for implementation of the entire project and coordination with PPC, relevant departments of PPC and sub-departments of DARD
Vice director	1	■ Assist Director in fulfilling its tasks. ■ Act as Director in case Director cannot perform or fulfill its tasks.
Planning	1	■ Develop an overall work plan and detailed annual work plans. ■ Prepare the project regulations and guidelines. ■ Manage biddings and contracts ■ Monitor the overall progress of the project.
Accounting	3	■ Manage project budgets and assets. ■ Keep and manage financial records. ■ Handle and process billing documents.
Technical	3	■ Monitor and supervise the performance of the contractors and progress of the component projects ■ Provide technical and managerial advice and guidance to the contractors, DPCs, and CPCs concerned. ■ Supervise and oversee any technical matters.
Administration	3	■ Be responsible for management of administrative and organizational issues/matters.

Source: JICA Preparatory Survey Team (2016)

3.4.2 Roles and Responsibilities of the Stakeholders

(1) Roles and Responsibilities of Relevant Stakeholders in the Proposed Institutional Set-up for Implementation of the Project

The roles and responsibilities of the relevant stakeholders involved in the proposed institutional set-up for implementation of the project are tentatively defined below based on Decree on Management and Use of ODA and Concessional Loans granted by Foreign Sponsors (No. 16/2016/ND-CP) and the experiences from the JICA 2 project.

Roles and Responsibilities of Relevant Stakeholders in the Proposed Organizational Set-up

Stakeholders	Outline
MARD	MARD is the governing body of the joint project at the central level, which will be responsible for ensuring efficient, effective, and smooth implementation of the entire project including allocation of sufficient counterpart funds in a timely manner, monitoring and supervision of the project owner, and coordination with PPCs of the target provinces.
Central Project Steering Committee	CPSC will make the final decisions on the key managerial issues/matters, such as approval of an annual work plan, evaluation annual accomplishments, and approval of regulations and guidelines for project implementation. CPSC meetings will be organized at least every six months.
MBFPs	MBFPs will be assigned as the project owner of the umbrella project by MARD and responsible for i) effective management and use of project resources including ODA funds, ii) formulation of an overall plan as well as annual plans of the entire project, iii) management of bidding, negotiations and supervision of contacts, and iv) monitoring and evaluation of the project.
CPMB	CPMB shall have the following tasks: i) formulation and submission of an overall plan and annual plans of the project, ii) preparation and execution of the project, iii) preparation of project regulations and guidelines, iv) provision of guidance and orientation to PPMBs and DARDs of the target provinces, v) management and disbursement of financial resources, vi) coordination with relevant agencies (e.g., MoF and MPI) and JICA, and vii) monitoring, evaluation and reporting of the project implementation.
Project Consultant	The project consultant will provide i) technical and managerial support to CPMB and PPMBs in the implementation of the project and ii) periodic coaching to CPMB, PPMBs, and other key stakeholders, such as PFMBs/SUFMBs to enable them to implement the project in a proper and effective manner.
PPC	PPCs will be the governing bodies at the provincial level and shall have the same responsibilities as MARD has for the implementation of the component projects in the respective provinces.
Provincial Project Steering Committee	PPSC will be responsible for i) making decisions relating to the implementation of the component projects in the province, ii) approving the project regulations, guidelines, and overall and annual plans, and iii) monitoring and evaluating the project implementation at the provincial level. Like in the case of CPSC, committee meetings shall be organized at least every six months.
DARD	DARD will be the project owner of the component projects at the provincial level and responsible for i) establishment of PPMB, ii) provision of guidance and orientation to PPMB, iii) execution of appraisal and approval of designs, cost estimates, and contracts of the project activities, iv) monitoring, supervision, and

Stakeholders	Outline
	evaluation of the progress of the component projects, and v) management of the project fund.
PPMB	PPMB as the implementing body of the component projects at the provincial level, will be responsible for implementation and management of the component project activities. Its roles will be similar to those given to CPMB. Specifically, PPMB shall: i) prepare an annual operational and financial plan of the component projects in the province, ii) procure and liquidate contracts, iii) implement, monitor and supervise the component projects in the province, iv) prepare progress reports and submit them to DARD/PPC/CPMB, and v) coordinate with DPCs, CPCs and other relevant institutions concerned.
DPC	DPC's function is to provide support or cooperation at the field level. It should be involved in the key processes of the project, such as monitoring of the project activities, information dissemination, and livelihood improvement.
Contractors	Contractors will be public institutions or private companies responsible for actual implementation of the respective project activities on a contract basis with CPMB or PPMB. In the JICA2 project, NAEC, PFMBs, PAECs, and state universities, all of which are the public institutions at the national or provincial level, have been hired by the project for implementation of the project activities.
CPC	CPC, as a representative of commune, will play important roles as a supporter, facilitator, and decision maker in the respective processes of the project. It should be particularly involved in i) PLUP and group formation, ii) information dissemination, iii) discussion on phase-out/phase-in activities, iv) identification of development needs of small-scale rural infrastructure, v) O&M of the facilities, vi) livelihood development activities, and vii) training on forest fire control.
Local communities	Local communities will be the field implementers of the forest development and improvement activities under the contract with PFMBs/SUFMBs. As they will develop the lands over which they have used with either *de facto* or *de jure* land use rights in principle, they are expected to be managers in collaboration with PFMBs/SUFMBs in the post-project period. They should be involved in the entire processes of the project, especially in the following project activities, as decision makers and field implementers of the project activities. - PLUP and group formation (as decision makers of the project areas) - Site demarcation (as field implementers of the forest development activities) - Baseline survey (as key informants) - Information dissemination (as participants) - Improvement of watershed forests (as field implementers) - Identification of priority small-scale rural infrastructure (as decision makers and end users) - Support for livelihood development (as field implementers) - Forest fire prevention (as field implementers)

Source: JICA Preparatory Survey Team (2016)

(2) Other Important Stakeholders at the Field Level

Aside from those listed in the previous sub-section, support from the following stakeholders is needed to ensure the smooth operations of the component projects as well as the sustainability of the project activities on the ground level.

a. District/commune extension workers

District and commune extension workers shall be involved in the project activities, especially i) PLUP and formation of village working groups, ii) phase-out/phase-in activities, and iii) all the activities under the component of "support for livelihood development," since they would be the key players in agriculture and forestry extension in the target communes after the project. Particularly, they are expected to enhance their knowledge and capacities by being involved in the processes and activities of support for livelihood development, especially development of model/ demonstration sites and technical training courses, so that they could provide technical assistance and coaching to local communities in the target communes in the post-project period.

b. Key villagers

Village leaders are expected to play a role as focal persons when the contractors will carry out the project activities, such as PLUP, site demarcation, forest development and improvement activities, and livelihood development activities. Moreover, other local households or members of the mass organizations, such as youth and women's groups, may be hired by the contractors as field coordinators or facilitators when they organize meetings and workshops of the project activities in the course of the project.

3.5 Implementation and Procurement Methods

(1) Implementation Methods

The project activities will be implemented basically by two ways: i) direct implementation by CPMB or PPMBs with or without technical and managerial assistance from the project consultant and ii) implementation by outsourcing to external organizations, which are mainly public institutions, such as NAEC, FIPI, PAEC, PFMBs, SUFMBs, state universities, state research institutions, and design and consulting centers.

The following table shows the proposed implementation methods of the key project activities programmed in the respective project components.

Implementation Methods of the Key Project Activities

Component	Main Activities	Implementation method	Potential Executors
Survey and detailed planning	- Procurement of satellite images	Direct implementation or Contract-out	CPMB with the project consultant or Contractor for PLUP
	- PLUP and group formation	Contract-out (LCB)	NAEC, PAECs, University, NGOs
	- Site demarcation and set-up of land marks	Direct appointment (Odering)	PFMBs and SUFMBs
	- Socio-economic survey	Contract-out (LCB)	PAECs, Universities, etc.
	- Surveys and DDs of forest development activities	Ditto	Design and consulting centres, PFMBs, Consulting firms
	- Technical guidance on PLUP, GPS, and GIS	Ditto	NAEC, PAEC, FIPI
Improvement of watershed forests	- Forest development and improvement	Direct appointment (Odering)	PFMBs and SUFMBs
	- Technical guidance	Direct implementation or Contract-out (LCB)	PPMBs with the project consultant or PAECs, Universities, etc.
	- Phase-in/phase-out activities	Contract-out (LCB)	NAEC, PAEC, Universities, NGOs.
Improvement of silviculture infrastructure	- Surveys and detailed designs	Contract-out (LCB)	Design and consulting centres, Consultant firms
	- Tender	Direct implementation	PPMBs
	- Construction of facilities	Contract-out (LCB)	Construction companies
Improvement of small-scale rural infrastructure	- Surveys and detailed designs	Contract-out (LCB)	Design and consulting centres, Consultant firms
	- Tender	Direct implementation	PPMBs
	- Construction of facilities	Contract-out (LCB)	Construction companies
Support for livelihood improvement	- Selection of priority options, Survey on potential model sites, and Development of model sites and technical training, Guidance and training on financial management, and Cross visits	Contract-out (LCB)	PAECs, NGOs, etc.
	- Market survey	Ditto	NAEC, PAECs, Universities, etc.
Forest fire prevention	- Procurement of equipment	Contract-out (LCB)	-
	- Training and forest fire drills	Contract-out (Direct Appointment)	Regional or Provincial Forest Protection Agencies
Project management	- Establishment of organizations	Direct implementation	MARD and DARD
	- Development of regulations and monitoring system	Ditto	MARD, PPC, MBFPs, DARDs
	- Reassessment of the target sites	Ditto	CPMB and PPMBs
	- Procurement of project equipment	Ditto	Ditto
	- Development of TORs of contractual works	Ditto	CPMB and PPMBs with the project consultant
	- Information dissemination	Ditto	Ditto
	- Production and publication	Ditto	Ditto
	- Study tours	Ditto	Ditto
	- Review meetings	Ditto	CPMB and PPMBs
	- Development of monitoring forms	Ditto	CPMB with the project consultant

Component	Main Activities	Implementation method	Potential Executors
	- Regular monitoring	Ditto	CPMB and PPMBs with the project consultant
	- Initial evaluation	Ditto	Ditto
	- Mid-term evaluation	Contract-out (LCB)	FIPI and NAEC, Universities, etc.
	- Terminal evaluation (Physical)	Ditto	FIPI, Universities, etc.
	- Terminal evaluation (Social)	Ditto	NAEC, PAEC, Universities, etc.
Consulting services	- Consulting service	Contract-out	International and national consulting firms

Source: JICA Preparatory Survey Team (2016)

Moreover, the field activities of forest development and improvement such as afforestation, ANR, and protection of natural forests, will be sublet to the village working groups organized at the village level.

(2) Procurement Methods

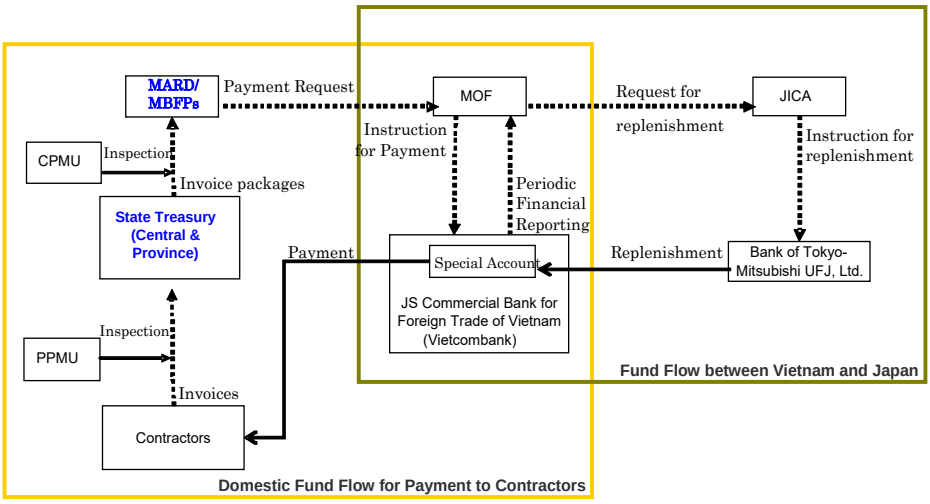
Direct appointment method is to be employed for procurement of contractors for the project activities which only specific public institutions are considered capable to carry out from the financial, technical, and managerial points of view. Among others, the following project activities will be implemented by the public institutions directly appointed by CPMB or PPMBs.

- Site demarcation (direct appointment/odering to PFMBs/SUFMBs)
- Forest development and improvement (direct appointment/odering to PFMBs/SUFMBs)

Aside from the above-listed activities, CPMB or PPMBs will chose the procurement method, local competitive bidding or direct appointment, considering i) technical and financial capacities of potential executors/contractors and ii) difficulties of the respective project activities prior to the procurement of contractors for the works. The project consultant should be procured by the international competitive bidding (ICB) method.

(3) Fund Management

The project budget will be managed in the same manner as managed under the JICA2 project. The following flow chart shows the overall fund management of the budget for the project.



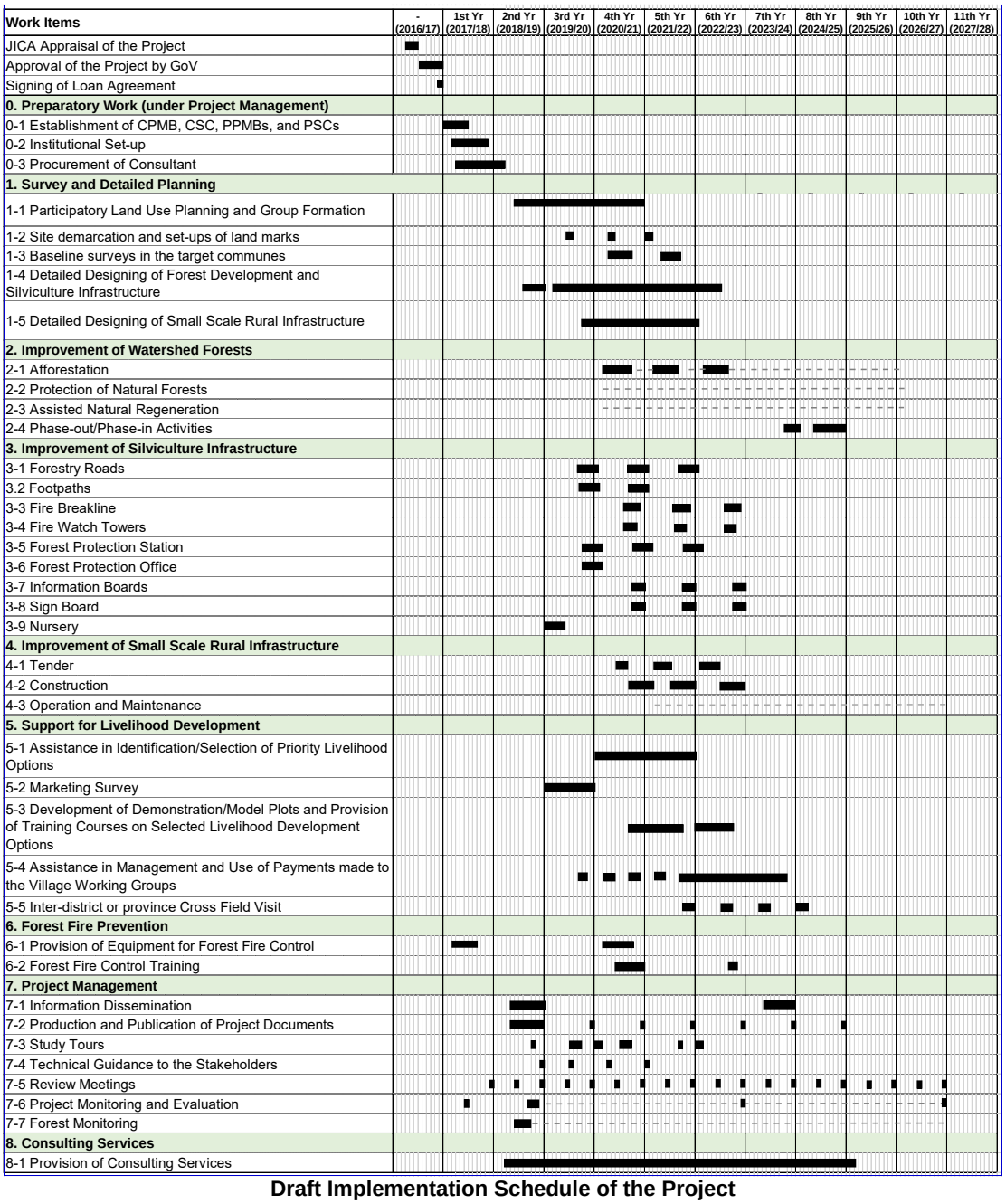
Overall Fund Management of the Project

Source: JICA Preparatory Survey Team (2016)

As illustrated above, payment proposals (invoices) submitted by contractors are first reviewed and inspected by PPMB. PPMB then, submits an approved proposal to the provincial state treasury for review. Packaged invoices are forwarded by the provincial state treasury to CPMB for processing of payment. Then, CPMB reviews the payment proposals and further endorse them to MoF for payment. Finally, MoF will perform reviews and eventually instructs Vietcom Bank for the payment of contractors.

3.6 Implementation Schedule

The proposed implementation schedule of the project is shown in **Figure II-3-3** attached to this report, and summarized below.



Draft Implementation Schedule of the Project

Source: JICA Preparatory Survey Team (2016)

The implementation schedule were drafted on the basis of the following assumptions.

- Loan Agreement (L/A) would be signed in the first quarter of 2017.
- The loan for the project would be effective within a month after the agreement is signed.
- The loan validity period is between the second quarter of 2017 and the first quarter of 2027.

As shown in the schedule, the majority of the project activities will be undertaken from the middle of the second year (2018/2019) to the end of the ninth year (2025/2026) of the project. The physical development activities, such as forest development and improvement activities (afforestation, ANR, and protection of natural forests), improvement of silviculture infrastructure, and improvement of small-scale rural infrastructure, will be implemented in a phased manner by dividing them into three batches. The mid-term evaluation of the project performance will be carried out in the fifth year (2021/2022), while the terminal evaluation will be conducted in the end of the tenth year (2026/2027).

Chapter 4 Project Cost

4.1 Conditions of Cost Estimate

4.1.1 Conditions and Assumptions

The project costs are estimated under the following conditions:

a. All the project costs in the project period (10 years) are estimated based on June 2016 constant prices in Vietnamese dong and Japanese yen.

b. The daily wage for unskilled labor is estimated at VND 231,000 by adapting the minimum wage set by the new circular of the Ministry of Construction (No. 05/2016/TT-BXD) in consultation with MARD and VNFOREST.

c. The exchange rates of US$1.0 = VND 21,954 and US$ 1.0 = JPY 101.3 are used for the estimation according to the pre-conditions set by JICA.

d. Price escalation is set at 3.8% per annum for local currency components and 1.6% for foreign currency components.

e. Physical contingency is 5% of the sum of base costs, including the administration cost.

f. The unit costs for the project components and sub-components were estimated on the basis of the detailed cost breakdown of the respective project activities. The detailed cost estimates of the project activities were prepared in reference to the government cost norms and regulations. Price quotations collected from potential implementers were also used for estimation of unit costs of surveys and studies, such as PLUP, market survey, and mid-term and terminal evaluation activities. Actual expenditures of the JICA 2 project were also used for estimation of the costs of detailed designing works.

4.1.2 Cost Component

(1) Direct cost

The direct cost of the project consists of costs for all the components, namely, survey and detailed planning, improvement of watershed forests, improvement of silviculture infrastructure, improvement of small scale infrastructure, support for livelihood development, and forest fire control. The total cost of all these components is estimated to be VND 1,372.1 billion.

(2) Administration cost

Administration costs consist of i) procurement of project equipment, ii) information dissemination and capacity development, iii) production of project documents, iv) study tours, v) technical guidance to key stakeholders, vi) review meetings, vii) project monitoring and evaluation, viii) personnel expenditures of CPMB and PPMBs and ix) operational expenses of CPMB and PPMBs (e.g., allowance and travel expenses, fuel and maintenance of vehicles,

office supplies, expenses for supporting staff, and costs for meetings and workshops). The total administration cost is estimated at VND 125.6 billion as the base cost.

(3) Price Contingency

Price contingency is the amount of price escalation during the project period. It is estimated by applying the different rates, namely 5.0% p.a. and 3.8% p.a., to local and foreign currency portions for all the cost components, respectively. The physical contingency for the direct cost is estimated at VND 323.4 billion, while the same for the administration cost is estimated at VND 30.9 billion.

(4) Physical contingency

Physical contingency of 5% is applied to all costs for the various project components. Physical contingency is estimated at VND 74.9 billion, which consists of VND 68.6 billion for the direct cost and VND 6.3 billion for the administration cost of the project.

(5) Project consultant

The cost of the project consultant was estimated by applying the unit costs given by JICA for the consultancy services as pre-conditions. The total estimated cost for consulting services, excluding taxes and duties, is tabulated below.

Cost for Consulting Services

Currency	Item	Cost (VND million)
Foreign currency portion	Base Cost (w/o tax)	58,671
	Physical and price contingency	7,580
Local currency portion	Base Cost (w/o tax)	51,688
	Physical and price contingency	13,110
Total		131,050

Source: JICA Preparatory Survey Team (2016)

(6) Taxes and duties

The value added tax for costs of all materials, consumables and services is calculated in the cost estimation. Tariffs on imported equipment are also included in the estimates. The total cost of taxes and duties is estimated at VND 196.8 billion.

(7) Loan interest

Loan interest is also calculated as one of the cost components by adopting 0.01% for consulting services and 0.3% for the other loan portions. The total cost of loan interest is estimated at VND 33.6 billion.

(8) Front end fee

Front end fee is estimated at VND 3.8 billion as 0.2% of the total loan amount.

4.2 Cost Estimate

The total project cost of the entire project is estimated at VND 2,292.1 billion as shown below. The detailed project cost of the entire project and those of the four target provinces are presented in **Table II-4-1**, respectively. Cost breakdowns of the respective project activities, which are used for estimation of the unit costs of the project components or sub-components are presented in Annexes of the Final Report.

Summary of Project Cost

Cost Items	Cost (VND million)
1. Survey and Detailed Planning	65,131
2. Improvement of Watershed Forests	984,878
3. Improvement of Silviculture Infrastructure	112,469
4. Small scale infrastructure	148,755
5. Support for Livelihood Development	44,006
6. Forest Fire Control	16,881
7. Sub-total of Direct Costs (Sum of 1~6)	**1,372,120**
8. Price Escalation	323,356
9. Physical contingency	68,606
10. Sub-total (7+8+9) (Base Cost for Components eligible to be loaned)	**1,764,082**
11. Project Management	125,580
12. Price Escalation	30,868
13. Physical contingency	6,279
14. Sub-total (11+12+13) (Administration Cost)	**162,728**
15. Consulting Services (including price and physical contingeny)	131,050
16. Taxes and Duties	196,778
17. Total Project Cost excluding Loan Interest and Front End Fees (10+14+15+16)	**2,254,638**
18. Loan Interest during the Project Period	33,680
19. Front End Fee	3,790
20. Grand Total (Sum of 17~19)	**2,292,107**

Source: JICA Preparatory Survey Team (2016)

4.3 Annual Cost Schedule

An annual cost disbursement schedule was structured in reference to the project implementation schedule shown **Figure II-3-3**. The annual cost disbursement schedule for the whole project is shown in **Table II-4-2**, and summarized below.

Summary of Annual Cost Schedule of the Whole Project

(Unit: VND million)

Items	1st (2017/18)	2nd (2018/19)	3rd (2019/20)	4th (2020/21)	5th (2021/22)	6th (2022/23)	7th (2023/24)	8th (2024/25)	9th (2025/26)	10th (2026/27)	11th (2027/28)	Total
Direct cost <1	0	11,574	43,845	226,815	370,236	391,662	186,325	106,102	35,562	0	0	1,372,120
Administration <1	10,644	13,049	11,602	12,939	11,888	13,341	12,227	10,713	10,713	15,994	2,674	125,580
Price contingency	404	1,891	6,564	38,573	78,335	101,570	59,232	40,611	18,908	7,230	1,356	354,436
Physical contingency	532	1,221	2,772	11,988	19,106	20,250	9,928	5,841	2,416	800	134	74,885
Consulting services	0	14,398	21,009	24,445	22,413	17,092	15,719	12,239	3,781	0	0	131,050
Taxes & duties	341	5,097	8,333	31,231	48,718	52,466	27,487	16,544	5,740	818	3	196,778
Total Project Cost	11,921	47,028	94,124	345,945	550,695	596,381	310,916	192,050	76,568	24,841	4,167	2,254,638

Note: <1 The figures exclude price escalations and physical contingencies.
Source: JICA Preparatory Survey Team (2016)

4.4 Currency Component

The project cost is composed of two currency components, namely, local currency and foreign currency, assuming that i) all goods and services except those relating to international experts of the consulting services will be available locally and ii) international experts of the consulting services will be procured through an international bid. Hence, the costs for all the project components except the project consultant were estimated as local currency component, while that for the project consultant was estimated in both the foreign and local currencies. The currency components of the project cost are shown in **Table II-4-2,** and summarized below.

Summary of Currency Components for the Project Cost

(Unit: VND million)

Component	LC	FC	Total
1. Survey and Detailed Planning	65,131	0	65,131
2. Improvement of Watershed Forests	984,878	0	984,878
3. Improvement of Silviculture Infrastructure	112,469	0	112,469
4. Small scale infrastructure	148,755	0	148,755
5. Support for Livelihood Development	44,006	0	44,006
6. Forest Fire Control	16,881	0	16,881
7. Sub-total of Direct Costs (Sum of 1~6)	**1,372,120**	0	**1,372,120**
8. Price Escalation	322,356	0	322,356
9. Physical contingency	68,606	**0**	68,606
10. Sub-total (7+8+9) (Base Cost for Components eligible to be loaned)	**1,764,082**	0	**1,764,082**
11. Project Management	125,580	**0**	125,580
12. Price Escalation	30,868	0	30,868
13. Physical contingency	6,279	**0**	6,279
14. Sub-total (11+12+13) (Administration Cost)	**162,728**	0	**162,728**
15. Consulting Services (including price and physical contingency)	64,799	66,251	131,050
16. Taxes and Duties	186,840	9,938	196,778
17. Total Project Cost excluding Loan Interest and Front End Fees (10+14+15+16)	**2,178,449**	76,189	**2,254,638**

Source: JICA Preparatory Survey Team (2016)

4.5 Financial Plan

In accordance with the JICA funding policy, the front end fee, administration cost and taxes and duties related to the project activities will not be covered by the JICA loan. As a result, the total cost to be borne by the GoV is estimated at VND 363.2 billion, while the total cost to be covered by the JICA loan is estimated at VND 1,928.8 billion (JPY 8,899.9 million). Breakdown of the financial plan is presented in **Table II-4-3**, and summarized below.

Summary of Fund Requirement

(Unit: VND million)

Component	GoV	Loan	Total
1. Survey and Detailed Planning	0	65,131	65,131
2. Improvement of Watershed Forests	0	984,878	984,878
3. Improvement of Silviculture Infrastructure	0	112,469	112,469
4. Small scale infrastructure	0	148,755	148,755
5. Support for Livelihood Development	0	44,006	44,006
6. Forest Fire Control	0	16,881	16,881
7. Sub-total of Direct Costs (Sum of 1~6)	0	**1,372,120**	**1,372,120**
8. Price Escalation	0	322,356	322,356
9. Physical contingency	0	68,606	68,606
10. Sub-total (7+8+9) (Base Cost for Components eligible to be loaned)	**0 (0)**	**1,764,082 (8,139.8)**	**1,764,082 (8,139.8)**
11. Project Management	125,580	0	125,580
12. Price Escalation	30,868	0	30,868
13. Physical contingency	6,279	0	6,279
14. Sub-total (11+12+13) (Administration Cost)	**162,728**	**0**	**162,728**
15. Consulting Services	0	131,050	131,050
16. Taxes and Duties	196,778	0	196,778
17. Total Project Cost excluding Loan Interest and Front End Fees (10+14+15+16)	**352,505 (1,658.8)**	**1,895,132 (8,744.5)**	**2,254,638 (10,403.3)**
18. Loan Interest during the Project Period	0	33,680	33,680
19. Front End Fee	3,790	0	3,790
20. Grand Total (Sum of 17~19)	**363,296 (1,676.3)**	**1,,928,812 (8,899.9)**	**2,292,107 (10,576.2)**

Source: JICA Preparatory Survey Team (2016)

Chapter 5 Project Evaluation

The viability of the project was evaluated from economic and financial points of view. A cost and benefit analysis was made for the economic analysis, while the financial capacity of the provincial governments and project effect on household economy were assessed for the financial evaluation. Intangible benefits which could not be quantified in monetary values were also itemized in order to draw attention to the indirect benefits of the project. Detailed results of the economic and financial evaluations are described in **Annex-H** attached to Volume II of the Final Report, and some highlights are outlined below.

5.1 Basic Assumptions for the Analyses

The following assumptions were made for both the economic and financial analyses of the project.

Basic Assumptions for the Analyses

Items	Assumptions
1) Exchange rate	The following exchange rates were given as the general conditions for the ODA project in 2016. USD 1.0 = JPY 101.3 = VND 21,954, VND 1 = JPY 0.00461
2) Evaluation period	The evaluation period is set at 43 years including 3-year preparatory period (i.e., procurement of consulting services) before the start of forest development and improvement activities.
3) Inflation	The influence of inflation is not considered in the calculation of economic costs and benefits.
4) Discount rate	A discount rate of 10% is adopted for the calculation of the net present value. This rate is commonly used in evaluation of the development projects.
5) With-project and without-project conditions	The project benefits were estimated by comparing the "with-project conditions" to the "without project conditions." The following table shows the basic assumptions in the changes of forest status with-project and without-project conditions.

With-Project Conditions	Without-Project Conditions
Bare lands/Grasslands/Bushes Bare lands/grass lands/bushes will be converted to plantations developed by afforestation. It is assumed that two afforestation models will be equally developed in the project area. Economic species planted in the plantations can be used for economic purposes.	Bare lands/Grasslands/Bushes Bare lands/grasslands/bushes will be maintained as they are.
Natural forests Natural forests targeted for protection of natural forests can be protected and maintained as they are.	Natural forests The area and quality of natural forests will be reduced and degraded at the same rates observed between 1990 and 2010.
Woodlots The woodlots will be protected and improved to regenerating natural forests which are eligible to be paid by the PFES scheme.	Woodlots The woodlots will be maintained as they are or further degraded into bushes or scrubs.

Source: JICA Preparatory Survey Team (2016)

5.2 Economic Evaluation

5.2.1 Economic Cost of the Project

For the economic evaluation of the project, the standard conversion factor (SCF) and shadow wage rate (SWR) were used for conversion of the project cost estimated from current market prices into the economic cost as follows.

- The costs of "improvement of silviculture infrastructure" and "improvement of small scale rural infrastructure" in which labor cost occupies a rather high share in the cost component, were adjusted with SCF of 0.8.

- The other project costs except "improvement of silviculture infrastructure" and "improvement of small scale rural infrastructure" were multiplied with SCF of 0.9.
- The cost of "improvement of watershed forests" was adjusted by multiplying SWR of 0.6 with its labor cost, which accounted for 80~90% of the total cost of the component, and SCF of 0.9 with its material and other costs.

(1) Project cost

The total economic cost of the project was estimated at VND 1,243 billion as shown below. More details of the economic costs of the respective components are shown in **Table II-5-1** attached to the report.

Table Economic Cost of the Project

(Unit: VND Million)

	Cost Items	Financial Cost	CF	Economic Cost
1	Survey and Detailed Planning	65,131	0.9	58,617
2	Improvement of Watershed Forests	984,878	0.6 for labour cost, 0.9 for other cost	638,146
3	Improvement of Silviculture Infrastructure	112,469	0.8	89,974
4	Small scale infrastructure	148,755	0.8	119,004
5	Support for Livelihood Development	44,006	0.9	39,607
6	Forest Fire Control	16,881	0.9	15,195
7	**Sub-total OF Base Cost (1~6)**	**1,372,120**		**960,544**
8	Project Management	125,580	0.9	113,019
9	Price contingency of Base Cost and PM Cost	354,225	None *	0
10	**Sub-total (7+8+9)**	**1,851,925**		**1,073,563**
11	Physical Contingency (5% of items 7 and 8)	74,885	-	53,678
12	Consulting Services (including Phyical Cont.)	115,880	1.0	115,880
13	Price contingency of Consulting Services	15,173	-	0
14	Tax and Duty	196,778	None *	0
15	**GRAND TOTAL (10+11+12+13+14)**	**2,254,638**		**1,243,122**

* The price contingency and TAX is excluded from the economic cost

Source: JICA Preparatory Survey Team (2016)

(2) O&M cost

Operation and maintenance are required for the following components to ensure the sustainability of the project effects.

- Improvement of watershed forests
- Improvement of silviculture infrastructure
- Improvement of small-scale rural infrastructure

The O&M costs for the above-listed components were calculated on the basis of the following assumptions.

Table O&M Cost of the Project

Cost Items	Assumption
Improvement of Watershed Forests	The project areas, namely plantations established, forest rehabilitated and natural forest protected through the project, will be protected by the village working groups.
Improvement of Silviculture Infrastructure	Silviculture infrastructure facilities developed through the project will be maintained from the 7th year of the project. The O&M cost is estimated at 1% of the capital investment cost (VND 900 million) of the same component.
Improvement of small-scale Rural Infrastructure	Likewise, small-scale rural infrastructure facilities improved by the project will be maintained from the 7th year of the project with use of 1% of the capital investment cost (VND 1,190 million) of the same component.

Source: JICA Preparatory Survey Team (2016)

(3) Replacement cost

The equipment and facilities installed in the components of "improvement of silviculture infrastructure" and "improvement of small-scale rural infrastructure" need to be replaced at intervals of 20 to 30 years. The replacement costs estimated for the evaluation are shown below.

Table Replacement Cost of the Project

Cost Category	Item	Replacement Period	Total Economic Cost (VND million)
Improvement of Silviculture Infrastructure	Fire watch towers, Information boards, Nursery	20 years	7,004
	Forest guard office, Forest guard station	30 years	9,895
Improvement of Small scale Rural Infrastructure	Irrigation system, Water supply system	20 years	34,092

Source: JICA Preparatory Survey Team (2016)

5.2.2 Economic Benefits

The following economic benefits are expected to be generated through the implementation of the project.

a. Benefits from collection of firewood, timber, and resin from the plantations developed in protection forests
b. Benefits from CO_2 sequestration by afforestation and assisted natural regeneration
c. Benefits from reduction of CO_2 emissions through reduction of deforestation and forest degradation

The methodologies used and assumptions made for estimation/valuation of the above-listed economic benefits are described in **Annex-H** attached to Volume II of the Final Report. **Tables II-5-2 and II-5-3** attached to this report shows the results of the estimation of the amounts of CO_2 sequestration and reduction of CO_2 emission by using the calculation tool named "Climate Finance Impact Tool for Mitigation." The following table is the summary of the economic benefits estimated for the economic evaluation of the project.

Summary of the Economic Benefits

Type of benefits	Project activities related	Source of benefit (assumption)	Unit price	Volume (for the evaluation period)
Collection of firewood, timbers, & resin	Afforestation in the target protection forests	■ Fuel wood (*Pinus massoniana & Acacia mangium*) ■ Timber (*Pinus massoniana & Acacia mangium*) ■ Resin (*Pinus massoniana*)	VND 600,000/m^3 VND 550,000/m^3 VND 1,500,000/m^3 VND 1,150,000/m^3 VND 25,000/kg	4.5 m^3/ha 19.0 m^3/ha 6.8 m^3/ha 76 m^3/ha 40,130 kg/ha
CO_2 sequestration	Afforestation and ANR without enrichment in the target protection forests and nature reserves	■ CO_2 sequestration in Afforested areas ■ CO_2 sequestration in ANR areas	US$ 3.3/ t CO_2 US$ 3.3/ t CO_2	10.46 t CO_2/ha 2,80 t CO_2/ha (Total 165,825 t CO_2/year)
Reduction of CO_2 emission	Protection of natural forests in the target protection forests and nature reserves	■ Reduction of CO_2 emission from natural forest protection	US$ 3.3/ t CO_2	8.81 t CO_2/year/ha (Total 338,499 t CO_2/year)

Source: JICA Preparatory Survey Team (2016)

The total values of the economic benefits over the evaluation period are summarized below.

Summary of the Economic Benefits

Province	Type of benefits	Total Estimated Values (VND million)
Dien Bien	Collection of forest products	1,710,538
	CO_2 sequestration	91,356
	Reduction of CO_2 emission	225,804
Lai Chau	Collection of forest products	3,545,578
	CO_2 sequestration	215,664
	Reduction of CO_2 emission	0
Son La	Collection of forest products	1,169,229
	CO_2 sequestration	93,582
	Reduction of CO_2 emission	214,948
Hoa Binh	Collection of forest products	1,115,098
	CO_2 sequestration	79,948
	Reduction of CO_2 emission	540,193
Overall	Collection of forest products	7,540,443
	CO_2 sequestration	480,549
	Reduction of CO_2 emission	980,945

Source: JICA Preparatory Survey Team (2016)

5.2.3 Cost-Benefit Analysis

The flow of the economic cost and economic benefits during the evaluation period is shown in **Table II-5-4** attached to this report and illustrated below. **Annex-H** attached to Volume II of the Final Report shows the cash flow analyses of the component projects of the respective provinces.

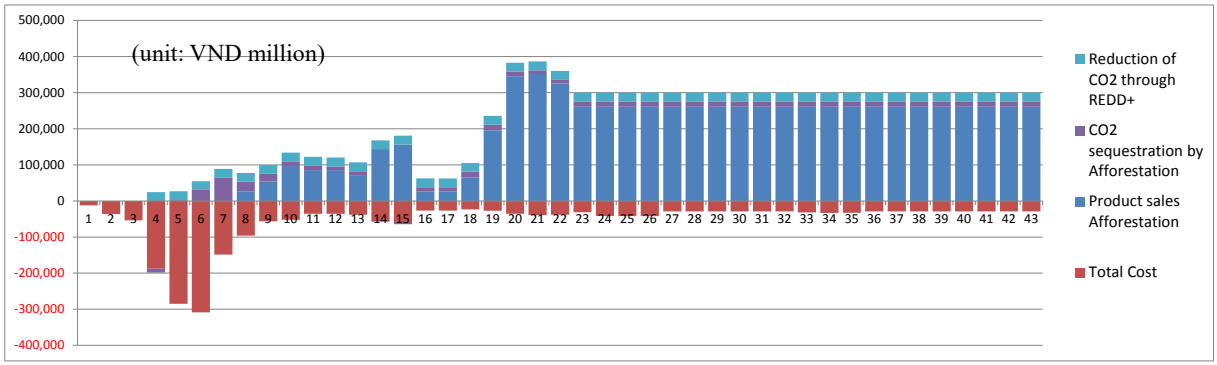


Figure Flow of Economic Cost and Benefits of whole Project

Source: JICA Preparatory Survey Team (2016)

The economic rate of return (EIRR), cost-benefit ratio (B/C) and the net present values (NPV) were estimated by using the discount rate of 10% to validate the economic feasibility of the project. The results of the estimation of the respective indicators are in **Table II-5-4** attached to this report, and summarized below.

Results of the Economic Analysis

	EIRR	B/C	NPV
Whole Project	10.7 %	1.08	VND 75,037 million

Source: JICA Preparatory Survey Team (2016)

Although the project economic benefit or economic return is not expected to be as high as those of infrastructure development projects, the figures suggest that the validity of the project can be justified as all the indicators satisfy the minimum requirements. Generally, a community-based afforestation project does not generate substantial direct and short-term benefits, and if anything, the benefit of such a type of project is more long-term and intangible. Particularly, as the main objective of the proposed project is to protect important watershed

forests for hydropower plants in the Northwest region, the indirect, long-term, and intangible benefits generated by the project would be considerably significant.

5.2.4 Sensitivity Analysis

To evaluate the reliability and stability of the project effect from the economic viewpoint, a sensitive analysis was made for the following negative scenarios.

- Case 1: 10% increase of the project cost
- Case 2: 20% increase of the project cost
- Case 3: 10% reduction of the project benefit
- Case 4: 20% reduction of the project benefit

The results of the sensitivity analyses are shown in **Table II-5-5** attached to this report, and summarized below.

Table Result of Sensitivity Analysis of Economic Analysis

	EIRR	Difference from Base Case (EIRR)	B/C	NPV (VND Million)
Base Case	10.7%	-	1.08	75,037
Case1: Cost +10%	9.8%	- 0.9%	0.98	-23,610
Case2: Cost +20%	9.0%	- 1.7%	0.90	-122,260
Case3: Benefit -10%	9.7%	- 1.0%	0.97	-31,114
Case4: Benefit -20%	8.6%	- 2.1%	0.86	-137,267

Source: JICA Preparatory Survey Team (2016)

5.2.5 Other Intangible Benefits

In addition to the quantified benefits described above, the project is expected to generate other intangible benefits, which could not be quantified in financial value due to a lack of related data. Some of the intangible benefits are summarized below.

Table Summary of Intangible Benefits

Expected Benefits	Project Component	Remarks
Provision of clean water to the downstream users	Improvement of Watershed Forests	The forest development and improvement activities will result in the expansion of forest areas and improvement of the quality of forests in the critical watershed; and eventually contribute to the provision of clean and stable water to the downstream users, especially dams for hydropower generation.
Stabilization of peak flows and reduction of downstream flooding	Improvement of Watershed Forests	Likewise, the forest development and improvement activities will reduce the occurrence of flash floods owing to the stabilization of peak flows in rivers.
Reduction of soil erosions and inflow of sedimentation into rivers	Improvement of Watershed Forests	Restoration and rehabilitation of forests through afforestation and ANR of the forest development and improvement activities will reduce the risks of soil erosion and slope failure in the project areas. Reduction of inflow of sedimentation into rivers will further contribute to the sustainable operations of hydropower plants.
Climate and moisture regulation	Improvement of Watershed Forests	In addition to the reduction of GHG emission through reduction of deforestation and forest degradation, the increase of forest coverage through afforestation and ANR will also contribute to the improvement of micro climate which more favorable for the growth of trees.
Market access improvement	Small Scale Infrastructure Development	Improvement of commune and village roads through the component of "improvement of small-scale rural infrastructure" will allow local communities to transport their products to market easily, access to market and agricultural extension information, and access to agricultural inputs as well as reasonable credit schemes. As a result, the livelihood conditions of local communities will be significantly improved by improvement of rural roads in the areas.
Improvement of agricultural productivity	Small Scale Infrastructure Development	The component of "improvement of small-scale rural infrastructure" will also improve/upgrade the existing irrigation systems, which will improve the productivity of not only the staple crops but also cash crops such as

Expected Benefits	Project Component	Remarks
		vegetables. Hence, such an intervention is expected to substantially improve living conditions of local communities.
Reduction of forest fires	Forest Fire Control	Proper management of forest and fire prevention activities will reduce the risks of forest fires and minimize fire damage to not only forests but also farms and other economic property.
Biodiversity conservation	Improvement of Watershed Forests	Protection of natural forest will contribute to the protection and conservation of valuable ecosystems in the target protection forests and nature reserves. Restoration and rehabilitation of forests in bare lands / grasslands / bushes and woodlots will also result in the increase of connectivity of the existing wildlife habitats.
Increase the income of local communities	Support for Livelihood Development	Local communities will have opportunities to learn skills and techniques effective in improving their livelihoods and developing alternative sources of cash income through the component of "support for livelihood improvement."

Source: JICA Preparatory Survey Team (2016)

5.3 Financial Analysis

The focus of the financial analysis was on the assessment of the financial capabilities of two levels of stakeholders, the provincial governments and local communities. For assessment of the financial capability of the provincial governments, the preparatory survey team analyzed their capacity to pay: i) the counterpart funds for operations of the projects and ii) the part of the loan portion of the component projects implemented in the provinces assuming the on-lending scheme was applied to the project. The project could generate additional sources of income which could make up for the potential losses of income caused by the project, particularly the losses caused by conversion of potential areas for crop production into forest.

5.3.1 Assessment of the Financial Capacity of the Provincial Governments

The affordability of the counterpart funds required for operations of the component projects in the respective target provinces was first assessed as compared to the average provincial budgets, especially those categorized as "development investment expenditures." Moreover, the financial soundness of the provincial governments, in the case where the on-lending scheme would be adopted, was assessed by checking if the provincial governments could pay 50% of the loan amount for the component projects implemented in the respective provinces. In the assessment, the average amount of budget allocated to "development investment expenditures." was compared to 50% of the highest annual loan disbursement in the respective provinces.

The following table shows the results of the assessments.

Table Capacity of Project Implementation

(Unit: VND million)

Items	Dien Bien	Lai Chau	Son La	Hoa Binh
1. Capacity to pay the counterpart funds				
1.1 Annual counterpart funds required	783~12,741	783~23,092	783~12,245	783~13,537
1.2 Development Investment expenditures	**260,869	322,400	*386,100	**259,557
1.3 Proportion	0.3%~4.9%	0.2%~7.2%	0.2%~3.2%	0.3%~5.2%
2. Capacity to pay the part of loan				
2.1 50% of the loan amount in the highest year	49,073 (6th year)	103,816(6th year)	48,004 (6th year)	55,806 (6th year)
2.2 Development Investment expenditures	**260,869	322,400	*386,100	**259,557
2.3 Proportion	18.8%	32.2%	12.4%	21.5%

* In Son La, the planned budget amount in 2014 is used as the data in 2015 is not available.

** In Lai Chau and Hoa Binh provinces, two budget items related to the investment expenditures are not separated in the financial statement. The amount of "Development investment expenditures" is assumed to be 20% of the total expenditures based on the average rate of other provinces.

Source: JICA Preparatory Survey Team (2016)

The results shown above indicate that:

i) It would not be difficult for the target provinces to secure the counterpart budget necessary for the project implementation; and

ii) The target provinces might be capable to repay 50% of the loan amount allocated to the respective provinces in theory even if the on-lending scheme is applied to the project, although it would not necessarily be easy for the provincial governments coordinate the other priority development activities planned by other sectors in the provinces.

5.3.2 Assessment of the Financial Impact on Household Economy

A household budget analysis was made to assess the potential financial impact on local households who would participate in the forest development and improvement activities. The gross household income from the project activities were assessed assuming that the following four models would be the typical cases in which the majority of local communities would engage.

Model 1 Afforestation (1): 2 ha of mix plantation of Indigenous species with *Acacia mangium* in Protection Forest
Model 2 Afforestation (2): 2 ha of plantation of Indigenous species in Special Use Forests
Model 3 ANR: 5 ha of ANR without enrichment
Model 4 Protection: 20 ha of protection of natural forest

The labor wage for the forest development and improvement activities, sales of forest products, and payment from the PFES scheme were considered as major sources of income for local communities. Only harvesting cost were estimated as they might need to hire external laborers for harvesting. Moreover, it was assumed that 15% of the total sales revenue would be shared with the relevant government authorities according to the benefit sharing mechanism drafted by the JICA2 project. The results of household budget analysis are tabulated below.

Model 1: 2 ha of Afforestation in Protection Forest

(unit: VND million/year)

Items / Year	1	2	3	4	5 - 14	15 - 25
1. Gross income						
1) Wage Payment from PFMBs/SUFMBs <1	37.3	22.4	18.2	7.1	0 – 0.4	0.4
2) Sales of Forest Resources (85%)	0	0	0	0	0 – 88.0	0.0
2. Cost of Harvesting	0	0	0	0	0 – 25.0	0.0
3. Gross revenue	37.3	22.4	18.2	7.1	0 – 63.0	0.4
Average gross revenue	**21.3**				12.1	0.4

Note: <1 The payment from the PFES scheme was assumed to start in the 10th year at a rate of VND 200,000/ha/year.
Source: JICA Preparatory Survey Team

Model 2: 2 ha of Afforestation in Nature Reserve

(unit: VND million)

Items / Year	1	2	3	4	5 - 14	15 - 25
1. Gross income						
1) Wage Payment from PFMBs/SUFMBs <1	37.3	22.4	18.2	7.1	0 – 0.4	0.4
2) Sales of Forest Resources (70%)	0	0	0	0	0	0
2. Cost of labor (for harvesting)	0	0	0	0	0	0
3. Gross revenue	37.3	22.4	18.2	7.1	0 – 0.4	0.4
Average gross revenue	13.2				0.2	0.4

Note: <1 The payment from the PFES scheme was assumed to start in the 10th year at a rate of VND 200,000/ha/year.
Source: JICA Preparatory Survey Team

Model 3: 5 ha of ANR without enrichment

(unit: VND million)

Items / Year	1	2	3	4	5 - 14	15 - 25
1. Gross income						
1) Wage Payment from PFMBs/SUFMBs <1	9.1	9.1	9.1	2.0	2.0	2.0
2. Cost of labor	0.0	0.0	0.0	0.0	0.0	0.0
3. Gross revenue	9.1	9.1	9.1	2.0	2.0	2.0
Average gross revenue	**8.3**				**2.0**	**2.0**

Note: <1 The payment from the PFES scheme was assumed to start in the 6th year at a rate of VND 200,000/ha/year.
Source: JICA Preparatory Survey Team

Model 4: 20 ha of protection of natural forest

(unit: VND million)

Items / Year	1	2	3	4	5 - 14	15 - 25
1. Gross income						
1) Wage Payment from PFMBs/SUFMBs <1	8.0	8.0	8.0	8.0	4.0-8.0	4.0
2. Cost of labor	0.0	0.0	0.0	0.0	0.0	0.0
3. Gross revenue	8.0	8.0	8.0	8.0	4.0-8.0	4.0
Average gross revenue	**8.0**				**4.4**	**4.0**

Note: <1 The payment from the PFES scheme was assumed to start in the 6th year at a rate of VND 200,000/ha/year.
*Source: JICA Preparatory Survey Tea*m

The results of the assessment indicate that local household who participate in the forest development and improvement activities could earn cash income of VND 8.0 ~ 21.3 million/year for the first four years, which may be equivalent to 23% ~ 61% of the average households income in the target communes assuming that the average per capita annual income is VND 6~7 million and one family has five family members on average based on the results of the household survey made by the preparatory survey team in April and May 2016. In particular, substantial cash income are expected to be paid to local households who engage in afforestation activities. Furthermore, they are expected to be able to earn VND 0.3 million/year ~ 6.3 million/year on average for 20 years after the end of the project support in protection forests on conditions that local communities and PFMBs concerned would exchange the collaborative management agreement with the benefit sharing mechanism developed by the project. It is, however, necessary to develop another benefit sharing mechanism for collaborative management of forests in nature reserves in addition to the PFES scheme to ensure the sustainable forest management of forests in such areas in the post-project period.

Chapter 6 Environmental and Social Considerations and Potential Impacts

The JICA guidelines indicate that a wide range of environmental and social considerations should be taken into account. Initial scoping made by the preparatory survey team identified the following environmental and social impacts to be assessed.

Potential environmental impacts

- Climate Change
- Ecosystems (especially landscapes and protected areas)
- Biodiversity (fauna and flora)
- Air, Water, Waste and Soils (resulting from infrastructure activities)

Potential social impacts

- Involuntary resettlement and land acquisition
- Poverty, vulnerability and loss of livelihoods
- Ethnic Minorities
- Gender

Table II-6-1 shows the results of initial environmental screening and assessment by using the environmental checklists given by the JICA Environmental and Social Consideration Guidelines. Two types of checklists (forestry development and infrastructure development), which are an integration of those for road, irrigation, and water supply, were used for the purpose. As shown in the checklists, a wide range of environmental and social potential impacts were assessed and considered for initial assessment.

Likewise, the preparatory survey team made the environmental scoping using the same checklists (forestry development and infrastructure development). The results of the environmental scoping are shown in **Table II-6-2** attached to this report. More details of the potential environmental and social impacts as well as necessary countermeasures or safeguard actions are described in the following sections.

6.1 Environmental Considerations and Potential Impacts

(1) Positive Environmental Impacts

The project is primarily focused on restoration, rehabilitation, and protection of forests; therefore, the associated activities are expected to generate various environmental benefits, which include:

- Climate change mitigation through reduction of GHG emissions from deforestation and forest degradation;
- Enhancement of carbon stocks and sequestration;
- Regeneration of natural or buffering/connecting forest habitats offering opportunities for wild fauna and flora to establish and recover;
- Enhancement of protection and conservation of protected areas, species, and habitats of significantly precious species; and
- Improvement of forest ecosystem services, such as watershed protection, protection of soils, and regulation of hydrological flows.

(2) Negative Environmental Impacts

Table II-6-3 attached to this report presents the potential environmental impacts or risks associated with each project component based on the results of initial environmental examination (screening and scoping) in the course of the survey and during the participatory consultations. It is important to note that the table only focuses on the physical components of the project as there is no environmental impact associated with project management, monitoring and evaluation and project consultant. Key environmental considerations are highlighted as follows.

a. Habitat disturbance and biodiversity loss from inappropriate afforestation techniques

Habitat disturbance and biodiversity loss are important considerations in this project due to the ecological significance of the project landscape as a whole, as well as the values of the respective target protection forests and nature reserves. In fact, some target areas have been designated as nature reserves on the basis that they support populations of nationally and globally threatened fauna and flora.

The inappropriate design and implementation of afforestation activities could have deleterious impacts on habitats and biodiversity. This can occur particularly when exotic or timber species are planted on natural non-forest habitats. In general, natural regeneration should always be preferential, followed by planting with indigenous species. Afforestation should be reserved for only bare or severely degraded forest lands. It is also suggested that PPMBs should follow the proposed designs of afforestation, namely i) mix plantation of native species (dominant species) and economic/fast growing species (subordinate species) in protection forests and ii) mix plantation of several types of native species in special use forests when making the detailed designs of the respective target areas.

b. Habitat loss, disturbance, biodiversity loss and other negative impacts from construction of forest roads:

Construction of forest roads may also lead to the following adverse effects on important ecosystems and biodiversity in the target protection forests and nature reserves.

i) Habitats of wildlife may be lost and disturbed by the clearance of trees and forests.

ii) Construction of forest roads may cause a) deposition of earth into water stream especially in hilly and mountainous areas where the road design necessarily requires compacting of slopes, b) chemical spills, and c) air and nose pollution which may disturb resident wildlife.

iii) In the longer term, forest roads may also split wildlife populations with disastrous consequences for sub-populations, gene pools and even species given rapid forest degradation and biodiversity decline in the northwest region. Another long term impact of roads is that they may facilitate the removal of wildlife and in general disturb forest ecosystems. For this reason, construction of new roads in forest areas should be carefully considered in general as an activity for this project, but eliminated especially in SUF areas. Due care should be taken to ensure that any road upgrading does not involve any clearance of natural forest and should not exceed 5 ha of forest clearance in other types of forests as this would lead national level clearance in protection forests per Decree No. 18/2015.

c. Various minor, small scale and temporary environmental impacts associated with construction/rehabilitation of small-scale rural infrastructure

Again, in general small-scale rural infrastructure investments should be focused on upgrading existing infrastructure rather than constructing new facilities. Minor environmental impacts associated with such sub-projects may include deposition of earth into water streams, potential chemical spills, air and noise pollution.

d. Minor and small-scale environmental impacts associated with livelihood support activities

Certain livelihood support models are likely to have certain relatively minor environmental impacts associated with them. For example, agricultural models may involve the use of fertilizers and pesticides, excessive water consumption or some pollution during processing. Such deleterious impacts should be managed and mitigated through technical guidance on sustainable production methods during implementation.

6.2 Social Considerations and Potential Impacts

(1) Positive Social Impacts

While the primary objective of the project is the improvement of watershed forests, the project is also expected to provide a number of social co-benefits, such as:

- Improvement of physical capital for rural poor communities through upgrading of community infrastructure;
- Improvement of financial capital through provision of employment and income generating opportunities to poor communities;
- Improvement of livelihood improvement opportunities through support for capacity building and training on livelihood development activities; and
- Improvement of natural capital through enhancement of ecosystem services.

(2) Negative Social Impacts

The potential social impacts or risks which might be caused by the project components were identified as shown in **Table II-6-4** attached to this report on the basis of the results of the initial screening and scoping of the potential impacts.

Overall, social considerations are of greater concern than environmental issues. As described in Chapter 1 of Part II of this report, the Northwest region is inhabited by diverse ethnic minority communities and groups who comprise the majority of project affected households. There are potentially serious social safeguard issues linked to their land and forest tenure rights which would cause impacts on the livelihoods of such people, many of whom are amongst the poorest and most vulnerable in Vietnam and dependent on forest lands and resources. More details of the analysis and explanation of the complex sensitive socio-political context as well as the specific issues in the target provinces are provided in the Environmental and Social Management Framework (ESMF) developed by the preparatory survey team, which is shown in **Annex-I** of the Final Report. Some highlights of the key social concerns are summarized below.

a. Involuntary resettlement (Physical relocation)

Firstly, it should be stated that the project will not involve any physical relocation of households.

b. Loss of assets or access to assets (including land – land acquisition)

This aspect of involuntary resettlement in the proposed project refers to two types of land acquisition situations:

- Loss of productive land where the household has an existing legal/formal land right; and
- Loss of productive land where the household has no existing/formal land right.

The land and forest land tenure situation in North-west Vietnam is extremely complicated, sensitive, and there are many 'grey' areas. Although the survey team has done its best to try to understand the various situations in the project area, it was difficult for the team to grasp a clear picture of the land tenure issues (including customary use) in the project areas due to time constraints of the survey, the large number of sites and the complexity of the situation at many sites. More detailed and in-depth surveys are required for clear understanding of these issues as the project is further developed.

i) Loss of productive land where the household has an existing legal/formal land right

The most serious safeguard issue for the project is the potential scenario that lands that are at some stage in the process of formal allocation to households or communities; are allocated or re-allocated to FMBs supported by the project.

The original project proposal tentatively indicated or suggested that forest land allocation (FLA) would be an activity or potential activity of one of the components (forest inventory and planning). It was recommended that this activity be removed from the loan project design at an early stage in the preparatory survey for a variety of reasons, not least that such activities are long, arduous, difficult to implement, expensive etc, but also due to social considerations and the potential for ethnic minority land acquisition, which a) is to be avoided where feasible according to JICA guidelines and b) would likely mean that the project would have to be re-categorised as Category A. Hence, the project plan proposed by the preparatory survey team does not include the activities relating to forest land allocation, if anything, a series of close consultations with local communities, which are necessary for implementation of the project in the areas allocated local communities, are proposed. This recommendation stands and is re-iterated here: The loan project should not finance any forest land allocation (or re-allocation).

However, it is essential to note in this report that processes of FLA might be in progress in the project provinces anyway, which are to some extent influenced by the project (to be selected as the project areas) though they are not directly linked with project activities. Thus, according to our judgment, FLA should therefore be considered in the context of JICA guidelines, even if the land allocation would be completed prior to the start of the loan implementation period. This however is the first grey area i.e. the JICA guidelines are not explicit in how such situations are to be treated (where there are actions which are linked and/or relevant to implementation of the loan project, but are not to be financed by the loan project), nor any clear guidance specifying at what point linked actions/measures must be completed prior to loan

implementation for them not to necessitate the application of the JICA safeguard policies.

To provide more specific context, in the project provinces, there are several FMBs that are or may be currently in the process of accumulating lands, particularly in Dien Bien province (e.g. Dien Bien, Tuan Giao, Muong Cha PFMBs and Muong Phang SUFMB). FLA to FMBs is being pursued for more effective management and control of the forests, facilitation of distribution of PFES funds and, in part, participation in the proposed JICA loan project. In protection forests, one of the primary reasons for promotion of FLA is the existing MARD regulation on the management of protection forests, which clearly state that PFMB should have more than 5,000 ha of allocated protection forests to be officially registered. The extent to which the project has affected their motivation is not fully clear, but there might be a possibility that the project might have enhanced DARDs' interest in FLA to FMBs as one of the criteria for the first selection of the target sites was the official allocation to FMBs.

The following protection forests and nature reserves might have the land tenure conflict issues although the situation is extremely unclear at this moment due to the lack of information.

- Dien Bien Dien Bien Protection Forest, Tuan Giao Protection Forest, and Muong Phang Special Use Forest
- Son La Quynh Nhai Protection Forest
- Hoa Binh Ngoc Son – Ngo Luong Special Use Forest

The situations of the target areas listed above are highlighted in Annex-I of the Final Report, but there is a need to carry out in-depth surveys to clarify more details of the current situations as well as the possibility of land acquisition prior to the inclusion of those sites as the project areas. Considering the concerns about the potential social risks described above, the preparatory survey advised DARDs of Dien Bien, Son La, and Hoa Binh not to proceed the FLA process for the proposed project indicating that the site where the FLA to FMBs is progressed might be excluded from the project areas and even the sites allocated to local communities could be selected as the project areas.

ii) Loss of productive land where the household has no existing/formal land right

The project proposes a considerable area for afforestation and ANR. Much of this is proposed within the boundaries of lands formally allocated to PFMBs or SUFMBs. Therefore, in general PFMBs or SUFMBs are the de jure forest owner and are the legal entity entitled to make landuse decisions such as which areas are available for afforestation and ANR. However, in reality many of these PFMB/SUFMB areas are interspersed with lands under cultivation or at various stages of recovery within traditional upland swidden-fallow cycle employed by the different ethnic groups resident in or adjacent to the PFMB/SUFMB area. In some cases, land has been illegally converted by recent migrants or new households. In many cases however ethnic minority households may have 'reasonable' claims to land based on customary or traditional land tenure systems going back many generations, pre-dating the establishment of PFMBs/SUFMBs, or indeed the modern Vietnamese State itself but whose claims were never formally recognized. In this case a project decision to

afforest an area of 'bare' or 'degraded' land may in fact, effectively be acquiring a given households productive agricultural land. In such areas with steep slopes and marginal soils, it is necessary to leave land fallow to recover before once again becoming productive. Thus, afforestation may lead to future restrictions on ethnic minority livelihoods and food insecurity. This issue is prevalent at all sites in the project area and in general throughout the mountainous Northwest sub-region.

Therefore, it is proposed that this situation be resolved through consultation, negotiation and detailed participatory landuse planning during implementation. Where there is a clear conflict situation leading to a loss of de facto productive assets and livelihoods, such lands should be eliminated from afforestation/ANR plans. In this manner involuntary resettlement (including land acquisition) can be avoided.

c. Loss of income sources or livelihoods

The loss of land (both land that is formally owned by households and land which is used informally) will have a direct impact on livelihoods and income sources for rural upland poor ethnic minority households in the project area. Households are almost unanimously and almost entirely dependent on upland agriculture as their main source of income as well as means to meet their own subsistence needs. Thus, any loss of productive land could have significant impacts. However, those who are willing or agree to use their lands (either formally owned or informally used) are also expected to gain substantial income from the project activities and be able to have continuous income from forest resources as well as PFES even after the project under the collaborative management contracts with PFMBs/SUFMBs.

Furthermore, a set of measures effective for recovering the loss of income source or livelihoods should be examined and implemented as one of the project component; hence, it is considered that the sources of income or livelihood conditions of local communities, especially those participating in the project, could be enhnaced over the course of the project.

d. Restricted access to protected areas resulting in adverse impacts on incomes and livelihoods

The project does include a number of protected area sites. At all sites there are local ethnic minority populations residing within and/or on the periphery of the protected area. Local people continue to cultivate (often illegally) within the protected area boundary and they are also dependent to varying degrees on the natural resources of the protected area. Although the project will invest in certain actions and measures to improve forest protection, it is not perceived that such actions will lead to significant additional restrictions on such local communities beyond the issues already discussed above for households with agricultural lands inside the protected areas but which are not formally or legally allocated.

e. Exclusion from and/or or inequitable distribution of project benefits (and costs)

There is a risk that the same communes and villages are selected (that have already benefited from other project/programs) for reasons of convenience or ease of implementation and/or that project benefits are skewed towards those households that are already better off (e.g. they have larger land areas for cultivation), leaving behind those categorized as the poorer or vulnerable households or groups. During the stakeholder consultations in the field, participants also raised the same concerns about the selection of target communes, villages, and beneficiaries groups.

f. Insufficient consultation with local communities

Given that the project focuses primarily on forest development and will be implemented through PFMBs/NRMBs, there are concerns that the project could be implemented in a top-down manner and local communities would be treated merely as laborers.

While the initial stakeholder consultation was conducted as part of the preparatory survey, the same process needs to be maintained throughout the project, and if anything, there is also a need for closer and thorough consultations at the grassroots level among local people. It will be especially important in the initial planning stages of site-level project activities as a means towards verifying community support for interventions, particularly regarding the locations of afforestation and ANR at the sites.

Beyond consultations, the effective participation of local people in the project activities is important, as it would enable them to become genuine stakeholders who play an important role in forest protection and development at the sites in the future.

g. Gender Issues

Gender is an important consideration with respect to forest protection and development activities in Vietnam. Men and women often have gendered divisions of labor in relation to management, protection and use of forests. As in many rural parts of other south-east Asian countries, women in the remote areas of the target provinces are often excluded from the process of natural resource planning and decision-making as well as certain activities due to patriarchal tenure systems, male-dominated cultural beliefs as well as the lack of women in official forest management positions, in spite of the fact that women are involved in many aspects of forestry and are often knowledgeable about various aspects of forest management.

Another factor specifically relevant to ethnic minority groups in the hilly and mountainous parts in the northwest region is the fact that girls spend less time in school and often drop out of formal education at the younger age than boys do. This combined with i) other restrictions in terms of female roles within the home and the community and ii) the limited exposure to outside communities has often caused little grasp of Vietnamese language among ethnic minority women in the region, which in turn limits their awareness and knowledge, and participation in commune/village activities. It is, therefore, important to actively involve women in forest planning and livelihood development activities in the project.

6.3 Management and Mitigation of Environmental and Social Risks

6.3.1 Selection of Appropriate Safeguards Instruments

The JICA guidelines and the TORs for the preparatory survey indicate that the following safeguards instruments may be required for the management of environmental and social risks in a project similar in nature to the proposed project.

- An Environmental and Social Management Plan (and draft monitoring plan)
- Resettlement Plan (if required)
- Indigenous Peoples Plan (IPP)

Since the project needed an appropriate instrument for the management and mitigation of identified environmental and social impacts/risks as required for a Category B project, the preparatory survey team assessed and examined the safeguard instruments listed above to

select the most appropriate one to apply in the context. The results of the examination are summarized below.

Examination of Appropriate Safeguard Instruments

Items	Examination
a. Environmental and Social Management Framework (ESMF)	It is firstly judged that the main output from the environmental and social considerations work is an Integrated Environmental and Social Management Framework (ESMF) but not an Environmental and Social Management Plan (ESMP). The reasons for this judgment are that the project will have multi-faceted interventions and activities, which will be implemented at numerous sites, and many of the project activities have yet to be clearly defined in detail (site location, size/scope of the activity), unlike a typical infrastructure project. Thus, it would be impossible at this project preparatory stage to assess the environmental and social impacts and propose management and mitigation measures accordingly. However, it is more feasible to i) assess the broad types of activities, ii) provide guidance on what the size/scale/scope of the sub-project should be, and iii) outline measures/procedures for managing and mitigating any potential risks associated with the activity during implementation. Therefore, a framework guiding the management and mitigation of environmental and social risks in implementation is developed. ESMF will be comprised of several sets of procedures but, to make it user-friendly, be compiled as one document, including measures for eliminating sub-projects with significant impacts, environmental assessment and monitoring procedures, a framework for consultation and participation and a grievance redress mechanism.
b. Resettlement Plan:	A Resettlement Plan/Framework will not be prepared because there will be no physical relocation foreseen in the project (nor linked to the project) or large scale involuntary resettlement. The JICA Guidelines are consistent with those of the World Bank and other major multilateral development agencies in principle; therefore, involuntary resettlement could additionally refer to i) the loss of assets or access to assets; ii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or iii) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. As such cases, the case for a resettlement plan or framework should be made. Likewise, an abbreviated resettlement action plan (A-RAP) should also be required for projects where such involuntary resettlement would be on a small scale. In this project, any types of involuntary resettlement is not expected to take place as long as the proposed FPIC process and procedures will be taken and the negative checklist will be fully utilized in the selection of the project areas and scope of the sub-projects. There are quite likely sensitive informal land acquisition issues at a number of the protection forests and nature reserve sites where there are latent land conflict issues i.e. the potential acquisition of lands for afforestation and ANR which have not been formally allocated to households or communities but which are claimed as areas of customary or traditional use. It is proposed that where this is the case, the situation should be resolved through consultation and participatory land use planning, whereby an affected household/community may agree (or not) to voluntary land acquisition in return for receipt of project benefits (and/or other related benefits such as PFES payments). If the household/community does not agree and is able to provide sufficient evidence of the validity of their claim, their lands will not be selected or used as project areas for afforestation/ANR. In this way, involuntary resettlement can be eliminated from project activities and/or is addressed through the Consultation and Participation Framework which includes participatory land use planning. Finally, the project will not support any activities within the project that involve a significant strengthening of restrictions on access. As discussed above there is the potential for some loss of assets, access to assets and/or loss of access to a means of livelihood, however this will be in general avoided, managed and mitigated through the implementation of the ESMF.
c. Ethnic Minority Development Plan (EMDP)	Vietnam does not use the term indigenous peoples in reference to peoples within its own borders. Vietnam does however recognize 'ethnic minorities or ethnic minority groups'. These minority groups share many equivalent characteristics with the definition of 'indigenous peoples (IPs)' and typically, major international development agencies apply the policies relating to IPs and require the preparation of an Ethnic Minority Development Plan (EMDP) for any project which affects ethnic minority populations in Vietnam. A stand-alone EMDP has not been prepared for two reasons; i) for the same reason as above that a framework is selected because it has not been possible to develop a concrete plan within the short preparatory survey to assess impacts at all sites particularly when detailed activities and sites cannot be clearly fixed; and ii) because Ethnic Minorities represent the majority of populations at project sites. In place of an EMDP or framework, ethnic minority issues are fully integrated into the ESMF and project implementation procedures themselves to avoid repetition and confusion – it is clearer and easier to follow than having an ESMF and an EMDP.

Source: JICA Preparatory Survey Team (2016)

6.3.2 Environmental and Social Management Framework

(1) Overview

The integrated Environmental and Social Management Framework (ESMF) is prepared to ensure that potential adverse environmental and social impacts associated with the project are properly addressed in accordance with the JICA guidelines on environmental and social considerations, as well as Vietnam's own relevant policies, laws and regulations. The full ESMF with detailed measures and procedures is presented in **Annex-I** of the Final Report.

The ESMF aims to manage the potential adverse impacts by establishing a guide consisting of a set of relatively simple procedures and measures to facilitate adequate environmental and social management, including risk management of environmental and social impacts, in relation to the activities to be financed by the project.

The Integrated ESMF is comprised of the following elements.

1) **Negative Checklist:** Eliminates activities and/or provides conditions so as to ensure that the scope and scale of project impacts do not exceed that of its categorisation level (i.e. Category B).
2) **Environmental Management and Monitoring Procedures:** Provides guidance for meeting environmental planning requirements for management and mitigation of any potential impacts caused by silviculture and small-scale infrastructure development and monitoring of potential impacts.
3) **Community Participation Framework:** Provides guidance for free, prior and informed consultation (FPIC) processes, stakeholder engagement and participation and serves to meet the requirements for ethnic minority development planning, and as such include:
   - Guidelines for Social Assessment;
   - Free, Prior and Informed Consultation Guidelines (including participatory land use planning and household/community verification of plan);
   - Village Selection Criteria; and
   - Beneficiary Selection Criteria.
4) **Grievance Redress Mechanism:** Outlines an institutional mechanism and procedures for addressing project-related complaints and grievances.

(2) Environmental Management Plan

Although no significant adverse impact is expected to be generated by the project in principle, some minor environmental and social impacts might possibly occur as described in Tables **II-6-1 to II-6-4**. In order to ensure that such negative impacts could be minimized and eliminated in the course of the project implementation, the preparatory survey team examined and proposed the mitigation measures and management practices against the respective environmental items. The following tables shows the proposed mitigation measures and management practices to be taken/applied in the construction and operation phases of the project activities, particularly those relating to the infrastructure development.

Proposed Environmental Management Plan/Environmental Code of Practice

Potential Environmental Impact	Proposed Mitigation	Responsibility	Cost
Construction Phase			
Dust generation/ Air pollution	- The Contractor implement dust control measures to ensure that the generation of dust is minimized. ✓ water dusty roads and construction sites. ✓ cover materials loaded/stockpiled in the sites to protect soils and materials stockpiled from being exposed to wind. ✓ prevent soils, sands, materials and dusts from scattering during transportation.	Contractor	to be included in construction cost
Water pollution (Water quality)	- Portable or constructed toilets must be provided on site for construction workers. Wastewater from toilets shall be discharged into a holding tank for removal from the site - Wastewater over permissible values set by relevant Vietnam technical standards/regulations must be collected in a storage tank and removed from site by licensed waste collectors.	Contractor	to be included in construction cost
Solid waste (Waste)	- At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities. - No burning, on-site burying or dumping of solid waste shall occur. - Recyclable materials such as wooden plates for trench works, steel, scaffolding materia, packaging material, etc. shall be collected and separated on-site from other waste sources for reuse, for use as fill, or for sale.	Contractor	to be included in construction cost
Chemical or hazardous wastes (Waste)	- Used oil, lubricants, cleaning materials shall be collected in holding tanks and removed from site. - Chemicals shall be stored in a safe and appropriate manner by roofing, fencing and appropriate labelling.	Contractor	to be included in construction cost
Drainage and sedimentation (Soil)	- Areas of the site not disturbed by construction activities shall be maintained in their existing conditions.	Contractor	to be included in construction cost
Soil Erosion (Soil)	- The excavation in the open cutting area shall be avoided during heavy rainy season. - The tentative prevention measures against soil erosion shall be prepared before rain	Contractor	to be included in construction cost
Restoration of affected areas (Soil)	- Cleared areas such as disposal areas, site facilities, workers' camps, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be restored using landscaping, adequate drainage and vegetation. - Trees shall be planted at exposed land and on slopes to prevent or reduce land collapse and keep stability of slopes.	Contractor	to be included in construction cost
Noise and vibration	All vehicles must have appropriate "vehicle inspection certificate," and "technical safety and environmental protection certificate" to avoid exceeding noise emission from poorly maintained machines. - Permissions from local authorities should be obtained in case of night time activities, if necessary.	Contractor	to be included in construction cost
Disruption of vegetative cover and ecological resources (Ecosystems)	- Areas to be cleared should be minimized as much as possible. - The application of chemicals for vegetation clearing shall not be permitted. - Cutting of any tree shall be prohibited unless such an act is explicitly authorized in the vegetation clearing plan. - When needed, temporary protective fence shall be set up to efficiently protect the preserved trees before commencement of any works within the site. - The Contractor shall ensure that no hunting, such as trapping shooting, poisoning of fauna, takes place.	Contractor	to be included in construction cost
Communication with local communities (Resettlement)	- The contractor shall disseminate project information to communities/groups/ entities affected by the construction (for example local authority, enterprises and affected households, etc) through community meetings before construction	Contractor	to be included in construction cost

Potential Environmental Impact	Proposed Mitigation	Responsibility	Cost
	commencement. - The contractor shall provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results. - Local residents shall be informed about construction and work schedules, interruption of services, and traffic detour routes and as appropriate. - Notification boards shall be erected at all construction sites providing information about the project.		
Worker and public Safety (Work environment)	- The contractor shall train workers on occupational safety regulations and provide sufficient protective clothing for workers in accordance with applicable Vietnamese laws. - Fences, barriers, dangerous warning shall be installed around the construction area which showing potential danger to public people. - The contractor shall provide safety measures as installation of fences, barriers warning signs, lighting system against traffic accidents as well as other risk to people and sensitive areas. - First-aid stations, safety equipment, and warning signals shall be placed.	Contractor	to be included in construction cost
Traffic management (Work environment)	- Signs/notices with directions, safety advice and warning shall be placed around the construction areas to facilitate traffic movement. - Safe traffic control measures, including road/rivers/canal signs and flag persons, shall be employed to warn of dangerous conditions	Contractor	to be included in construction cost
	Operation Phase		
Air Quality, Noise and Vibration	- All the constructed facilities, especially forest roads and commune roads, shall be properly maintained on a regular basis.	FMBs/ PPMBs	to be included in operation cost
Water Quality	- All the constructed facilities, especially irrigation and water supply facilities, shall be properly maintained on a regular basis.	FMBs/ PPMBs	to be included in operation cost
Accidents	- Staff of FMBs/CPCs and communities concerned shall be trained on operation and maintenance.	FMBs/ PPMBs	to be included in operation cost

Source: JICA Preparatory Survey Team (2016)

More details of the mitigation practices and measures applied to the construction works for silviculture and small scale rural infrastructure are shown in **Annex-I** attached to Volume II of the Final Report.

(3) Environmental Monitoring Plan

Safeguard implementation, monitoring, and reporting is an integral part of the project implementation and specific safeguard officer under each PPMB and PFMBs/SUFMBs shall be assigned to be responsible for the activities. At the stage of site-level implementation planning, the designated staff responsible for safeguards at PFMBs/SUFMBs shall ensure that the CPGs have been correctly followed e.g. to ensure that communities have been selected appropriately, social assessments and participatory land use planning have been carried out according to the specified requirements so that interventions are appropriate and could be broadly supported by community. Each of these safeguards requirements has corresponding process indicators. Therefore, it is the job of the designated safeguards staff to collect and collate the various forms that provide evidence of the consultation and participation processes. In addition, he/she should also check the proposed plan against the Negative Checklist attached to **Annex-I (ESMF)** of the Final Report.

Once project activities have been appraised and approved (requiring environmental clearance or not), it is necessary to monitor the implementation of the activities to ensure that environmental and social impacts do not occur and/or are being managed and mitigated appropriately. For example, the designated PFMB/SUFMB staff responsible for environmental and social safeguards should follow up during the implementation of activities such as the construction/upgrade of forest roads to ensure that environmental protection measures pertaining to tree-clearance, road width, management and use of chemicals and hazardous substances and other safeguards are being implemented in reality by the contractors.

The safeguard compliance during the project/subproject implementation should be also closely monitored by staff from local authorities; provincial and district Environment Officers; Technical staff of CPMB and representatives from local NGOs, Cooperatives and Associations; and community mass organizations such as Social Groups, women's Unions, youth unions. Regular/periodic visits should also be carried out to confirm that the potential positive impacts have been led by the project and mitigation measure have been carried out properly by the awarded contractors/implementer.

The table below shows the proposed environmental monitoring plan, especially for silviculture infrastructure (forest roads, sub-stations, watchtowers, fire-breaks, etc.) and small-scale infrastructure (commune roads, water supply, irrigation facilities) which expectedly would generate minor temporary/reversible environmental impacts on air/dust, water sources, chemicals/pollutants, noise, waste disposal during the construction.

Environmental Monitoring Plan (for improvement of silviculture infrastructure and small-scale infrastructure)

Items	Parameters	Location	Method	Frequency	Responsibility[2]	Due Diligence
Construction Phase						
Dust generation/ Air pollution	Dust, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Water pollution (Water quality)	Water quality change, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Solid waste (Waste)	Volume and kind of construction wastes, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Chemical or hazardous wastes (Waste)	oil, lubricants, cleaning materials, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Drainage and sedimentation (Soil)	mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)

[2] FMB shall be supported by NREO as required. Simple monitoring form shall be drafted by TA Consultants and applied by FMBs in the field.

Items	Parameters	Location	Method	Frequency	Responsibility[2]	Due Diligence
Soil Erosion (Soil)	Visual monitoring of storm water runoff, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Restoration of affected areas (Soil)	mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Noise and vibration	Noise, complain from local resident mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Disruption of vegetative cover and ecological resources (Ecosystems)	Illegal tree clearing, wild animal hunting, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Communication with local communities (Resettlement)	Complaint from local resident, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Worker and public Safety (Work environment)	Training for worker, fences, barriers warning signs, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Traffic management (Work environment)	Signs, mitigation measure implemented	Subproject areas	Visit site and visual check	Bi-annually	FMB Safeguards Officer/ CPC	PPMB Safeguards Officer (and CPMB/Project Consultant)
Operation Phase						
Accidents	Regularly maintenance	Subproject areas	Record the accident Check the training record	Annually	FMBs/ PPMB	—

Source: JICA Preparatory Survey Team (2016)

Furthermore, the following table gives the proposed monitoring plan on the potential environmental and social risks associated with the forest development activities.

Environmental Monitoring Plan (for improvement of watersheds)

Items	Parameters	Location	Method	Frequency	Responsibility[3]	Due Diligence
Construction Phase						
Disturbance of ecosystem	Design, Species planted,	Subproject areas	Visit site and visual check	Bi-annually	PPMB, FMB	PPMB Safeguards Officer (and CPMB/Project Consultant)
Resettlement (loss of income or loss of access)	Process of selection of the project areas, Negative impact	Subproject areas	Interviews	Bi-annually	PPMB, FMB	PPMB Safeguards Officer (and CPMB/Project Consultant)

[3] FMB shall be supported by NREO as required. Simple monitoring form shall be drafted by the project onsultants and applied by FMBs in the field.

Items	Parameters	Location	Method	Frequency	Responsibility[3]	Due Diligence
	on household economy					
Affects on livelihoods	Any direct or indirect impact on livelihoods	Subproject areas	Interviews	Bi-annually	PPMB, FMB	PPMB Safeguards Officer (and CPMB/Project Consultant)
Operation Phase						
Affects on livelihoods	Any direct or indirect impact on livelihoods	Subproject areas	Interviews	Annualy	PPMB, FMB	PPMB Safeguards Officer (and CPMB/Project Consultant)

Source: JICA Preparatory Survey Team (2016)

The draft terms of references (TOR) for environmental monitoring and the samples of the environmental monitoring forms to be used in and post project periods are also presented in **Annex-I** attached to Volume II of the Final Report.

Chapter 7 Operation and Effect Indicators

As described in **Section 4.3.1** of this report, the project will conduct a series of regular monitoring, and evaluation at the initial, middle and final stages of the project. For effective and efficient evaluation, a framework for evaluation with verifiable indicators tentatively is tentatively set as shown in the table below.

Tentative Framework for Evaluation

Aim of evaluation	Verifiable Indicators	Means and sources
Monitor the progress, process, and effectiveness of the project	1. A GIS-based monitoring system will be developed and set up at the central and provincial levels by the end of the 2nd year. 2. A total of 10 PFMBs and 6 SUFMBs will have the latest forest cover and land use maps covering the areas under their jurisdiction by the end of the 3rd year. 3. A total of ( ) villages of 64 communes in the target provinces will develop the future land use map with rules on forest protection and management in the localities by the end of 5th year. 4. A total of ( ) village working groups in ( ) villages of 64 communes will be formed for the forest development and improvement activities in 10 protection forests and 6 nature reserves in the target provinces by the end of the 5th year. 5. The average survival rate of the new plantations established by the project should more than 75% at the time when the mid-term evaluation is conducted in the 5th year. 6. At least three model/demonstration sites will be developed in a total of 64 communes in the target provinces by the end of 5th year. 7. A total of 16,010 ha of new plantations will be established in 10 protection forests and 6 nature reserves in the target provinces by the end of the 6th year. 8. A total of 13,120 ha of woodlots or degraded forests in 10 protection forests and 6 nature reserves in the target provinces will be managed by ( ) village working groups in the 6th year. 9. A total of 45,180 ha of natural forests in 10 protection forests and 6 nature reserves in the target provinces will be protected by ( ) village working groups in the 6th year. 10. A total of 61 km of commune/village roads, 28.3 km of irrigation canals of commune/village irrigation systems, and 14 units of water supply systems will be rehabilitated / upgraded in 64 communes in the target provinces by the end of the 6th year. 11. A total of ( ) forest rangers and ( ) households will be trained on forest fire control skills by the end of the 6th year. 12. A total of 64 communes in the target provinces will have technical training on livelihood development including financial management by the end of the 7th year. 13. More than 50% of local communities participating in training will apply the techniques that they have learned for improvement of their livelihoods by the end of the 9th year. 14. All the 64 communes where small-scale rural infrastructure facilities upgraded by the project are located will develop an O&M plan for their facilities by the end of the 9th year. 15. More than 80% of the village working groups will exchange the agreement on collaborative management of the protection forest/nature reserve with 10 PFMBs and 6 SUFMBs in the target provinces by the end of the 9th year. 16. The average survival rate of the new plantations established by the project should more than 75% at the time when the terminal evaluation is conducted in the 9th year. 17. Forest monitoring data will have been updated and stored in the	1. Review of regular monitoring reports submitted by PPMBs 1~4 Reviews of the accomplishment reports submitted by the contractors for PLUP and regular monitoring reports submitted by PPMBs 5. Review of the mid-term evaluation report 6. Review of the accomplishment reports submitted by the contractors and regular monitoring reports submitted by PPMBs 7~9 Review of the accomplishment reports submitted by PFMBs/SUFMBs and regular monitoring reports submitted by PPMBs 10. Review of the as-built reports from the contractors and regular monitoring reports submitted by PPMBs 11. Review of regular monitoring reports submitted by PPMBs 12. Review of the accomplishment reports submitted by the contractors and regular monitoring reports submitted by PPMBs 13~15. Review of regular monitoring reports submitted by PPMBs 16. Review of the terminal evaluation report

Aim of evaluation	Verifiable Indicators	Means and sources
	GIS-based monitoring system and shared with FORMIS and the provincial data base until the end of the 9th year.	17. Data in the GIS-based monitoring system
Effect indicators	1. Forest cover in the project areas will be increased by 29,130 ha by the end of the project. 2. The quality of vegetation/forest covers in the project areas will be improved as shown below by the end of the project. - 16,010 ha of bare lands/grasslands/bushes (1a and 1b) will be changed to young plantation/ recovering forests (II); - 13,120 ha of woodlots will be changed to recovering forests (II); and - 45,180 ha of natural forest will be maintained properly. 3. The incidence of forest fires in the project areas will be halved in the end of the project. 4. More than 80% of the project area will be managed by local communities under the collaborative management with the village working groups by the end of the project. 5. The average annual household income will increase by ( ) % in the end of the project. 6. No adverse environmental and social impact will be caused by the project by the end of the project. 7. No involuntary land acquisition or loss of livelihood opportunities for local communities will be caused by the project	1~2. Review of the terminal evaluation report 3. Review of the reports from Sub-FPDs of the target provinces 4. Review of regular monitoring reports submitted by PPMBs 5. Review of the terminal evaluation report 6~7. Review of the environmental monitoring activities

Source: JICA Preparatory Survey Team (2016)
*Indicators shall be determined in the detailed planning stage based on the results of the baseline survey.

The indicators suggested in the framework are determined with the following principles.

Common principles:

- The indicators should be easily collected through regular monitoring, periodic monitoring and evaluation, and reviews of existing documents, so that no or less additional cost is required for data collection.
- The indicators should be measurable or tangible so that the project could be objectively monitored and evaluated.
- The indicators should be directly related to the project activities.

Operation Indicators:

- Key milestones of the major activities under the project components are selected.
- All the indicators should be satisfied during the project period.

Effect Indicators:

- The indicators should represent the objectives of the proposed project, namely: i) restoration and improvement of watershed forests, ii) strengthening of the capacities of the stakeholders, and contribution to REDD+.
- The indicators should indicate the status of the project areas or the stakeholders a few or several years after the end of the project.

The framework and indicators as well as means of data collection are tentative and need to be finalized in the initial stage of the project in a participatory manner by the concerned stakeholders. They shall be periodically reviewed and modified according to the situation in the course of the project implementation.

Chapter 8 Project Risks / Important Assumptions

For the effective and smooth implementation of the project, it is assumed that the following external conditions and requirements shall be met, as otherwise there may be significant impacts to project implementation.

a. No delay in fund disbursement during the implementation.
b. No delay in procurement, approval and any other decision making by CPMB/MARD at central level and DARDs/PPCs at provincial level.
c. No change in strategies, policies, plans, and organizational structures in the forest sector.
d. No social conflict or dispute occurring in the target communes/villages.
e. No large scale immigration into the target protection forests and nature reserves from other district or provinces.
f. No drastic economic recession in the national and regional economy.

The following external conditions and requirements shall also be met in order for the envisaged project outcomes to have the desired and expected effects and impacts.

a. No large-scale and destructive natural disaster, such as severe drought or strong cyclone, takes place in the target provinces.
b. The categories of watershed protection forest or forest classification are not changed by PPCs.
c. The prices of wood chips and timber do not drastically drop.
d. The prices of staple crops do not drastically rise.
e. Employment conditions in rural areas in the regions/target provinces are not drastically changed.
f. The macro economy of the country is stable.
g. Climatic conditions in the target provinces are unchanged.

The project risks are further analyzed by using the risk management sheet given by JICA. **Table II-8-1** shows the results of the risk analysis.

Tables

Table II-1-1 List of the Communes in the Proposed Areas in the Target Provinces

Province	Proposed areas	District	No.	Name of communes	Area (km^2)	Population	Population density (persons/km^2)	No. of village	Poor HH (%) as of 2015	Prioritization from poverty rate
Dien Bien	Dien Bien Protection Forest	Dien Bien	1	Na tông	142.7	4,105	28.8	14	67.5	Medium
		Dien Bien	2	Mường Nhà	133.8	3,603	26.9	14	45.6	Low
		Dien Bien	3	Phu luông	144.8	2,072	14.3	10	63.9	Medium
	Muong Cha Protection Forest	Muong Cha	1	Mường Tùng	171.3	3,807	22.2	11	70.6	Medium
	Tuan Giao Protection Forest	Tuan Giao	1	Phình Sáng	88.2	4,813	54.6	10	73.3	Medium
		Tuan Giao	2	Ta Ma	107.0	3,317	31.0	8	64.6	Medium
	Muong Phang Special Use Forest	Dien Bien	1	Pa khoang	57.0	4,310	75.6	21	53.2	Medium
		Dien Bien	2	Mường phăng	34.6	4,663	134.9	26	42.1	Low
Lai Chau	Nam Na Protection Forest	Sin Ho	1	Hong Thu	63.2	444	7.0	18	83.4	High
		Sin Ho	2	Lung Thang	81.3	3,538	43.5	10	31.1	Low
		Sin Ho	3	Ma Quai	54.6	3,664	67.1	11	48.6	Low
		Sin Ho	4	Nam Cha	61.4	3,506	57.1	10	52.7	Medium
		Sin Ho	5	Nam Cuoi	87.6	4,569	52.1	11	69.8	Medium
		Sin Ho	6	Nam Han	90.6	5,239	57.8	16	59.8	Medium
		Sin Ho	7	Nam Ma	30.3	1,845	60.8	7	22.3	Very Low
		Sin Ho	8	Nam Tam	105.7	4,128	39.1	14	39.4	Low
		Sin Ho	9	Noong Heo	63.5	6,521	102.8	15	45.3	Low
		Sin Ho	10	Pa Khoa	41.3	2,162	52.4	7	69.6	Medium
		Sin Ho	11	Phang So Lin	42.7	2,565	60.0	9	62.1	Medium
		Sin Ho	12	Phin Ho	61.4	2,635	42.9	7	67.7	Medium
		Sin Ho	13	Pu Sam Cap	46.4	1,349	29.1	5	62.7	Medium
	Nam Ma Protection Forest	Sin Ho	1	Chan Nua	96.2	2,915	30.3	8	19.7	Very Low
		Sin Ho	2	Lang Mo	122.7	3,742	30.5	8	59.3	Medium
		Sin Ho	3	Pa Tan	115.5	3,904	33.8	14	45.5	Low
		Sin Ho	4	Xa De Phin	62.8	1,917	30.5	7	79.6	High
		Sin Ho	5	Ta Ngao	64.5	4,404	68.3	14	63.7	Medium
		Sin Ho	6	Ta Phin	42.7	3,179	74.4	11	70.9	Medium
		Sin Ho	7	Sin Ho Town	11.7	4,509	384.5	8	13.8	Very Low
		Sin Ho	8	Tua Sin Chai	99.1	5,006	50.5	13	71.4	Medium
	Tan Uyen Protection Forest	Tan Uyen	1	Hố Mít	71.8	3,091	43.1	8	75.1	High
		Tan Uyen	2	Mường Khoa	84.6	6,839	80.9	17	54.1	Medium
		Tan Uyen	3	Nậm Cần	134.2	2,119	15.8	8	21.9	Very Low
		Tan Uyen	4	Nậm Sỏ	158.8	7,420	46.7	22	62.3	Medium
		Tan Uyen	5	Pắc Ta	96.7	6,024	62.3	16	23.8	Very Low
		Tan Uyen	6	Phúc Khoa	84.6	4,133	48.9	9	18.8	Very Low
		Tan Uyen	7	Tà Mít	105.0	1,481	14.1	4	43.0	Low
		Tan Uyen	8	Trung Đồng	28.7	6,676	232.3	21	38.7	Low
		Tan Uyen	9	Tan Uyen town	70.2	12,750	181.6	29	34.4	Low
	Than Uyen Protection Forest (Than Uyen district)	Than Uyen	1	Phuc Than	62.8	9,232	146.9	23	46.2	Low
		Than Uyen	2	Hua Na	21.6	3,080	142.3	9	21.3	Very Low
		Than Uyen	3	Khoen On	101.2	4,460	44.1	11	60.3	Medium
		Than Uyen	4	Muong Kim	68.2	10,571	155.0	25	54.9	Medium
		Than Uyen	5	Muong Mit	91.0	2,590	28.5	9	27.2	Low
		Than Uyen	6	Muong Than	40.3	8,177	202.9	18	18.5	Very Low
		Than Uyen	7	Pha Mu	119.2	935	7.8	5	34.2	Low
		Than Uyen	8	Ta Gia	95.8	5,211	54.4	14	44.8	Low
		Than Uyen	9	Ta Hua	71.4	2,196	30.7	8	57.7	Medium
		Than Uyen	10	Ta Mung	51.4	3,932	76.5	11	78.2	High
Son La	Copia Special Use Forest	Thuan Chau	1	Chiềng Bôm	92.6	5,929	64.0	30	74.6	Medium
		Thuan Chau	2	Co Mạ	147.2	6,128	41.6	21	75.5	High
		Thuan Chau	3	Long Hẹ	116.1	3,939	33.9	19	63.7	Medium
	Thuan Chau Protection Forest	Thuan Chau	1	Bản Lầm	63.3	3,681	58.1	18	55.6	Medium
		Thuan Chau	2	Mường Bám	73.7	8,696	117.9	26	59.9	Medium
		Thuan Chau	3	Nặm Lầu	156.6	7,370	47.1	26	58.4	Medium
	Quynh Nhai Protection Forest	Quynh Nhai	1	Cà Nàng	178.8	4,005	22.4	11	22.0	Very Low
		Quynh Nhai	2	Mường Chiên	82.3	1,625	19.7	6	7.9	Very Low
		Quynh Nhai	3	Pá Ma Pha Khinh	104.9	3,160	30.1	10	26.6	Low
		Quynh Nhai	4	Mường Giàng	64.3	10,398	161.7	28	5.5	Very Low
		Quynh Nhai	5	Mường Sại	54.5	3,551	65.2	20	57.1	Medium
	Xuan Nha Special Use Forest	Van Ho	1	Chiềng Xuân	87.3	2,882	33.0	8	53.9	Medium
		Van Ho	2	Tân Xuân	158.6	4,323	27.3	9	61.6	Medium
		Van Ho	3	Xuân Nha	93.7	3,880	41.4	8	44.1	Low
		Moc Chau	4	Chiềng Sơn	91.9	8,228	89.5	23	11.2	Very Low

Table II-1-1 List of the Communes in the Proposed Areas in the Target Provinces

Province	Proposed areas	District	No.	Name of communes	Area (km^2)	Population	Population density (persons/km^2)	No. of village	Poor HH (%) as of 2015	Prioritization from poverty rate
Hoa Binh	Da River Protection Forest	Da Bac	1	Đồng Nghê	32.3	1,822	56.5	7	63.5	Medium
		Da Bac	2	Đồng Chum	55.8	3,343	59.9	10	57.1	Medium
		Da Bac	3	Đồng Ruộng	42.5	2,177	51.2	6	68.4	Medium
		Da Bac	4	Mường Chiềng	26.1	2,442	93.7	9	54.1	Medium
		Da Bac	5	Mường Tuổng	14.0	1,152	82.3	5	61.4	Medium
		Da Bac	6	Suối Nánh	35.2	1,274	36.2	5	62.8	Medium
		Da Bac	7	Tiền Phong	63.1	2,319	36.8	13	67.0	Medium
		Da Bac	8	Vầy Nưa	59.8	2,638	44.1	10	51.5	Medium
		Da Bac	9	Yên Hòa	33.0	1,628	49.4	10	63.4	Medium
		Mai Chau	10	Ba Khan	19.6	1,608	81.9	3	52.0	Medium
		Mai Chau	11	Tân Dân	43.5	2,240	51.5	9	49.8	Low
		Mai Chau	12	Tân Mai	34.8	1,243	35.8	7	56.4	Medium
		Mai Chau	13	Đồng Bảng	27.5	1,941	70.6	5	16.3	Very Low
		Mai Chau	14	Phúc San	32.0	1,855	58.0	8	27.9	Low
		Tan Lac	15	Trung Hòa	35.6	2,373	66.6	6	55.3	Medium
		Tan Lac	16	Ngòi Hoa	35.1	1,411	40.2	5	58.5	Medium
		Cao Phong	17	Thung Nai	35.9	1,920	53.5	6	N.A.	High
		Cao Phong	18	Bình Thanh	26.2	2,590	98.8	7	N.A.	High
	Ngoc Son – Ngo Luong Special Use Forest	Lac Son	1	Ngọc Lâu	30.1	2,806	93.2	13	59.7	Medium
		Lac Son	2	Ngọc Sơn	33.8	2,479	73.3	8	52.3	Medium
		Lac Son	3	Tân Mỹ	31.6	6,610	209.4	21	19.6	Very Low
		Lac Son	4	Tự Do	50.8	2,450	48.3	10	72.2	Medium
		Tan Lac	5	Ngổ Luông	38.2	1,581	41.4	6	58.0	Medium
		Tan Lac	6	Nam Sơn	20.4	1,612	79.1	7	48.2	Low
		Tan Lac	7	Bắc Sơn	14.1	1,439	102.2	5	54.8	Medium
	Hang Kia – Pa Co Special Use Forest	Mai Chau	1	Hang Kia	23.5	3,052	130.0	5	51.6	Medium
		Mai Chau	2	Pà Cò	19.3	2,855	148.1	7	19.2	Very Low
		Mai Chau	3	Tân Sơn	11.6	1,121	96.5	3	57.7	Medium
		Mai Chau	4	Bao La	22.8	2,387	104.6	8	26.2	Low
		Mai Chau	5	Cun Pheo	61.4	2,117	34.5	5	43.8	Low
		Mai Chau	6	Nà Mèo	27.4	1,450	52.9	4	49.4	Low
		Mai Chau	7	Đồng Bảng	27.5	1,941	70.6	5	16.3	Very Low
		Mai Chau	8	Piềng Vế	15.5	2,537	163.6	5	32.3	Low
	Phu Canh Special Use Forest	Da Bac	1	Đồng Chum	55.8	3,343	59.9	10	57.1	Medium
		Da Bac	2	Tân Pheo	47.3	4,011	84.9	7	72.7	Medium
		Da Bac	3	Đồng Ruộng	42.5	2,177	51.2	6	68.4	Medium
		Da Bac	4	Đoàn Kết	40.9	3,029	74.0	6	74.7	Medium
TOTAL			97	*1)						

*1) Dong Bang commune in Mai Chau district is located under both Da River Protection Forest site and Hang Kia-Pa Co Nature Researve.
Dong Chum & Dong Ruong communees in Da Bac district in Hoa Binh province are located under both Da River protection Forest and Phu Canh Nature Researve.

** The poverty rate here shows the rate calcurated with muti-faceted socio-economic indicators, determined by Decision No.59/2015/QD-TTg of November 19, 2015. It shows the sum of proportion of poor HHs and near-poor HHs.

Table II-1-2 Present Forest Status of the 97 Communes based on the Latest NFI&S Data

Province	commune	Evergreen broadleaf forest, rich forest	Evergreen broadleaf forest, medium	Evergreen broadleaf forest, poor forest	Evergreen broadleaf forest, rehabilitatio	Bamboo forest	Mixed timber and bamboo forest	Limestone forest	Plantation	Total Forest Area
DienBien	Muong Nha	0	1,392	104	5,994	10	2,164		0	9,664
	Muong Phang	0	189	0	1,190	0	1		0	1,379
	Muong Tung	109	183	51	5,436	0	968		0	6,748
	Na Tong	0	58	67	6,410	22	523		231	7,310
	Pa Khoang	2	747	7	1,743	2	1		0	2,503
	Phinh Sang	0	115	672	776	4	43		1,907	3,516
	Phu Luong	0	352	522	4,468	0	596		28	5,966
	Ta Ma	0	333	1,261	1,796	11	1,018		1,229	5,648
	Sub-total	**111**	**3,368**	**2,685**	**27,812**	**49**	**5,313**	**0**	**3,395**	**42,733**
Lai Chau	Chan Nua	0	2.9	122.77	1014.74	0	0	141.62	1735.36	3,017
	Ho Mit	0	321.5	823.93	1733.62	2.38	20.55	1339.72	18.08	4,260
	Hong Thu	0	4.75	283.22	1140.74	0	0	36.31	2.11	1,467
	Hua Na	0	77.98	485.47	321.63	0	0	0	201.22	1,086
	Khoen On	0	60.67	659.06	1601.19	3.64	9.91	462.14	0.37	2,797
	Lang Mo	0	46.62	220.05	1676.43	0	0	2554.65	673.51	5,171
	Lung Thang	0	192.94	303.5	722.23	8.29	2.48	10.25	134.6	1,374
	Ma Quai	0	133.08	303.71	911.23	0	0	58.85	68.03	1,475
	Muong Khoa	0	112.41	1136.64	1322.78	6.53	25.76	0	436.16	3,040
	Muong Kim	0	0	5.48	1085.59	0	0	20.48	254.58	1,366
	Muong Mit	0	0	1857.5	556.3	0	33.42	0	722.94	3,170
	Muong Than	0	79.41	432.79	1278.08	0	45.54	0	265.35	2,101
	Nam Can	0	0	199.28	2253.07	40.81	314.43	0	780.32	3,588
	Nam Cha	0	57.08	1677.66	3237.62	0	440.56	479.45	769.1	6,661
	Nam Cuoi	0	60.72	632.74	604.43	1.29	0	0	1189.11	2,488
	Nam Han	0	30.77	128.97	700.95	0	0	180.36	1.95	1,043
	Nam Ma	0	0	89.17	385.87	0	10.02	55.34	13.04	553
	Nam So	0	166.53	217.15	3197.75	0	111.44	189.68	1032.94	4,915
	Nam Tam	0	0	50.28	1271.04	0	26.55	286.88	160.25	1,795
	Noong Heo	0	0	539.48	1120.93	0	0	157.06	1118.8	2,936
	Pa Khoa	0	0	125.31	478.84	0	8.58	97.32	153.1	863
	Pa Tan	0	143.95	705.84	2521.81	0	0	175.52	354.7	3,902
	Pac Ta	0	24.64	48.15	943.52	5.61	5.41	12.86	1480.61	2,521
	Pha Mu	0	0	311.57	1540.39	254.26	293.28	24.23	237.51	2,661
	Phang So Lin	0	0	124.79	1324.72	0	0	399.84	4.95	1,854
	Phin Ho	19.19	341.58	588.22	882.45	0	0	110.72	5.45	1,948
	Phuc Khoa	0	153.82	810.59	4352.35	12.92	28.96	1.28	274.56	5,634
	Phuc Than	0	0	73.27	2165.36	0	0	0	387.22	2,626
	Pu Sam Cap	0	1.98	238.3	1235.12	0	0	111.88	0	1,587
	Sa De Phin	0	66.08	434.47	1968.33	0	0	119.99	266.28	2,855
	Ta Gia	0	19.54	172.19	2674.12	0	599.42	290.2	2.92	3,758
	Ta Hua	0	152.21	255.22	1305.04	0	13.5	112.59	82.29	1,921
	Ta Mit	0	0	59.41	1385.78	146.65	367.25	0	744.73	2,704
	Ta Mung	0	0	74.08	1280.51	0	0.99	0	105.67	1,461
	Ta Ngao	0	83.79	1012.07	725.06	14.03	3.97	906.59	89.96	2,835
	Ta Phin	0	46.82	180.82	1422.23	0	0	0	426.41	2,076
	Trung Dong	0	1219.47	736.27	2192.2	14.9	73.61	0	290.16	4,527
	Tua Sin Chai	0	5.99	18.11	1004.61	0	0	443.43	58.12	1,530
	Thi tran Sin Ho	0	172.41	9.38	183.24	0	0	24.13	396.44	786
	Thi tran Tan Uy	0	3.07	308.4	2562.73	18.5	0	0	49.34	2,942
	Sub-total	**19**	**3,783**	**16,455**	**58,285**	**530**	**2,436**	**8,803**	**14,988**	**105,299**
Son La	Ban Lam	0.0	0.0	172.4	2,986.6	0.0	0.0	0.0	1.9	3,161
	Ca Nang	0.0	0.0	657.9	5,152.7	26.3	0.0	2,178.3	0.0	8,015
	Chieng Bom	96.8	0.0	358.9	3,889.5	0.0	0.0	0.0	431.8	4,777
	Chieng Son	0.0	157.2	1,404.9	804.1	0.0	1,585.1	1,202.7	12.8	5,167
	Chieng Xuan	1,183.9	1,363.5	351.8	1,570.4	181.7	683.1	408.6	2.5	5,745
	Co Ma	1,404.2	1,799.9	213.6	2,968.3	0.0	0.0	1,593.4	93.2	8,073
	Long He	58.8	558.7	135.5	4,449.4	0.0	0.0	1,016.0	32.4	6,251
	Muong Bam	1.2	697.4	752.2	865.6	0.0	4.6	301.5	0.6	2,623
	Muong Chien	0.0	0.0	48.5	2,215.5	0.0	0.0	2,097.2	0.0	4,361
	Muong Giang	0.0	0.0	188.0	219.8	0.0	5.3	2,500.0	90.1	3,003
	Muong Sai	0.0	0.0	0.0	2,141.8	32.8	2,208.1	152.6	34.5	4,570
	Nam Lau	0.0	854.8	54.1	6,146.2	0.0	0.0	0.0	186.5	7,242
	Pa Ma Pha Khi	0.0	0.0	0.0	2,686.0	0.0	0.0	1,118.1	0.0	3,804
	Tan Xuan	1,032.0	802.9	563.7	3,750.0	1,568.6	3,497.8	0.0	539.7	11,755
	Xuan Nha	0.0	192.8	342.0	1,549.3	3.9	1,989.7	188.6	1,365.2	5,631
	Sub-total	**3,777**	**6,427**	**5,243**	**41,395**	**1,813**	**9,974**	**12,757**	**2,791**	**84,178**

Table II-1-2 Present Forest Status of the 97 Communes based on the Latest NFI&S Data

Province	commune	Evergreen broadleaf forest, rich forest	Evergreen broadleaf forest, medium	Evergreen broadleaf forest, poor forest	Evergreen broadleaf forest, rehabilitatio	Bamboo forest	Mixed timber and bamboo forest	Limestone forest	Plantation	Total Forest Area
Hoa Binh	Ba Khan	0	7	323	281	0	27	731	65	1,436
	Bac Son	0	1,143	32	306	4	4	1,231	408	3,129
	Bao La	0	19	13	623	0	0	428	311	1,394
	Binh Thanh	0	472	1	114	0	289	152	1,022	2,050
	Cun Pheo	53	553	490	1,059	299	113	418	385	3,370
	Doan Ket	0	435	250	1,643	0	9	17	1,727	4,081
	Dong Bang	0	0	70	256	0	319	1,221	583	2,450
	Dong Chum	0	605	685	1,487	159	349	95	698	4,078
	Dong Nghe	0	0	235	585	0	0	1,283	43	2,146
	Dong Ruong	0.0	936.1	512.0	680.1	0.0	145.4	309.9	961.3	3,545
	Hang Kia	0.0	0.3	1.9	0.0	0.0	0.0	1,598.6	0.0	1,601
	Muong Chieng	0.0	0.0	0.0	761.4	55.6	61.2	86.7	861.5	1,826
	Muong Tuong	0.0	0.0	0.0	134.4	0.3	0.2	5.8	193.2	334
	Na Meo	0.0	7.0	37.1	596.9	12.7	176.7	1,289.8	173.7	2,294
	Nam Son	0.0	387.9	8.0	29.0	0.4	6.9	708.8	6.6	1,148
	Ngo Luong	0.0	5.0	124.2	1.2	16.1	18.1	3,063.3	0.0	3,228
	Ngoc Lau	0.0	0.3	72.7	321.9	0.1	3.0	1,897.4	56.7	2,352
	Ngoc Son	0.0	0.4	20.4	43.6	0.0	5.2	2,600.4	6.8	2,677
	Ngoi Hoa	0.0	37.3	0.0	1.7	0.0	0.0	1,022.9	595.1	1,657
	Pa Co	0.0	0.1	103.5	0.0	0.0	0.0	1,069.5	0.0	1,173
	Phuc San	0.0	1.0	1.4	923.4	13.4	70.9	142.5	1,570.8	2,723
	Pieng Ve	0.0	0.0	76.9	377.2	0.0	43.4	55.7	429.0	982
	Suoi Nanh	0.0	3.4	234.8	1,518.5	0.0	25.5	218.5	262.3	2,263
	Tan Dan	0.0	10.1	83.5	1,580.5	10.1	16.8	466.1	813.9	2,981
	Tan Mai	0.0	14.4	126.2	1,014.0	0.0	255.3	294.6	926.9	2,631
	Tan My	0.0	1.2	12.1	21.7	0.0	0.0	1,123.7	1,001.7	2,160
	Tan Pheo	0.0	206.5	246.0	900.0	103.5	899.2	4.0	1,247.2	3,606
	Tan Son	0.0	0.0	47.9	6.0	10.3	78.8	409.7	0.0	553
	Thung Nai	0.0	158.1	0.0	5.5	0.0	21.1	900.2	950.1	2,035
	Tien Phong	0.0	0.0	0.3	5,212.3	0.0	0.0	507.8	841.0	6,561
	Trung Hoa	0.0	815.6	98.9	94.0	0.0	2.8	1,078.6	232.9	2,323
	Tu Do	0.0	1.9	735.6	8.4	0.4	7.5	3,889.3	634.6	5,278
	Vay Nua	0.0	120.8	122.6	1,758.5	3.1	137.8	81.9	1,684.4	3,909
	Yen Hoa	0.0	5.7	1.2	1,673.4	0.0	0.0	208.4	268.8	2,157
	Sub-total	**53**	**5,947**	**4,765**	**24,018**	**689**	**3,086**	**28,612**	**18,961**	**86,130**
Total of 97 communes		**3,960**	**19,524**	**29,149**	**151,510**	**3,081**	**20,809**	**50,172**	**40,136**	**318,340**

Source: NFI&S approved by PPCs of the target provinces in 2016

Table II-1-3 Forest Change in the target communes between 1990 and 2010

Province	Commune	Evergreen broadleaf forest (rich)	Evergreen broadleaf forest (medium)	Evergreen broadleaf forest (poor)	Evergreen broadleaves (Regrowth)	Bamboo forest	Mixed wood-bamboo forests	Lime stone forest	Plantation	Total
1990										
DienBien	Muong Nha	0	38	2,547	0	0	348	0	0	2,932
	Muong Phang	0	29	131	40	95	0	0	0	295
	Muong Tung	568	4,671	1,302	1,453	177	19	0	49	8,238
	Na Tong	0	647	430	0	31	0	0	0	1,108
	Pa Khoang	0	8	358	0	0	692	0	0	1,057
	Phinh Sang	0	535	949	919	0	0	175	0	2,579
	Phu Luong	0	1	304	2	0	43	0	0	350
	Ta Ma	0	198	196	949	0	0	2,432	0	3,774
Lai Chau	Chan Nua	0.0	1,854.4	11.8	66.6	0.0	0.0	0.0	0.0	1,933
	Ho Mit	0.0	716.2	3.0	1,789.9	0.0	0.0	0.0	0.0	2,509
	Hong Thu	0.0	0.0	53.2	606.9	0.0	0.0	318.7	0.0	979
	Hua Na	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Khoen On	0.0	373.9	0.0	110.8	0.0	0.0	0.0	0.0	485
	Lang Mo	0.0	1,019.4	1,873.1	1,718.7	36.7	0.0	0.0	0.0	4,648
	Lung Thang	0.0	361.2	104.5	1,646.3	0.0	0.0	0.0	0.0	2,112
	Ma Quai	0.0	0.0	1,921.3	18.5	0.0	155.1	0.0	0.0	2,095
	Muong Khoa	0.0	1,015.5	31.0	0.0	15.9	0.0	0.0	0.0	1,062
	Muong Kim	0.0	0.0	0.0	192.3	14.5	0.0	0.0	0.0	207
	Muong Mit	0.0	0.0	0.0	237.2	0.0	0.0	4.8	28.7	271
	Muong Than	0.0	0.0	466.4	15.7	0.0	0.0	0.0	355.2	837
	Nam Can	0.0	31.1	616.0	0.0	28.5	0.0	0.0	0.0	676
	Nam Cha	0.0	0.0	691.1	83.9	0.0	0.0	0.0	0.0	775
	Nam Cuoi	4.2	642.7	876.0	0.0	0.0	0.0	0.0	0.0	1,523
	Nam Han	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Nam Ma	0.0	494.4	767.1	0.0	107.9	0.0	20.8	0.0	1,390
	Nam So	0.0	861.4	8.9	0.0	0.0	0.0	0.0	0.0	870
	Nam Tam	0.0	1,815.7	1,191.5	761.0	0.0	0.0	0.0	0.0	3,768
	Noong Heo	327.9	225.1	816.2	78.9	51.6	0.0	2.6	0.0	1,502
	Pa Khoa	0.0	132.9	16.1	0.0	0.0	0.0	0.0	0.0	149
	Pa Tan	0.0	0.0	353.8	27.1	0.0	0.0	132.6	0.0	514
	Pac Ta	0.0	0.0	71.1	350.2	0.0	0.0	0.0	0.0	421
	Pha Mu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Phang So Lin	0.0	0.0	797.0	24.4	0.0	0.0	0.0	0.0	821
	Phin Ho	0.0	874.3	940.2	163.4	0.0	4.8	32.2	0.0	2,015
	Phuc Khoa	0.0	1,008.7	62.0	2,902.4	0.0	0.0	0.0	0.0	3,973
	Phuc Than	0.0	259.2	1,048.6	24.3	0.0	0.0	0.0	130.4	1,463
	Pu Sam Cap	0.0	649.2	0.0	0.6	21.2	0.0	188.5	0.0	860
	Sa De Phin	0.0	1.9	0.0	180.2	0.0	0.0	48.4	0.0	231
	Ta Gia	0.0	0.0	7.8	119.5	0.2	0.0	0.0	0.0	128
	Ta Hua	0.0	0.0	0.0	211.5	0.0	0.0	0.0	0.0	212
	Ta Mit	0.0	0.0	0.0	92.9	0.0	0.0	0.0	0.0	93
	Ta Mung	0.0	443.6	0.0	124.1	0.0	0.0	0.0	0.0	568
	Ta Ngao	0.0	7.9	106.7	1,557.5	83.7	0.0	0.0	0.0	1,756
	Ta Phin	0.0	452.6	208.3	96.2	0.0	0.0	0.0	0.0	757
	Trung Dong	0.0	0.0	665.8	2,786.1	0.0	0.0	0.0	0.0	3,452
	Tua Sin Chai	0.0	369.7	53.3	1,702.3	33.3	0.0	68.8	0.0	2,227
	Thi tran Sin Ho	0.0	0.0	2.2	145.4	0.0	0.0	0.0	0.0	148
	Thi tran Tan Uy	0.0	401.0	916.7	1,010.3	0.0	0.0	0.0	0.0	2,328
Son La	Ban Lam	0.0	0.0	3.8	158.1	0.0	2.7	0.0	0.0	165
	Ca Nang	0.0	3.5	4.0	4.3	0.0	0.0	1,330.6	0.0	1,342
	Chieng Bom	0.0	0.0	1,294.5	0.0	0.0	0.0	0.0	0.0	1,295
	Chieng Son	248.0	0.0	964.5	1.7	0.0	0.0	2,710.4	39.8	3,964
	Chieng Xuan	3,025.1	0.0	456.0	221.2	14.9	0.0	273.8	0.0	3,991
	Co Ma	0.0	2,700.4	643.2	17.9	0.0	340.2	0.0	0.0	3,702
	Long He	0.0	0.0	540.0	0.0	0.0	0.0	0.0	0.0	540
	Muong Bam	0.0	0.0	261.3	0.0	23.8	0.0	0.0	0.0	285
	Muong Chien	0.0	0.1	13.4	0.0	0.0	0.0	457.3	0.0	471
	Muong Giang	0.0	0.0	1,961.7	1.2	0.0	0.0	392.1	0.0	2,355
	Muong Sai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Nam Lau	0.0	7.2	166.6	133.5	176.8	7.6	0.0	0.0	492
	Pa Ma Pha Khi	0.0	0.0	1.2	0.0	0.0	0.0	228.7	0.0	230
	Tan Xuan	3,089.6	1,394.7	779.8	1,701.6	2,310.7	2,052.8	4.1	0.0	11,333
	Xuan Nha	53.7	172.5	445.1	1,323.7	33.4	736.2	946.5	0.0	3,711

Table II-1-3 Forest Change in the target communes between 1990 and 2010

Province	Commune	Evergreen broadleaf forest (rich)	Evergreen broadleaf forest (medium)	Evergreen broadleaf forest (poor)	Evergreen broadleaves (Regrowth)	Bamboo forest	Mixed wood-bamboo forests	Lime stone forest	Plantation	Total
	Ba Khan	0	0	0	1	0	0	1,229	0	1,231
	Bac Son	0	21	0	281	0	0	22	0	324
	Bao La	0	0	0	255	164	0	74	13	505
	Binh Thanh	0	0	0	0	0	371	0	255	626
	Cun Pheo	0	1,549	0	800	0	0	257	0	2,606
	Doan Ket	362	194	394	364	0	0	0	0	1,314
	Dong Bang	0	0	51	0	0	0	1,890	15	1,957
	Dong Chum	1,460	21	438	153	0	0	0	0	2,072
	Dong Nghe	0	0	210	475	0	0	1,133	142	1,960
	Dong Ruong	74.9	547.2	356.2	33.5	0.0	0.0	812.5	0.0	1,824
	Hang Kia	0.0	0.0	0.0	0.0	0.0	0.0	1,275.9	0.0	1,276
	Muong Chieng	0.0	0.0	383.3	35.3	0.0	0.0	0.0	0.0	419
	Muong Tuong	0.0	0.0	14.3	0.9	0.0	0.0	0.0	191.4	207
	Na Meo	0.0	0.1	0.0	116.2	0.0	0.0	363.7	0.0	480
	Nam Son	0.0	0.0	87.4	77.6	24.9	0.0	642.8	0.0	833
	Ngo Luong	0.0	0.0	0.0	0.0	0.0	0.0	2,296.2	0.0	2,296
Hoa Binh	Ngoc Lau	0.0	0.0	0.0	0.0	0.0	0.0	1,573.4	0.0	1,573
	Ngoc Son	0.0	0.0	0.0	0.0	0.0	0.0	1,900.4	0.0	1,900
	Ngoi Hoa	0.0	0.0	0.2	2.3	0.0	8.4	2,007.3	0.0	2,018
	Pa Co	0.0	0.0	4.3	0.0	0.0	0.0	852.7	0.0	857
	Phuc San	0.0	0.0	0.0	88.1	186.8	0.0	92.2	393.0	760
	Pieng Ve	0.0	0.0	112.6	276.2	0.0	0.0	34.8	0.0	424
	Suoi Nanh	0.0	0.0	662.1	963.9	0.0	0.0	106.3	21.9	1,754
	Tan Dan	0.0	0.0	69.8	192.7	22.3	0.0	631.0	7.3	923
	Tan Mai	0.0	0.0	0.0	1.0	422.6	0.0	440.9	129.9	994
	Tan My	0.0	80.1	0.0	0.0	0.0	0.0	871.5	111.3	1,063
	Tan Pheo	366.7	395.4	667.8	263.9	0.0	395.6	0.0	53.2	2,143
	Tan Son	0.0	0.0	3.1	0.0	0.0	0.0	490.8	0.0	494
	Thung Nai	0.0	0.0	0.0	175.2	29.6	0.0	685.0	155.0	1,045
	Tien Phong	0.0	0.0	57.5	88.3	37.4	0.0	133.5	0.0	317
	Trung Hoa	0.0	0.0	0.0	159.3	0.0	268.3	569.1	2.5	999
	Tu Do	0.0	0.0	0.0	0.0	0.0	0.0	2,407.9	0.0	2,408
	Vay Nua	0.0	0.0	640.2	174.6	169.5	77.6	0.0	43.3	1,105
	Yen Hoa	0.0	0.0	0.0	494.2	47.5	0.0	42.0	0.0	584
Total		**9,581**	**27,225**	**32,584**	**31,242**	**4,360**	**5,522**	**32,603**	**2,137**	**145,254**
2010										
	Muong Nha	24	50	370	5,479	0	437	0	6	6,366
	Muong Phang	0	41	0	849	0	0	0	9	899
	Muong Tung	0	0	301	6,666	0	27	0	135	7,128
DienBien	Na Tong	0	319	226	3,749	0	46	0	25	4,365
	Pa Khoang	0	0	59	2,115	0	0	0	8	2,182
	Phinh Sang	0	225	365	2,607	0	0	391	0	3,588
	Phu Luong	6	18	35	3,533	0	103	0	0	3,694
	Ta Ma	0	0	96	2,803	0	0	1,615	0	4,513
	Chan Nua	0.0	1,957.7	737.0	2,791.2	0.0	0.0	0.0	1,086.5	6,572
	Ho Mit	0.0	466.9	367.4	2,707.5	0.0	0.0	0.0	40.5	3,582
	Hong Thu	0.0	0.6	445.9	2,370.5	0.0	0.0	265.2	10.6	3,093
	Hua Na	0.0	0.0	17.4	342.8	0.0	0.0	24.8	14.9	400
	Khoen On	0.0	0.0	22.4	4,051.6	0.0	0.0	23.0	42.6	4,140
	Lang Mo	0.0	1,244.3	2,074.8	4,315.4	0.0	0.0	0.0	654.4	8,289
	Lung Thang	0.0	397.7	701.5	2,987.9	0.0	0.0	5.5	0.0	4,093
	Ma Quai	0.0	0.0	12.1	1,939.0	0.0	419.7	16.6	26.7	2,414
	Muong Khoa	0.0	639.0	357.2	1,609.2	0.0	0.0	3.8	236.8	2,846
	Muong Kim	0.0	0.0	23.9	971.2	0.0	0.0	19.8	10.2	1,025
	Muong Mit	0.0	0.0	119.1	1,442.2	0.0	0.0	11.7	146.5	1,720
	Muong Than	0.0	13.3	724.4	503.9	0.0	0.0	0.0	164.2	1,406
	Nam Can	0.0	0.0	0.3	3,207.1	0.0	0.0	80.4	55.9	3,344
	Nam Cha	0.0	0.0	625.3	1,026.2	0.0	0.0	0.0	776.1	2,428
	Nam Cuoi	0.0	266.9	703.6	2,179.2	0.0	0.0	0.0	105.3	3,255
	Nam Han	0.0	138.7	402.2	2,250.7	0.0	0.0	0.0	0.0	2,792
	Nam Ma	0.0	624.0	734.7	314.2	0.0	0.0	3.0	1.9	1,678
	Nam So	0.0	199.0	125.4	2,587.5	0.0	0.0	0.0	0.0	2,912
	Nam Tam	0.0	575.9	213.4	5,608.8	0.0	0.0	0.0	13.4	6,412
Lai Chau	Noong Heo	0.0	942.2	623.8	1,852.7	0.0	0.0	0.0	0.0	3,419
	Pa Khoa	0.0	137.5	128.9	1,696.0	0.0	0.0	0.0	249.6	2,212
	Pa Tan	0.0	0.0	303.6	4,292.1	0.0	0.0	287.7	18.8	4,902
	Pac Ta	0.0	0.0	13.2	656.9	0.0	0.0	60.6	1,395.4	2,126
	Pha Mu	0.0	0.0	0.0	2,338.5	0.0	0.0	80.5	0.0	2,419
	Phang So Lin	0.0	59.0	37.9	1,781.9	0.0	0.0	0.0	298.7	2,178
	Phin Ho	0.0	1,033.4	1,057.4	2,071.7	0.0	11.0	0.4	4.3	4,178
	Phuc Khoa	0.0	0.0	913.7	3,513.3	0.0	0.0	0.0	52.3	4,479
	Phuc Than	0.0	0.0	528.2	1,626.9	0.0	0.0	0.0	556.4	2,712
	Pu Sam Cap	0.0	253.5	292.8	1,581.1	0.0	0.0	222.0	40.5	2,390
	Sa De Phin	0.0	163.9	314.8	3,214.9	0.0	0.0	0.0	9.7	3,703
	Ta Gia	0.0	0.0	0.0	2,845.1	0.0	0.0	0.7	0.0	2,846
	Ta Hua	0.0	0.0	0.0	1,412.6	0.0	0.0	25.0	452.7	1,890
	Ta Mit	0.0	0.0	373.8	2,212.6	0.0	0.0	8.7	214.6	2,810
	Ta Mung	0.0	104.7	65.0	1,066.7	0.0	0.0	0.0	99.0	1,335
	Ta Ngao	0.0	18.6	747.6	3,515.2	0.0	0.0	0.0	143.7	4,425
	Ta Phin	0.0	0.0	528.5	1,863.6	0.0	0.0	0.0	13.7	2,406
	Trung Dong	0.0	0.4	94.1	3,466.0	0.0	0.0	0.0	226.9	3,787
	Tua Sin Chai	0.0	411.0	1,016.8	4,314.9	0.0	0.0	56.6	71.7	5,871
	Thi tran Sin Ho	0.0	3.7	0.0	529.8	0.0	0.0	0.0	0.0	534
	Thi tran Tan Uy	0.0	0.0	0.4	2,743.4	0.0	0.0	0.0	0.0	2,744

Table II-1-3 Forest Change in the target communes between 1990 and 2010

Province	Commune	Evergreen broadleaf forest (rich)	Evergreen broadleaf forest (medium)	Evergreen broadleaf forest (poor)	Evergreen broadleaves (Regrowth)	Bamboo forest	Mixed wood-bamboo forests	Lime stone forest	Plantation	Total
Son La	Ban Lam	0.0	27.3	243.9	1,582.9	22.0	2.7	0.0	36.3	1,915
	Ca Nang	0.0	64.5	79.2	3,693.3	300.7	0.0	2,812.7	0.0	6,950
	Chieng Bom	0.0	29.0	731.5	3,249.9	137.5	18.9	0.0	18.8	4,186
	Chieng Son	110.2	224.9	557.3	1,378.7	102.5	57.1	2,829.1	7.8	5,268
	Chieng Xuan	3,043.1	356.6	409.4	1,134.4	194.2	0.0	0.0	0.0	5,138
	Co Ma	5.5	1,830.3	1,144.4	3,800.8	100.8	220.4	600.2	3.0	7,705
	Long He	0.0	0.0	346.9	4,390.9	0.0	0.0	0.0	0.0	4,738
	Muong Bam	0.0	0.0	316.5	1,475.7	2.8	0.0	0.0	0.0	1,795
	Muong Chien	0.0	0.1	50.0	1,802.9	2.9	0.0	1,371.6	0.0	3,228
	Muong Giang	0.0	0.0	585.2	2,464.9	0.0	0.0	389.5	0.0	3,440
	Muong Sai	0.0	0.0	0.0	2,026.7	2.4	0.0	156.2	32.7	2,218
	Nam Lau	0.0	0.8	127.4	5,820.3	600.2	152.6	0.0	27.4	6,729
	Pa Ma Pha Khi	0.0	0.0	14.4	2,520.4	70.3	0.0	568.6	0.0	3,174
	Tan Xuan	3,177.5	1,216.0	1,248.3	3,159.2	1,837.7	709.4	0.0	0.0	11,348
	Xuan Nha	419.8	0.0	538.9	3,941.6	50.2	0.0	28.6	0.0	4,979
Hoa Binh	Ba Khan	0	0	0	562	0	0	815	38	1,414
	Bac Son	0	0	6	176	0	0	239	13	434
	Bao La	0	0	0	486	38	0	367	221	1,112
	Binh Thanh	0	0	0	265	19	268	0	764	1,315
	Cun Pheo	0	739	28	873	0	0	263	325	2,227
	Doan Ket	0	204	324	269	5	0	274	969	2,045
	Dong Bang	0	0	0	371	0	93	1,360	392	2,217
	Dong Chum	0	372	851	326	639	244	21	268	2,721
	Dong Nghe	0	0	0	94	0	0	1,152	4	1,249
	Dong Ruong	0.0	225.2	511.9	842.0	238.2	126.3	372.8	857.4	3,174
	Hang Kia	0.0	0.0	0.0	0.0	0.0	0.0	1,320.2	0.0	1,320
	Muong Chieng	0.0	0.0	0.0	132.2	348.2	0.0	69.1	451.3	1,001
	Muong Tuong	0.0	0.0	0.0	0.0	0.0	0.0	24.9	48.3	73
	Na Meo	0.0	6.8	0.0	112.9	289.5	0.0	616.6	96.4	1,122
	Nam Son	0.0	0.0	0.0	187.6	8.3	0.0	754.4	2.1	952
	Ngo Luong	0.0	0.0	0.0	266.7	27.1	0.0	3,159.8	32.6	3,486
	Ngoc Lau	0.0	0.0	0.0	0.0	0.0	0.0	1,548.0	143.4	1,691
	Ngoc Son	0.0	0.0	0.0	0.0	0.0	0.0	2,113.1	24.7	2,138
	Ngoi Hoa	0.0	0.0	0.0	264.1	125.0	1.1	1,269.9	425.1	2,085
	Pa Co	0.0	0.0	13.1	0.0	0.0	0.0	893.5	0.0	907
	Phuc San	0.0	0.0	0.0	151.4	458.0	25.6	59.7	1,552.8	2,248
	Pieng Ve	0.0	0.0	0.0	402.9	71.0	0.0	12.1	270.5	757
	Suoi Nanh	0.0	0.0	32.2	205.5	0.0	0.8	165.1	96.7	500
	Tan Dan	0.0	0.0	66.7	470.4	18.5	0.0	692.9	435.0	1,684
	Tan Mai	0.0	0.0	0.0	113.1	332.8	0.0	345.6	1,005.1	1,797
	Tan My	0.0	0.0	0.0	0.0	0.0	0.0	996.2	240.8	1,237
	Tan Pheo	0.0	111.2	170.4	464.4	63.9	453.3	0.0	456.0	1,719
	Tan Son	0.0	0.0	0.0	8.9	0.0	0.0	623.7	90.2	723
	Thung Nai	0.0	0.0	0.0	748.6	0.0	0.0	0.0	849.4	1,598
	Tien Phong	0.0	0.0	0.0	330.3	140.0	0.0	12.2	831.4	1,314
	Trung Hoa	0.0	0.0	0.0	385.4	18.3	215.3	492.9	218.2	1,330
	Tu Do	0.0	0.0	0.0	309.3	0.0	0.0	2,621.1	63.0	2,993
	Vay Nua	0.0	0.0	149.0	436.8	900.1	26.1	32.7	676.2	2,221
	Yen Hoa	0.0	7.9	0.0	277.4	0.0	0.0	181.9	108.1	575
Total		**6,785**	**15,722**	**25,444**	**171,576**	**7,164**	**3,658**	**34,827**	**19,510**	**284,686**

Table II-1-4 Land Allocation Status of the Proposed Areas in the Target Provinces

MB	Communes	District	Land Allocation Status			
			Allocated to FMBs	Allocated to Households	Unallocated	Total
Dien Bien						
Dien Bien PFMB	Na Tong	Dien Bien	567	0	1,256	1,822
	Phu Luong	Dien Bien	234	0	940	1,174
	Muon Nha	Dien Bien	501	0	3,015	3,516
	Sub-total	**1 district**	**1,301**	**0**	**5,211**	**6,512**
Muong Chau PFMB	Muong Tung	Muong Cha	4,953	0	453	5,406
Tuan Giao PFMB	Phinh Sang	Tuan Giao	0	0	1,584	1,584
	Ta Ma	Tuan Giao	0	0	4,914	4,914
	Sub-total	**1 district**	**0**	**0**	**6,498**	**6,498**
Muong Phang SUFMB	Muong Phang	Dien Bien	37	0	1,095	1,132
	Pa Khoang	Dien Bien	967	0	673	1,640
	Sub-total	**1 district**	**1,004**	**0**	**1,768**	**2,772**
Total	**8 communes**	**3 districts**	**7,258**	**0**	**13,929**	**21,187**
Lai Chau						
Nam Ma PFMB	Hồng Thu	Sin Ho	991	0	0	991
	Lùng Thàng	Sin Ho	723	0	0	723
	Ma Quai	Sin Ho	312	0	0	312
	Nậm Cha	Sin Ho	94	0	0	94
	Nậm Cuổi	Sin Ho	1,387	0	0	1,387
	Nậm Hăn	Sin Ho	456	0	0	456
	Nậm Mạ	Sin Ho	336	0	0	336
	Nậm Tăm	Sin Ho	2,174	0	0	2,174
	Noong Hẻo	Sin Ho	1,424	0	0	1,424
	Pa Khóa	Sin Ho	769	0	0	769
	Phăng Sô Lin	Sin Ho	1,564	0	0	1,564
	Phìn Hồ	Sin Ho	745	0	0	745
	Pu Sam Cáp	Sin Ho	1,951	0	0	1,951
	Sub-total	**1 district**	**12,925**	**0**	**0**	**12,925**
Nam Na PFMB	Chăn Nưa	Sin Ho	954	0	0	954
	Làng Mô	Sin Ho	3,507	0	0	3,507
	Pa Tần	Sin Ho	3,572	0	0	3,572
	Sà Dề Phìn	Sin Ho	1,427	0	0	1,427
	Tà Ngảo	Sin Ho	1,533	0	0	1,533
	Tả Phìn	Sin Ho	363	0	0	363
	TT. Sìn Hồ	Sin Ho	287	0	0	287
	Tủa Sín Chải	Sin Ho	4,315	0	0	4,315
	Sub-total	**1 district**	**15,958**	**0**	**0**	**15,958**
Tan Uyen PFMB	Hồ Mít	Tan Uyen	917	0	0	917
	Mường Khoa	Tan Uyen	1,079	0	0	1,079
	Nậm Cần	Tan Uyen	1,605	0	0	1,605
	Nậm Sỏ	Tan Uyen	2,025	0	0	2,025
	Pắc Ta	Tan Uyen	547	0	0	547
	Phúc Khoa	Tan Uyen	413	0	0	413
	Tà Mít	Tan Uyen	1,870	0	0	1,870
	Trung Đồng	Tan Uyen	536	0	0	536
	TT. Tân Uyên	Tan Uyen	2,436	0	0	2,436
	Sub-total	**1 district**	**11,429**	**0**	**0**	**11,429**
Than Uyen PFMB	Phúc Than	Than Uyen	1,662	0	0	1,662
	Hua Nà	Than Uyen	721	0	0	721
	Khoen On	Than Uyen	1,712	0	0	1,712
	Mường Kim	Than Uyen	696	0	0	696
	Mường Mít	Than Uyen	1,406	0	0	1,406
	Mường Than	Than Uyen	957	0	0	957
	Pha Mu	Than Uyen	1,154	0	0	1,154
	Tà Gia	Than Uyen	960	0	0	960
	Tà Hừa	Than Uyen	692	0	0	692
	Tà Mung	Than Uyen	1,678	0	0	1,678
	Sub-total	**1 district**	**11,638**	**0**	**0**	**11,638**
Total	**40 communes**	**3 districts**	**51,950**	**0**	**0**	**51,950**
Son La	**Son La**					
Copia-SUFMB	Chiềng Bôm	Thuan Chau	3,567	0	0	3,567
	Co Mạ	Thuan Chau	9,388	0	0	9,388
	Long Hẹ	Thuan Chau	1,773	0	0	1,773
	Sub-total	**1 district**	**14,728**	**0**	**0**	**14,728**
Thuan Chau PFMB	Nam Lau	Thuan Chau	4,210	0	0	4,210
	Muong Bam	Thuan Chau	1,586	0	0	1,586
	Bam Lam	Thuan Chau	1,546	0	0	1,546
	Sub-total	**1 district**	**7,343**	**0**	**0**	**7,343**
Quynh Nhai PFMB	Ca Nang	Quynh Nhai<1	0	0	4,237	4,237
	Muong Giang	Quynh Nhai<1	0	0	1,321	1,321
	Muong Sai	Quynh Nhai<1	0	0	1,117	1,117
	Muong Chien	Quynh Nhai<1	0	0	1,123	1,123
	Ma Pha Khinh	Quynh Nhai<1	0	0	1,364	1,364
	Sub-total	**1 district**	**0**	**0**	**9,163**	**9,163**
Xuan Nha SUFMB	Chiềng Xuân	Van Ho	4,662	0	0	4,662
	Tân Xuân	Van Ho	13,132	0	0	13,132
	Xuân Nha	Van Ho	2,467	0	0	2,467
	Chiềng Sơn	Moc Chau	2,682	0	0	2,682
	Sub-total	**2 districts**	**22,943**	**0**	**0**	**22,943**
Total	**15 communes**	**4 districts**	**45,013**	**0**	**9,163**	**54,177**

Table II-1-4 Land Allocation Status of the Proposed Areas in the Target Provinces

MB	Communes	District	Land Allocation Status			
			Allocated to FMBs	Allocated to Households	Unallocated	Total
Hoa Binh	**Hoa Binh**					
Ngoc Son-Ngo Luong SUFMB	Ngoc Lau	Lac Son	0	1,888	0	1,888
	Ngoc Son	Lac Son	903	1,597	0	2,500
	Tan My	Lac Son	0	536	0	536
	Tu Do	Lac Son	0	4,463	0	4,463
	Ngo Luong	Tan Lac	818	2,831	0	3,649
	Nom Son	Tan Lac	1,087	514	0	1,601
	Bac San	Tan Lac	0	990	0	990
	Sub-total	**2 districts**	**2,809**	**12,818**	**0**	**15,627**
HANG Kia - Pa Co SUFMB	Hang Kia	Mai Chau	1,614	0	0	1,614
	Pa Co	Mai Chau	1,349	0	0	1,349
	Tan Son	Mai Chau	777	0	0	777
	Bao La	Mai Chau	537	0	0	537
	Cun Pheo	Mai Chau	518	0	0	518
	Na Meo	Mai Chau	208	0	0	208
	Dong Bang	Mai Chau	190	0	0	190
	Pieng Ve	Mai Chau	58	0	0	58
	Sub-total	**1 district**	**5,252**	**0**	**0**	**5,252**
Phu Canh SUFMB	Dong Chum	Da Bac	1,557	0	0	1,557
	Tan Pheo	Da Bac	1,032	0	0	1,032
	Dong Ruong	Da Bac	1,645	0	0	1,645
	Doan Ket	Da Bac	1,070	0	0	1,070
	Sub-total	**1 district**	**5,304**	**0**	**0**	**5,304**
Da River Watershed PFMB	Dong Nghe	Da Bac	0	2,192	0	2,192
	Dong Chum	Da Bac	0	1,297	0	1,297
	Don Ruong	Da Bac	0	1,339	0	1,339
	Murong Chieng	Da Bac	0	1,234	0	1,234
	Murong Tuong	Da Bac	0	655	0	655
	Suoi Nanh	Da Bac	0	1,345	0	1,345
	Tien Phong	Da Bac	0	2,678	0	2,678
	Vay Nura	Da Bac	0	2,087	0	2,087
	Yen Hoa	Da Bac	0	2,012	0	2,012
	Trung Hoa	Tan Lac	0	1,501	0	1,501
	Ngoi Hoa	Tan Lac	0	1,430	0	1,430
	Ba Khan	Mai Chau	0	1,794	0	1,794
	Tan Dan	Mai Chau	0	1,796	0	1,796
	Tan Mai	Mai Chau	0	1,279	0	1,279
	Dong Bang	Mai Chau	767	0	0	767
	Phuc San	Mai Chau	79	0	0	79
	Thung Nai	Cao Phong	505	0	0	505
	Binh Thanh	Cao Phong	352	0	0	352
	Sub-total	**4 districts**	**1,704**	**22,639**	**0**	**24,343**
Total	**34 communes <2**	**5 districts**	**15,068**	**35,457**	**0**	**50,526**
Grand Total	**97 communes**	**15 districts**	**119,291**	**35,457**	**23,092**	**177,840**

Note:

<1 The land allocation status in Qunh Nhai is bit unclear, although the areas are allocated to villages, communities, and households. The lands may include unallocated areas.

<2 Two (2) communes, namey, Dong Chum and Dong Ruong, relate to two different target areas, namely Da River Watershed Protection Forest and Phu Canh Nature Reserve, and another one (1) commune named Dong Bang relates to Hang Kia-Pa Co Nature Reserve. Hence, the total number of communes in Hoa Binh is 34.

Table II-3-1 Proposed Concepts of Collaboration between SNRMP and JICA 3

Objectives	SNRMP	JICA3
1. Implementation of the government decisions		
Implementation of the guidelines on development of provincial REDD+ Action plans (MARD Decision No. 5414/QD-BNN-TCLN)	■ Development of PRAPs of the target provinces	■ Allocation of financial resources for implementation of part of the PRAPs and forest protection and development plans (FPDPs) of the provinces
Implementation of the National Action Program on REDD+ (PM Decision No. 799/QD-TTg)	■ Awareness raising and capacity building on REDD+ activities ■ Implementation of pilot REDD+ activities ■ Review and documentation of lessons learnt from the pilot activities	■ Contribute to the reduction of GHG emission through protection of forests from deforestation and degradation, increase of GHG sequestration, and improvement of local livelihoods in the project areas
2. Contribution of Promotion of REDD+		
Forest monitoring	■ Introduction of the provincial forest monitoring system (PFMS) ■ Enhancement of district officers' and forest rangers' capacity for forest monitoring ■ Assistance in improvement of data management system in MARD	■ Use of PFMS and human resources developed by SNRMP and collect updated data and information of forest resources in the project areas ■ Provision of updated data / information of forest resources to the national monitoring system ■ Development of a database system of the target project areas which can be linked to the provincial and/or national database systems
Pilot activities	■ Implementation of the pilot REDD+ activities in the target provinces ■ Development of methodologies and procedures useful for implementation of REDD+ activities ■ Introduction of livelihood development models effective for sustainable forest management	■ Scale up of the piloted REDD+ activities in the target provinces ■ Utilization of developed methodologies and procedures for implementation of the project ■ Expansion of the introduced livelihood development models in the target areas
3. Implementation of the JICA 3		
Capacity development	■ Provision of training opportunities to the government officers who might be involved in the implementation of JICA 3 ■ Development of technical manuals for implementation of the project activities	■ Use of human resources who have had training/capacity development activities provided by SNRMP ■ Use of technical manuals developed by SNRMP for implementation of the project activities

Table II-3-2 (1) Results of the Evaluation of the Potential Target Sites in the Four Provinces

MB/Communes	District	Score <2					Total Score	Evaluation
		Afforestation x 7 points	Size of NF x 5 points	Proportion x 5 points	Deforestation x 5 points	Poverty x 3 points		
Dien Bien								
Dien Bien PFMB		7	5	5	5	3		
Na Tong	Dien Bien	4	3	4	3	3	87	High
Phu Luong	Dien Bien	4	1	3	2	3	67	Fair
Muon Nha	Dien Bien	4	4	4	2	2	84	High
Muong Chau PFMB								
Muong Tung	Muong Cha	4	4	4	4	3	97	High
Tuan Giao PFMB								
Phinh Sang	Tuan Giao	1	3	4	2	3	61	Fair
Ta Ma	Tuan Giao	4	4	4	4	3	97	High
Muong Phang SUFMB								
Muong Phang	Dien Bien	1	2	4	2	2	53	Fair
Pa Khoang	Dien Bien	1	3	4	2	3	61	Fair
Lai Chau								
Nam Ma PFMB								
Hồng Thu	Sin Ho	4	1	2	1	4	60	Fair
Lùng Thàng	Sin Ho	1	2	2	1	2	38	Low
Ma Quai	Sin Ho	1	1	1	1	2	28	Low
Nậm Cha	Sin Ho	1	1	1	2	3	36	Low
Nậm Cuổi	Sin Ho	4	2	3	2	3	72	Fair
Nậm Hăn	Sin Ho	4	1	1	1	3	52	Fair
Nậm Mạ	Sin Ho	1	1	1	1	1	25	Low
Nậm Tăm	Sin Ho	1	3	3	4	2	63	Fair
Noong Hẻo	Sin Ho	1	2	3	1	2	43	Low
Pa Khóa	Sin Ho	2	2	2	2	3	53	Fair
Phăng Sô Lin	Sin Ho	4	2	3	1	3	67	Fair
Phìn Hồ	Sin Ho	1	2	2	2	3	46	Low
Pu Sam Cáp	Sin Ho	1	3	3	1	3	51	Fair
Nam Na PFMB								
Chăn Nưa	Sin Ho	4	1	2	1	1	51	Fair
Làng Mô	Sin Ho	1	4	4	1	3	61	Fair
Pa Tần	Sin Ho	4	3	4	2	2	79	High
Sà Dề Phìn	Sin Ho	3	1	2	1	4	53	Fair
Tả Ngảo	Sin Ho	2	2	3	1	3	53	Fair
Tả Phìn	Sin Ho	1	1	1	2	3	36	Low
TT. Sìn Hồ	Sin Ho	2	1	1	1	1	32	Low
Tủa Sín Chải	Sin Ho	4	1	4	2	3	72	Fair
Tan Uyen PFMB								
Hố Mít	Tan Uyen	2	1	2	2	4	51	Fair
Mường Khoa	Tan Uyen	1	1	2	4	3	51	Fair
Nậm Cần	Tan Uyen	4	1	3	2	1	61	Fair
Nậm Sỏ	Tan Uyen	4	2	3	2	3	72	Fair
Pắc Ta	Tan Uyen	1	1	1	1	1	25	Low
Phúc Khoa	Tan Uyen	1	1	1	1	1	25	Low
Tà Mít	Tan Uyen	3	1	3	1	2	52	Fair
Trung Đồng	Tan Uyen	1	1	1	1	2	28	Low
TT. Tân Uyên	Tan Uyen	1	2	4	3	2	58	Fair
Than Uyen PFMB								
Phúc Than	Than Uyen	1	2	3	2	2	48	Low
Hua Nà	Than Uyen	1	1	2	1	1	30	Low
Khoen On	Than Uyen	1	1	3	2	3	46	Low
Mường Kim	Than Uyen	1	1	2	2	3	41	Low
Mường Mít	Than Uyen	4	1	3	1	2	59	Fair
Mường Than	Than Uyen	1	1	2	1	1	30	Low
Pha Mu	Than Uyen	4	1	2	3	2	64	Fair
Tà Gia	Than Uyen	1	1	2	2	2	38	Low
Tà Hừa	Than Uyen	1	1	2	1	3	36	Low
Tà Mung	Than Uyen	4	1	3	2	4	70	Fair

Table II-3-2 (1) Results of the Evaluation of the Potential Target Sites in the Four Provinces

MB/Communes	District	Score <2					Total Score	Evaluation
		Afforestation x 7 points	Size of NF x 5 points	Proportion x 5 points	Deforestation x 5 points	Poverty x 3 points		
Son La								
Copia-SUFMB								
Chiềng Bôm	Thuan Chau	4	2	4	2	3	77	Fair
Co Mạ	Thuan Chau	3	3	4	2	4	78	High
Long Hẹ	Thuan Chau	2	2	2	2	3	53	Fair
Thuan Chau								
Nam Lau	Thuan Chau	4	3	4	2	3	82	High
Muong Bam	Thuan Chau	3	2	4	1	3	65	Fair
Bam Lam	Thuan Chau	4	1	4	1	3	67	Fair
Quynh Nhai PFMB								
Ca Nang	Quynh Nhai	1	3	4	1	1	50	Low
Muong Giang	Quynh Nhai	3	1	3	4	1	64	Fair
Muong Sai	Quynh Nhai	4	2	3	1	3	67	Fair
Muong Chien	Quynh Nhai	1	1	3	2	1	40	Low
Ma Pha Khinh	Quynh Nhai	2	1	3	1	2	45	Low
Xuan Nha SUFMB								
Chiềng Xuân	Van Ho	1	3	4	1	3	56	Fair
Tân Xuân	Van Ho	3	1	4	1	3	60	Fair
Xuân Nha	Van Ho	1	2	3	1	2	43	Low
Chiềng Sơn	Moc Chau	2	2	3	2	1	52	Low
Hoa Binh								
Ngoc Son-Ngo Luong SUFMB								
Ngoc Lau	Lac Son	1	3	3	1	3	51	Fair
Ngoc Son	Lac Son	1	4	3	1	3	56	Fair
Tan My	Lac Son	2	1	1	2	1	37	Low
Tu Do	Lac Son	1	4	4	2	3	66	Fair
Ngo Luong	Tan Lac	4	4	4	1	3	82	High
Nom Son	Tan Lac	3	3	2	2	2	62	Fair
Bac San	Tan Lac	2	2	2	2	3	53	Fair
HANG Kia - Pa Co SUFMB								
Hang Kia	Mai Chau	1	3	4	1	3	56	Fair
Pa Co	Mai Chau	1	2	4	1	1	45	Low
Tan Son	Mai Chau	2	1	3	1	3	48	Low
Bao La	Mai Chau	1	1	3	2	2	43	Low
Cun Pheo	Mai Chau	1	1	3	2	2	43	Low
Na Meo	Mai Chau	1	1	1	1	2	28	Low
Dong Bang	Mai Chau	1	1	1	1	1	25	Low
Pieng Ve	Mai Chau	1	1	1	2	2	33	Low
Phu Canh SUFMB								
Dong Chum	Da Bac	4	3	4	2	3	82	High
Tan Pheo	Da Bac	4	2	3	2	3	72	Fair
Dong Ruong	Da Bac	3	3	4	1	3	70	Fair
Doan Ket	Da Bac	2	2	4	2	3	63	Fair
Da River Watershed PFMB								
Dong Nghe	Da Bac	3	3	2	1	3	60	Fair
Dong Chum	Da Bac	1	3	2	2	3	51	Fair
Don Ruong	Da Bac	4	2	2	1	3	62	Fair
Murong Chieng	Da Bac	3	2	2	2	3	60	Fair
Murong Tuong	Da Bac	4	1	1	2	3	57	Fair
Suoi Nanh	Da Bac	3	2	2	2	3	60	Fair
Tien Phong	Da Bac	3	4	3	1	3	70	Fair
Vay Nura	Da Bac	4	3	2	2	3	72	Fair
Yen Hoa	Da Bac	1	3	2	1	3	46	Low
Trung Hoa	Tan Lac	3	3	2	1	3	60	Fair
Ngoi Hoa	Tan Lac	3	3	2	1	3	60	Fair
Ba Khan	Mai Chau	2	3	2	2	1	52	Fair
Tan Dan	Mai Chau	3	3	2	1	2	57	Fair
Tan Mai	Mai Chau	2	3	2	1	3	53	Fair
Dong Bang	Mai Chau	2	2	1	1	2	40	Low

Table II-3-2 (1) Results of the Evaluation of the Potential Target Sites in the Four Provinces

MB/Communes	District	Score <2					Total Score	Evaluation
		Afforestation x 7 points	Size of NF x 5 points	Proportion x 5 points	Deforestation x 5 points	Poverty x 3 points		
Phuc San	Mai Chau	1	1	1	1	3	31	Low
Thung Nai	Cao Phong	2	2	1	2	4	51	Fair
Binh Thanh	Cao Phong	1	2	1	2	4	44	Low

Table II-3-2 (2) Results of the Evaluation of the Potential Target Sites in the Four Provinces

MB	Priority	No. of Communes	Potential Target Sites			
			Forest Protection	ANR without Enrichment	Afforestation	Total
Dien Bien						
Dien Bien PFMB	High	2	3,330	370	920	4,620
	Fair	1	0	270	650	920
	Low	0	0	0	0	0
	Sub-total	3	3,330	640	1,570	5,540
Muong Chau PFMB	High	1	0	860	800	1,660
	Fair	0	0	0	0	0
	Low	0	0	0	0	0
	Sub-total	1	0	860	800	1,660
Tuan Giao PFMB	High	1	3,420	310	760	4,490
	Fair	1	1,430	30	30	1,490
	Low	0	0	0	0	0
	Sub-total	2	4,850	340	790	5,980
Muong Phang SUFMB	High	0	0	0	0	0
	Fair	2	2,220	190	0	2,410
	Low	0	0	0	0	0
	Sub-total	2	2,220	190	0	2,410
Overall in the Province	**High**	**4**	**6,750**	**1,540**	**2,480**	**10,770**
	Fair	**4**	**3,650**	**490**	**680**	**4,820**
	Low	**0**	**0**	**0**	**0**	**0**
	Total	**8**	**10,400**	**2,030**	**3,160**	**15,590**
Lai Chau						
Nam Ma PFMB	High	0	0	0	0	0
	Fair	7	0	1,030	1,610	2,640
	Low	6	0	610	0	610
	Sub-total	13	0	1,640	1,610	3,250
Nam Na PFMB	High	1	0	380	410	790
	Fair	5	0	2,460	1,340	3,800
	Low	2	0	110	60	170
	Sub-total	8	0	2,950	1,810	4,760
Tan Uyen PFMB	High	0	0	0	0	0
	Fair	6	0	3,270	1,380	4,650
	Low	3	0	480	0	480
	Sub-total	9	0	3,750	1,380	5,130
Than Uyen PFMB	High	0	0	0	0	0
	Fair	3	0	360	1,810	2,170
	Low	7	0	3,200	0	3,200
	Sub-total	10	0	3,560	1,810	5,370
Overall in the Province	**High**	**1**	**0**	**380**	**410**	**790**
	Fair	**21**	**0**	**7,120**	**6,140**	**13,260**
	Low	**18**	**0**	**4,400**	**60**	**4,460**
	Total	**40**	**0**	**11,900**	**6,610**	**18,510**

Table II-3-2 (2) Results of the Evaluation of the Potential Target Sites in the Four Provinces

MB	Priority	No. of Communes	Potential Target Sites			
			Forest Protection	ANR without Enrichment	Afforestation	Total
Son La						
Copia SUFMB	High	2	2,720	1,050	760	4,530
	Fair	1	580	20	60	660
	Low	0	0	0	0	0
	Sub-total	3	3,300	1,070	820	5,190
Muong Chau PFMB	High	1	1,930	430	1,150	3,510
	Fair	2	960	220	600	1,780
	Low	0	0	0	0	0
	Sub-total	3	2,890	650	1,750	5,290
Tuan Giao PFMB	High	0	0	0	0	0
	Fair	2	960	130	410	1,500
	Low	3	2,000	380	90	2,470
	Sub-total	5	2,960	510	500	3,970
Xuan Nha SUFMB	High	0	0	0	0	0
	Fair	3	2,750	280	240	3,270
	Low	1	670	0	0	670
	Sub-total	4	3,420	280	240	3,940
Overall in the Province	**High**	**3**	**4,650**	**1,480**	**1,910**	**8,040**
	Fair	**8**	**5,250**	**650**	**1,310**	**7,210**
	Low	**4**	**2,670**	**380**	**90**	**3,140**
	Total	**15**	**12,570**	**2,510**	**3,310**	**18,390**
Hoa Binh						
Ngoc Son-Ngo Luong SUFMB	High	1	950	0	210	1,160
	Fair	5	4,720	90	260	5,070
	Low	1	420	0	50	470
	Sub-total	7	6,090	90	520	6,700
Hang Kia - Pa Co SUFMB	High	0	0	0	0	0
	Fair	1	1,000	0	0	1,000
	Low	7	1,700	0	70	1,770
	Sub-total	8	2,700	0	70	2,770
Phu Canh SUFMB	High	1	1,000	150	200	1,350
	Fair	3	2,300	0	350	2,650
	Low	0	0	0	0	0
	Sub-total	4	3,300	150	550	4,000
Da River Watershed PFMB	High	0	0	0	0	0
	Fair	14	14,910	600	2,060	17,570
	Low	4	2,580	400	70	3,050
	Sub-total	18	17,490	1,000	2,130	20,620
Overall in the Province	**High**	**2**	**1,950**	**150**	**410**	**2,510**
	Fair	**23**	**22,930**	**690**	**2,670**	**26,290**
	Low	**12**	**4,700**	**400**	**190**	**5,290**
	Total	**37**	**29,580**	**1,240**	**3,270**	**34,090**

Table II-3-3 Project Areas for the Improvement of Watershed Forests in the Four Provinces

Provinces	MB	Communes	District	Land Allocation Status	Forest Protection	ANR without Enrichment	Afforestation	Total
Dien Bien	Dien Bien PFMB	Na Tong	Dien Bien	Lands (PFs) allocated to PFMB and those unallocated	970	80	430	1,480
		Phu Luong	Dien Bien	ditto	0	270	650	920
		Muon Nha	Dien Bien	ditoo	2,360	290	490	3,140
		Sub-total	1 district	-	3,330	640	1,570	5,540
	Muong Chau PFMB	Muong Tung	Muong Cha	Lands (PFs) allocated to PFMB and those unallocated	0	1,080	800	1,880
	Tuan Giao PFMB	Phinh Sang	Tuan Giao	Land (PFs) unallocated and managed by CPC	1,430	30	30	1,490
		Ta Ma	Tuan Giao	ditto	3,420	370	760	4,550
		Sub-total	1 district	-	4,850	400	790	6,040
	Muong Phang SUFMB	Muong Phang	Dien Bien	Lands (SUFs) allocated to SUFMB and those unallocated	830	130	0	960
		Pa Khoang	Dien Bien	ditto	1,390	60	0	1,450
		Sub-total	1 district	-	2,220	190	0	2,410
	Total	**8 communes**	**3 districts**	-	**10,400**	**2,310**	**3,160**	**15,870**
Lai Chau	Nam Ma PFMB	Hồng Thu	Sin Ho	Lands (PFs) allocated to PFMB	0	150	450	600
		Nậm Cuổi	Sin Ho	ditto	0	80	530	610
		Nậm Hăn	Sin Ho	ditto	0	0	220	220
		Nậm Tăm	Sin Ho	ditto	0	150	0	150
		Pa Khóa	Sin Ho	ditto	0	70	20	90
		Phăng Sô Lin	Sin Ho	ditto	0	90	390	480
		Pu Sam Cáp	Sin Ho	ditto	0	490	0	490
		Sub-total	1 district	-	0	1,030	1,610	2,640
	Nam Na PFMB	Chăn Nưa	Sin Ho	Lands (PFs) allocated to PFMB	0	380	210	590
		Làng Mô	Sin Ho	ditto	0	80	0	80
		Pa Tần	Sin Ho	ditto	0	380	410	790
		Sà Dề Phìn	Sin Ho	ditto	0	320	160	480
		Tả Ngảo	Sin Ho	ditto	0	240	10	250
		Tủa Sín Chải	Sin Ho	ditto	0	1,440	960	2,400
		Sub-total	1 district	-	0	2,840	1,750	4,590
	Tan Uyen PFMB	Hồ Mít	Tan Uyen	Lands (PFs) allocated to PFMB	0	320	10	330
		Mường Khoa	Tan Uyen	ditto	0	970	0	970
		Nậm Cần	Tan Uyen	ditto	0	270	910	1,180
		Nậm Sỏ	Tan Uyen	ditto	0	470	220	690
		Tà Mít	Tan Uyen	ditto	0	180	240	420
		TT. Tân Uyên	Tan Uyen	ditto	0	1,060	0	1,060
		Sub-total	1 district	-	0	3,270	1,380	4,650
	Than Uyen PFMB	Mường Mít	Than Uyen	Lands (PFs) allocated to PFMB	0	0	720	720
		Pha Mu	Than Uyen	ditto	0	0	540	540
		Tà Mung	Than Uyen	ditto	0	360	550	910
		Sub-total	1 district	-	0	360	1,810	2,170
	Total	**22 communes**	**3 districts**	-	**0**	**7,500**	**6,550**	**14,050**
Son La	Copia-SUFMB	Chiềng Bôm	Thuan Chau	Lands (SUFs) allocated to SUFMB	880	1,050	610	2,540
		Co Mạ	Thuan Chau	ditto	1,840	150	150	2,140
		Long Hẹ	Thuan Chau	ditto	580	70	60	710
		Sub-total	1 district	-	3,300	1,270	820	5,390
	Thuan Chau PFMB	Nam Lau	Thuan Chau	Lands (PFs) allocated to PFMB	1,930	570	1,150	3,650
		Muong Bam	Thuan Chau	ditto	510	30	110	650
		Bam Lam	Thuan Chau	ditto	450	190	490	1,130
		Sub-total	1 district	-	2,890	790	1,750	5,430
	Quynh Nhai PFMB	Muong Giang	Quynh Nhai	Lands (PFs) allocated to PFMB and those unallocated	400	20	110	530
		Muong Sai	Quynh Nhai	ditto	560	110	300	970
		Sub-total	1 district	-	960	130	410	1,500
	Xuan Nha SUFMB	Chiềng Xuân	Van Ho	Lands (SUFs) allocated to SUFMB	1,690	0	20	1,710
		Tân Xuân	Van Ho	ditto	470	260	150	880
		Chiềng Sơn	Moc Chau	ditto	590	20	70	680
		Sub-total	2 districts	-	2,750	280	240	3,270
	Total	**11 communes**	**4 districts**	-	**9,900**	**2,470**	**3,220**	**15,590**
Hoa Binh	Ngoc Son-Ngo Luong SUFMB	Ngoc Lau	Lac Son	Lands (SUFs) allocated to HHs/villages or re-allocated to SUFMB	930	0	10	940
		Ngoc Son	Lac Son	ditto	330	0	10	340
		Tu Do	Lac Son	ditto	1,770	90	0	1,860
		Ngo Luong	Tan Lac	ditto	950	0	210	1,160
		Nom Son	Tan Lac	ditto	1,080	0	150	1,230
		Bac San	Tan Lac	ditto	610	0	90	700
		Sub-total	2 districts	-	5,670	90	470	6,230
	HANG Kia - Pa Co SUFMB	Hang Kia	Mai Chau	Lands (SUFs) allocated to SUFMB	1,000	0	0	1,000
		Sub-total	1 district	-	1,000	0	0	1,000
	Phu Canh SUFMB	Dong Chum	Da Bac	Lands (SUFs) allocated to SUFMB	1,000	150	200	1,350
		Tan Pheo	Da Bac	ditto	500	0	200	700
		Dong Ruong	Da Bac	ditto	1,000	0	100	1,100
		Doan Ket	Da Bac	ditto	800	0	50	850
		Sub-total	1 district	-	3,300	150	550	4,000
	Da River Watershed PFMB	Dong Nghe	Da Bac	Lands (SUFs) allocated to HHs/villages	1,600	100	190	1,890
		Dong Chum	Da Bac	ditto	1,000	100	20	1,120
		Don Ruong	Da Bac	ditto	800	0	260	1,060
		Murong Chieng	Da Bac	ditto	600	200	140	940
		Murong Tuong	Da Bac	ditto	50	0	260	310
		Suoi Nanh	Da Bac	ditto	800	100	190	1,090
		Tien Phong	Da Bac	ditto	2,000	100	170	2,270
		Vay Nura	Da Bac	ditto	1,500		260	1,760
		Trung Hoa	Tan Lac	ditto	1,110	0	170	1,280
		Ngoi Hoa	Tan Lac	ditto	1,110	0	110	1,220
		Ba Khan	Mai Chau	ditto	1,600	0	70	1,670
		Tan Dan	Mai Chau	ditto	1,400	0	140	1,540
		Tan Mai	Mai Chau	ditto	900	0	30	930
		Thung Nai	Cao Phong	Lands (PFs) allocated to PFMB	440	0	50	490
		Sub-total	4 districts	-	14,910	600	2,060	17,570
	Total	**23 communes <1**	**5 districts**	-	**24,880**	**840**	**3,080**	**28,800**
Grand Total	**16 PFs/SUFs**	**64 communes**	**15 districts**		**45,180**	**13,120**	**16,010**	**74,310**

Note: Two communes, namely Dong Chum and Don Ruong in Da Bac relate to two different target areas, namely Phu Canh SUF and Da River Watershed PF; hence, the total number of communes relating to the project areas in Hoa Bin is 23.

TableII-3-4 Work Quantity of the Project Components

Component / Sub-component	Unit	CPMB	Dien Bien	Lai Chau	Son La	Hoa Binh	Total
1 Survey and Detailed Planning							
1.1 Participatory land use planning (PLUP) and formation of village working groups							
(1) Satellite image analysis with gound truth survey and mapping	km^2	4,681	-	-	-	-	4,681
(2) PLUP and formation of village working groups	no.	-	8	22	11	23	64
1.2 Site demarcation and set-ups of land marks	no.	-	3,160	6,550	3,220	3,080	16,010
1.3 Baseline surveys in the target communes	no.	-	8	22	11	23	64
1.4 Preparation of detailed designs of forest development including silviculture infrastruc	ha	-	15,590	14,050	15,250	28,800	73,690
1.5 Preparation of detailed designs of small scale rural infrastructure	batches	-	3	3	3	3	12
2 Imrpovement of Watershed Forests			**15,590**	**14,050**	**15,250**	**28,800**	**73,690**
2.1 Forest Development and Improvement							
(1) Afforestation (1a)	ha	-	3,160	6,550	3,220	3,080	16,010
(2) Forest Protection	ha	-	10,400		9,900	24,880	45,180
(3) ANR	ha	-	2,030	7,500	2,130	840	12,500
2.2 Phase-out/Phase-in							
(1) Guidance on collaborative management to PPMBs, DARDs, and PFMBs/NRMBs	no.	-	1	1	1	1	4
(2) Workshops for development of forest management plan at the commune/village level	no.	-	8	22	11	23	64
(3) Guidance on operation and maintenance of small-scale rural infrastructure and livelihood development activities to CPCs, commune extension workers, and leaders of users group	no.	-	8	22	11	23	64
3 Improvement of Silviculture Infrastructure							
3.1 Motor bike/Forestry rode	km	-	48	48	14	12	122
3.2 Footpaths	km	-			30		30
3.3 Fire beakline (FBL)	km	-	60	114	48	56	278
3.4 Fire watch towers	no.	-	4	11	10	4	29
3.5 Forest protection office	no.	-			1		1
3.6 Forest protection station	no.	-	14	8	5	6	33
3.7 Information boards	no.	-	10	14	17	18	59
3.8 Sign boards	no.	-		23		48	71
3.9 Nursery	no.		1	4	3	2	10
4 Small scale infrastructure							
4.1 Improvement of small scale rural infrastructure		-					
(1) Village roads	km	-	7.5	15.6	8.4	29.9	61.4
(2) Communal irrigaion systems	km	-	4.8	11.8	5.6	6.1	28.2
(3) Water supply systems	no.	-		6	5	3	14.0
4.2 Operation and maintenance of rural infrastructure by local government units/users	no.	-					
5 Suport for Livelihood Development							
5.1 Assistance in identification/selection of priority livelihood development options	no.	-	8	22	11	23	64
5.2 Marketing survey and development of marketing strategies	no.	-	1	1	1	1	4
5.3 Provision of training courses on selected priority livelihood development options							
(1) Training on key techniques on selected priority livelihood development activities for DAECs and Commune extension workers	no.	-	3	3	4	5	15
(2) Development of demonstration plots	no.	-	8	22	11	23	64
(3) Technical training on livelihood development activities at the demonstration plots	no.	-	24	66	33	69	192
5.4 Assistance in management and use of payments made to the village working groups							
(1) Guidance on the mode of payments from PFMBs/NRMBs to the village working groups	no.	-	8	22	11	23	64
(2) Discussion on the use of saving fund of the village working group	no.	-	8	22	11	23	64
(3) Training on financial management	no.	-	8	22	11	23	64
(4) Assistance in the preparation of business plans on potential income generating activities	no.	-	8	22	11	23	64
5.5 Inter-district or province Cross Field Visit	no.	-	4	4	4	4	16
6 Forest Fire Prevention							
6.1 Provisoin of equipment for forest fire control							
(1) Equipment for training on forest fire control at District Forest Rangers' Offices	no.	-	3	3	4	5	15
(2) Equipment provided to forest guard stations of the PFMBs/SUFMBs concerned	no.	-	4	4	4	4	16
6.2 Forest fire control training							
(1) Training of forest rangers	no.	-	1	1	1	1	4
(2) Training of village leaders and village working groups on forest fire control planning	no.	-	4	4	4	4	16
(3) Forest fire control drills at the communes	no.	-	8	8	8	8	32

TableII-3-4 Work Quantity of the Project Components

Component / Sub-component	Unit	CPMB	Dien Bien	Lai Chau	Son La	Hoa Binh	Total
7 Preparatory work							
7.1 Establishment of CPMB and PPMBs and allocation/employment of the project staff	no.	1	1	1	1	1	4
7.2 Preparation and establishment of regulations and guidelines for implementatoin of the Project	set	1	-	-	-	-	
7.3 Procurement of equipments	set	1	1	1	1	1	4
7.4 Development of forms/formats for regular monitoring	no.	1	-	-	-	-	1
7.5 Information Dissemination							
(1) Project orientation to CPMB and the relevant Depts. of MARD	no.	1	-	-	-	-	1
(2) Project orientation at the provincial level							
- PPMBs and DARDs	no.	-	1	1	1	1	4
- Forest Owners, DPCs and CPCs	no.	-	3	3	4	5	15
- Village Working Groups	no.	-	8	22	11	23	64
(3) Planning workshop with CPMB	no.	1	-	-	-	-	1
(4) Planning workshop with PPMBs	no.	-	1	1	1	1	4
(5) Orientation and guidance on work plan and implementation guidelines							
- Forest Owners	no.	-	1	1	1	1	4
- DPCs, CPCs and Village Working Groups	no.	-	3	3	4	5	15
(6) Orientation and guidance on benefit sharing mechanism							
- CPMB and the relevant Depts. of MARD	no.	1	-	-	-	-	1
- PPMBs, DARDs, and Forest owners (PFMBs/NRMBs)	no.	-	1	1	1	1	4
- DPCs, CPCs and Village Working Groups	no.	-	3	3	4	5	15
7.6 Production and publication of project documents							
(1) Project brief (leaflets)							
- Overall	Set	1	-	-	-	-	1
- Provincial Projects	Set	-	1	1	1	1	4
(2) Project newsletters							
- Overall	Set	7	-	-	-	-	7
- Provincial Projects	Set	-	7	7	7	7	28
(3) Awareness raising materials	Set	1	-	-	-	-	1
7.7 Study tour							
(1) Study tours to JICA 2 site for PPMBs and PFMBs/NRMBs	no.	2	-	-	-	-	2
(2) Study tours to SNRMP site for Forest Owners and Leaders of Village Working Groups	no.	-	2	2	2	2	8
(3) Overseas study tours for CPMB/MBFPs and PPMBs/DARDs	no.	2	-	-	-	-	2
7.8 Provision of Technical Guidance to the relevant Stakeholders							
(1) Guidance on PLUP to PFMBs/NRMBs and Contractors	no.	-	1	1	1	1	4
(2) Guidance on demarcation with GPS and GIS operations to forest owners (PFMBs/NRMBs)	no.	-	1	1	1	1	4
7.9 Review meetings							
(1) Bi-annual Review meeting at central level	no.	19	-	-	-	-	19
(2) Bi-annual Review meeting at provincial level	no.	-	19	19	19	19	76
7.10 Project monitoring and evaluation							
(1) Establishment of monitoring, supervision, and evaluation system for the project	no.	1	-	-	-	-	1
(2) Regular supervision and monitoring of the project	Year	8	8	8	8	8	32
(3) Periodic monitoring, assessment, and evaluation of the project							
- Initial evaluation	no.	1	-	-	-	-	1
- Mid-term evaluation	no.	1	-	-	-	-	1
- Terminal evaluation	no.	1	-	-	-	-	1
8 Consulting Services							
8.1 Consulting Services	Year	8					

Table II-3-5 Proposed Assignment Schedule and Cost Estimates for Consulting Services

	Rate	Man-Months												Amount										
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
Remuneration of International Experts (1,000 Yen/mor		**-**	**11**	**14**	**16**	**14**	**10**	**9**	**7**	**2**	**0**	**-**	**83.0**	**-**	**30,423**	**38,720**	**44,251**	**38,720**	**27,657**	**24,891**	**19,360**	**5,531**	**0**	**-**	**229,553**
1 Team Leader	2,766		6.0	6.0	10.0	11.0	9.0	5.0	6.0	2.0			55.0	-	16,594	16,594	27,657	30,423	24,891	13,829	16,594	5,531	-	-	152,114
2 Forest Development Planning and Monitoring	2,766		2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0			6.0	-	5,531	5,531	5,531	-	-	-	-	-	-	-	16,594
3 REDD+ Safeguard and Collaborative Managemen	2,766		2.0	5.0	4.0	3.0	1.0	4.0	1.0	0.0			20.0		5,531	13,829	11,063	8,297	2,766	11,063	2,766	-	-	-	55,314
4 GIS and Monitoring System	2,766		1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0			2.0	-	2,766	2,766	-	-	-	-	-	-	-	-	5,531
Direct Expenses (1,000 Yen)														**-**	**5,274**	**7,278**	**7,248**	**6,078**	**4,938**	**5,028**	**4,008**	**1,068**	**-**	**-**	**40,920**
Per Diem (per day)	12		330	420	480	420	300	270	210	60	0.0		2,490.0	-	3,960	5,040	5,760	5,040	3,600	3,240	2,520	720	-	-	29,880
International Travel (round trip)	300	0	4	7	4	3	4	5	4	1	0	0	30.0	-	1,050	1,950	1,200	750	1,050	1,500	1,200	300	-	-	9,000
International Communication (month)	24		11.0	12.0	12.0	12.0	12.0	12.0	12.0	2.0			85.0		264	288	288	288	288	288	288	48	-		2,040
Total (1,000 Yen)														**-**	**35,697**	**45,998**	**51,499**	**44,798**	**32,595**	**29,919**	**23,368**	**6,599**	**-**	**-**	**270,473**
Exchange Rate (1.0Yen= VND)														217	217	217	217	217	217	217	217	217	217	217	
VND Equivallent (mil. VND)														-	**7,743**	**9,978**	**11,171**	**9,718**	**7,070**	**6,490**	**5,069**	**1,432**	-	-	**58,671**
Remuneration of National Experts (mil. VND)		**0.0**	**18.0**	**47.0**	**59.0**	**53.0**	**35.0**	**29.0**	**15.0**	**6.0**	**0.0**	**0.0**	**262.0**	**-**	**1,224**	**3,032**	**3,785**	**3,371**	**2,297**	**1,996**	**1,054**	**414**	**-**	**-**	**17,173**
1 Forest Development and Management	75.3		6.0	11.0	11.0	11.0	9.0	9.0	8.0	3.0			68.0	-	452	829	829	829	678	678	603	226	-	-	5,122
2 REDD+ Safeguard and Collaborative Managemen	75.3		5.0	10.0	11.0	8.0	5.0	4.0					43.0	-	377	753	829	603	377	301	-	-	-	-	3,239
3 Livelihood Development	75.3		0.0	4.0	11.0	10.0	7.0	6.0	3.0	1.0			42.0	-	-	301	829	753	527	452	226	75	-	-	3,163
4 Institutional/ Capacity Development	56.5		2.0				1.0	6.0					9.0	-	113	-	-	-	56	339	-	-	-	-	508
5 Infrastructure Development (A)	56.5		0.0	10.0	11.0	11.0	5.0						37.0		-	565	621	621	282	-	-	-			2,090
6 Infrastructure Development (b)	37.7		0.0	5.0	5.0	5.0	0.0						15.0		-	188	188	188	-	-	-	-			565
7 NTFP Development	37.7		0.0	0.0	4.0	4.0	4.0						12.0	-	-	-	151	151	151	-	-	-	-	-	452
8 GIS	56.5		5.0	7.0	6.0	4.0	4.0	4.0	4.0	2.0			36.0	-	282	395	339	226	226	226	226	113	-	-	2,034
Remuneration of National Supporting Staff (mil. VND)		**0.0**	**21.0**	**34.0**	**34.0**	**33.0**	**25.0**	**23.0**	**22.0**	**8.0**	**0.0**	**0.0**	**200.0**	**-**	**593**	**960**	**960**	**932**	**706**	**650**	**621**	**226**	**-**	**-**	**5,649**
1 Administrative Officer	28.2		7.0	12.0	12.0	12.0	12.0	12.0	12.0	5.0			84.0	-	198	339	339	339	339	339	339	141	-	-	2,373
2 Interpreter	28.2		7.0	11.0	11.0	11.0	9.0	6.0	6.0	2.0			63.0	-	198	311	311	311	254	169	169	56	-	-	1,779
3 Secretary	28.2		7.0	11.0	11.0	10.0	4.0	5.0	4.0	1.0			53.0	-	198	311	311	282	113	141	113	28	-	-	1,497
Other Expenses (mil. VND)														**-**	**3,520**	**4,606**	**5,114**	**4,786**	**3,886**	**3,393**	**2,782**	**780**	**-**	**-**	**28,866**
Out of Station Allowance (per day for local e	1	0.0	19.5	40.5	46.5	43.0	30.0	26.0	18.5	7.0	0.0	0.0	231.0	-	556	1,154	1,325	1,226	855	741	527	200	-	-	6,584
Rental Vehicle in Hanoi (for 60% of Inter'l ex	34	0.0	6.6	8.4	9.6	8.4	6.0	5.4	4.2	1.2	0.0	0.0	49.8	-	224	286	326	286	204	184	143	41	-	-	1,693
Rental Vehicle (4x4) in the field (per day)	4	0	250	475	545	500	350	305	220	80	0	0	2,725.0	-	875	1,663	1,908	1,750	1,225	1,068	770	280	-	-	9,538
Travel Expenses (Airfare)	4	0	36	72	86	78	54	44	28	10	0	0	408.0	-	132	264	316	286	198	161	103	37	-	-	1,497
Office Equipment													0.0		545	-	-	-	165	-	-	-	-		710
Office rental (per month)	66		11.0	12.0	12.0	12.0	12.0	12.0	12.0	2.0			85.0	-	724	790	790	790	790	790	790	132	-	-	5,596
Local Communication (per month)	16		11.0	12.0	12.0	12.0	12.0	12.0	12.0	2.0			85.0	-	173	189	189	189	189	189	189	32	-	-	1,339
Office Furniture													0.0	-	50	-	-	-	-	-	-	-	-	-	50
Office running cost (per month)	20		11.0	12.0	12.0	12.0	12.0	12.0	12.0	2.0			85.0	-	220	240	240	240	240	240	240	40	-	-	1,700
Report Preparation	3														20	20	20	20	20	20	20	20	-		160
TOTAL (1) -mil. VND														**-**	**13,081**	**18,575**	**21,030**	**18,807**	**13,960**	**12,528**	**9,527**	**2,852**	**-**	**-**	**110,359**
- FC														-	7,743	9,978	11,171	9,718	7,070	6,490	5,069	1,432	-	-	58,671
- LC														-	5,337	8,598	9,859	9,089	6,889	6,038	4,458	1,420	-	-	51,688
Price Escalation														**-**	**663**	**1,504**	**2,318**	**2,666**	**2,434**	**2,564**	**2,236**	**786**	**-**	**-**	**15,173**
- FC (% per annum.)	1.6%													-	250	487	732	803	707	763	686	220	-	-	4,647
- LC (% per annum.)	3.8%													-	413	1,018	1,586	1,863	1,728	1,801	1,550	567	-	-	10,526
Physical Contingency (5%)														**-**	**654**	**929**	**1,052**	**940**	**698**	**626**	**476**	**143**	**-**	**-**	**5,518**
- FC	5%													-	387.17	499	559	486	354	325	253	72	-	-	2,934
- LC	5%													-	267	430	493	454	344	302	223	71	-	-	2,584
TOTAL (2) - mil. VND														**-**	**14,398**	**21,009**	**24,400**	**22,413**	**17,092**	**15,719**	**12,239**	**3,781**	**-**	**-**	**131,050**
- FC														-	8,380	10,963	12,462	11,006	8,131	7,577	6,009	1,723	-	-	66,251
- LC														-	6,017	10,045	11,938	11,407	8,962	8,141	6,230	2,058	-	-	64,799
Tax (CIT: 5.263%)														**-**	**758**	**1,106**	**1,284**	**1,180**	**900**	**827**	**644**	**199**	**-**	**-**	**6,897**
- FC	5%													-	441	577	656	579	428	399	316	91	-	-	3,487
- LC	5%													-	317	529	628	600	472	428	328	108	-	-	3,410
TOTAL (4) - mil. VND														**-**	**15,155**	**22,114**	**25,684**	**23,592**	**17,992**	**16,546**	**12,883**	**3,980**	**-**	**-**	**137,947**
- FC														-	8,821	11,540	13,118	11,585	8,558	7,976	6,325	1,814	-	-	69,738
- LC														-	6,334	10,574	12,566	12,007	9,433	8,570	6,558	2,166	-	-	68,209
VAT (10%)														**-**	**1,402**	**2,046**	**2,376**	**2,182**	**1,664**	**1,531**	**1,192**	**368**	**-**	**-**	**12,760**
- FC	10%													-	816	1,068	1,213	1,072	792	738	585	168	-	-	6,451
- LC	10%													-	586	978	1,162	1,111	873	793	607	200	-	-	6,309
GRAND TOTAL (mil. VND)														**-**	**16,557**	**24,160**	**28,060**	**25,775**	**19,656**	**18,077**	**14,075**	**4,348**	**-**	**-**	**150,708**
- FC														-	9,637	12,608	14,331	12,657	9,350	8,714	6,910	1,981	-	-	76,189
- LC														-	6,920	11,552	13,729	13,118	10,306	9,363	7,165	2,367	-	-	74,519

CIT: Corporate Income Tax

Table II-4-1 Estimated Project Cost by Province

<4 Provinces & CPMB>

Project components	Unit	Total of 4 Provinces + CPMB				CPMB				Dien Bien			
		Q'ty	Unit Cost (mil. VND)	Amount (mil. VND)		Q'ty	Unit Cost (mil. VND)	Amount (mil. VND)	%	Q'ty	Unit Cost (mil. VND)	Amount (mil. VND)	%
1 Survey and Planning			3.0	**65,131**	**3%**			**5,411**	**3%**			**9,037**	**2%**
1.1 Participatory land use planning (PLUP) and formation of village working groups													
(1) Procurement of satelliteimages	km^2	4,681	0.9	4,371		4,681	1	4,371		-	-	0	
(2) PLUP and formation of village worrking groups in the taret communes	communes	64	348.5	22,301		0	0	0		8	359	2,871	
1.2 Site demarcation and set-ups of land marks	ha	16,010	0.2	3,525		0	0	0		3,160	0	696	
1.3 Baseline surveys in the target communes	time	1	1,040.3	1,040		1	1,040	1,040		0	0	0	
1.4 Survey and detailed designs of forestry development and silviculture infrastructure development	ha	74,310	0.3	23,578		-	-	0		15,870	0	5,471	
1.5 Survey and detailed designs of small scale rural infrastructure development	ls			10,315				0		-	1,798.27	1,318	
2 Improvement of Watershed Forests			44.8	**984,878**	**44%**			**0**	**0%**			**203,303**	**48%**
2.1 Forest Development and Improvement													
(1) Afforestation	ha	16,010						0		3,160	0.00	0	
Afforestation for Protection forest	ha	13,930	53.86	750,270						3,160	53.86	170,198	
Afforestation for Nature reserve	ha	2,080	33.82	70,346						0	33.83	0	
(2) Forest Protection (5years)	ha	45,180	1.59	71,700				0		10,400	1.63	16,900	
(3) ANR	ha	13,120	6.91	90,659				0		2,310	6.91	15,962	
2.2 Phase-out/Phase-in													
(1) Guidance on Collaborative Management to PPMBs, DARDs, and PFMBs/SUFMBs	times	4	11.3	45				0		1	11.30	11	
(2) Workshops for Development of Forest Management Plan at the Commune/Village Level	communes	64	15.0	960				0		8	15.00	120	
(3) Guidance on Operation and Maintenance to CPCs, Commune Extension Workers and Users' Groups	communes	64	14.0	898				0		8	14.04	112	
3 Improvement of Silviculture Infrastructure				**112,469**								**40,273**	
3.1 Motorbike Road	km	121.5	652.6	79,292						48	657.12	31,542	
3.2 Footpaths	km	30	14.5	436						0	13.38	0	
3.3 Fire beakline (FBL)	km	278	41.8	11,617						60	41.79	2,507	
3.4 Fire watch towers	no.	29	151.9	4,406						4	151.50	606	
3.5 Forest guard office	no.	1	702.7	703						0	730.28	0	
3.6 Forest guard station	no.	33	353.5	11,667						14	365.14	5,112	
3.7 Information boards	no.	68	21.8	1,481						10	22.19	222	
3.8 Nursery	no.	10	286.8	2,868						1	284.45	284	
4 Small scale infrastructure				**148,755**	**7%**			**0**	**0%**			**18,626**	**4%**
4.1 Improvement of small scale rural infrastructure													
(1) Road	km	61	1,729.9	106,141						8	1,798.27	13,487	
(2) Irrigation system	km	28	1,190.9	33,620						5	1,081.89	5,139	
(3) Water supply system	no.	14	642.4	8,994						0	0.00	0	
5 Support for Livelihood Development			2.0	**44,006**	**2%**			**829**	**0%**			**5,474**	**1%**
5.1 Selection of Livelihood Development Model													
(1) Identification of Priority Livelihood Development Options	communes	64	15.8	1,008						8	15.75	126	
(2) Survey on the potential model sites	communes	64	16.1	1,032						8	15.75	126	
5.2 Marketing survey and development of marketing strategies	time	1	829.3	829		1	829.31	829		0	0.00	0	
5.3 Development of model site and technical training at the model sites													
(1) Set-up of Working groups and preparation of action plans	communes	64	23.4	1,497						8	23.50	188	
(2) Development of model sites and provision of technical training on the selected option 1	communes	64	176.5	11,293						8	176.50	1,412	
(3) Development of model sites and provision of technical training on the selected option 2	communes	64	176.5	11,293						8	176.50	1,412	
(4) Development of model sites and provision of technical training on the selected option 3	communes	64	176.5	11,293						8	176.50	1,412	
5.4 Assistance in mangement and use of payments made to the village working groups													
(1) Guidance on the mode of payments from PFMBs/SUFMBs to the village working groups	communes	64	15.8	1,013						8	16.00	128	
(2) Workshops/discussions on the Use of Saving Funds of the Village Working Groups	communes	64	15.8	1,008						8	15.75	126	
(3) Training on Financial Management	communes	64	24.3	1,558						8	24.25	194	
(4) Assistance in the preparation of business plans on potential income generating activities	communes	64	24.3	1,558						8	24.25	194	
5.5 Inter district/province Cross Field Visit	times	16	39.0	624						4	39.00	156	
6 Forest Fire Control			**0.8**	**16,881**	**1%**			**0**	**0%**			**3,665**	**1%**
6.1 Provisoin of equipment for forest fire control	sets	31	429.3	13,308						7	451.52	3,161	
6.2 Forest Fire control training in 12 provinces	times	64	55.8	3,573						8	63.04	504	
7 Base Cost for Components eligible to be loaned				**1,372,120**	**61%**			**6,240**	**3%**			**280,379**	**66%**
8 Price contingency				323,356				627				66,063	
9 Physical Contingency (5% of items 14)				**68,606**				312				14,085	
10 Sub-total of Base Cost (7+8+9)				**1,764,082**	**78%**			**7,180**	**3%**			**360,527**	**85%**
11 Project Management			**5.7**	**125,580**	**6%**			**37,154**	**18%**			**21,824**	**5%**
11.1 Procurement of equipments	sets	5	734.2	3,671				671				750	
11.2 Information Dissemination													
(1) Project Orientation	times	83	14.2	1,177		1	9.50	10		12	13.79	166	
(2) Annual Planning Workshop	times	5	8.3	42		1	9.50	10		1	8.00	8	
(3) Orientation and Guidance on Annual Work Plan and Guidelines	times	18	33.4	600		-	-	0		4	32.95	132	
(4) Orientation and Guidance on Benefit Sharing Mechanism	times	83	18.2	1,514		1	9.50	10		12	19.82	238	
(5) Orientation and Guidance on JICA Env. Guidelines, ESMF, and REDD+ safeguarrds at the provinces	times	24	19.3	462		24	19.25	462		-	-	0	
11.3 Production and publication of project documents													
(1) Project Brief (Leaflets)	sets	5	19.0	95		1	19.00	19		1	19.00	19	
(2) Project Newsletter	sets	35	20.2	708		7	20.23	142		7	20.23	142	
(3) Awareness Raising Materials	sets	4	48.5	194		0	0.00	0		1	48.50	49	
11.4 Study tour													
(1) Study Tours to JICA 2 Sites for PPMBs and Forest Owners (PFMBs/SUFMBs)	times	2	174.3	349		2	174.28	349		0	0.00	0	
(2) Study Tours to SNRMP Sites for Forest Owners (PFMBs/SUFMBs) and Village Working Groups	times	8	174.3	1,394		-	-	0		2	174.28	349	
(3) Overseas Study Tours for CPMB/MBFPs and PPMBs/DARDs	times	2	1,334.2	2,668		2	1,334.24	2,668		0	0.00	0	
11.5 Technical guidance and training													
(1) Guidance on PLUP and formation of village working groups	times	4	22.0	88		0	0	0		1	22	22	
(2) Guidance on operations of GIS	times	4	29.2	117		0	0	0		1	29	29	
11.6 Review meetings													
(1) Bi-annual Review Meetings at the Central Level	times	19	9.5	181		19	9.50	181		0	0.00	0	
(2) Bi-annual Review Meetings at the Provincial Level	times	76	8.0	608		-	-	0		19	8.00	152	
11.7 Project monitoring and evaluation	time	1	6,423.5	6,424				6,424				0	
11.8 Forest Monitoring		0		0				0				0	
11.9 Staff salary and allowance	years	10	6,444.00	64,440		10	1,432.00	14,320		10	1,253.00	12,530	
11.10 Direct operation expenses	years	10	4,085.00	40,850		10	1,189.00	11,890		10	724.00	7,240	
12 Price contingency				30,868				9,916				5,203	
13 Physical Contingency (5% of items 14)				**6,279**				1,858				1,091	
14 Administration Cost (11+12+13)				**162,728**	**7%**			**48,928**	**23%**			**28,118**	**7%**
15 Consulting Services / TA				**131,050**	**6%**			**131,050**					
15.1 Consulting services w/o contingencies				110,359				110,359					
15.2 Physical and price contigencies				20,691				20,691					
16 Tax and Duties on the Project Components				**196,778**	**9%**			**21,653**	**10%**			**36,401**	**9%**
16.1 Taxes and Duties on the Project Components except C/S				177,120				1,995				36,401	
16.2 Taxes (CIT and VAT) on Consulting Services				19,658				19,658					
17 GRAND TOTAL (10+14+15+16)				**2,254,638**	**100%**			**208,810**	**100%**			**425,046**	**100%**
18 Loan interest during construction				33,587				205				6,915	
19 Loan interest during consulting service				93				93				0	
20 Front end fee				3,790				3,790					
21 GRAND TOTAL (17+18+19+20)				**2,292,107**				**212,899**				**431,961**	

Table II-4-1 Estimated Project Cost by Province

<4 Provinces & CPMB>

Project components	Lai Chau				Son La				Hoa Bin			
	Q'ty	Unit Cost (mil. VND)	Amount (mil. VND)		Q'ty	Unit Cost (mil. VND)	Amount (mil. VND)		Q'ty	Unit Cost (mil. VND)	Amount (mil. VND)	
1 Survey and Planning			**18,612**	**2%**			**8,871**	**2%**			**12,883**	**3%**
1.1 Participatory land use planning (PLUP) and formation of village working groups												
(1) Procurement of satelliteimages	0	0	0		0	0	0		-	-	0	
(2) PLUP and formation of village worrking groups in the taret communes	22	346	7,602		11	353	3,886		23	345	7,942	
1.2 Site demarcation and set-ups of land marks	6,550	0	1,442		3,220	0	709		3,080	0	678	
1.3 Baseline surveys in the target communes	0	0	0		0	0	0		0	0	0	
1.4 Survey and detailed designs of forestry development and silviculture infrastructure development	14,050	1	9,568		15,590	0	4,276		28,800	0	4,263	
1.5 Survey and detailed designs of small scale rural infrastructure development	-	-	3,429		-	-	1,915		-	-	3,653	
2 Improvement of Watershed Forests			**405,258**	**52%**			**185,821**	**49%**			**190,496**	**43%**
2.1 Forest Development and Improvement												
(1) Afforestation	6,550	0.00	0		3,220	0.00	0		3,080	0.00	0.00	
Afforestation for Protection forest	6,550	53.86	352,783		2,160	53.86	116,338		2,060	53.86	110,952	
Afforestation for Nature reserve	0	33.83	0		1,060	33.82	35,849		1,020	33.82	34,496	
(2) Forest Protection (5years)	0	1.65	0		9,900	1.64	16,236		24,880	1.55	38,564	
(3) ANR	7,500	6.91	51,825		2,470	6.91	17,068		840	6.91	5,804	
2.2 Phase-out/Phase-in												
(1) Guidance on Collaborative Management to PPMBs, DARDs, and PFMBs/SUFMBs	1	11.30	11		1	11.30	11		1	11.30	11	
(2) Workshops for Development of Forest Management Plan at the Commune/Village Level	22	15.00	330		11	15.00	165		23	15.00	345	
(3) Guidance on Operation and Maintenance to CPCs, Commune Extension Workers and Users' Groups	22	14.04	309		11	14.04	154		23	14.04	323	
3 Improvement of Silviculture Infrastructure			**42,170**	**5%**			**16,439**	**4%**			**13,586**	**3%**
3.1 Motorbike Road	48	654.26	31,404		14	648.43	8,754		12	632.65	7,592	
3.2 Footpaths	0	13.80	0		30	14.52	436		0	12.67	0	
3.3 Fire beakline (FBL)	114	41.79	4,764		48	41.79	2,006		56	41.79	2,340	
3.4 Fire watch towers	11	152.23	1,674		10	152.69	1,527		4	149.76	599	
3.5 Forest guard office	0	709.16	0		1	702.67	703		0	653.79	0	
3.6 Forest guard station	8	354.58	2,837		5	351.34	1,757		6	326.89	1,961	
3.7 Information boards	14	22.36	313		17	22.71	386		27	20.73	560	
3.8 Nursery	4	294.49	1,178		3	290.58	872		2	267.02	534	
4 Small scale infrastructure			**48,118**	**6%**			**27,033**	**7%**			**54,978**	**12%**
4.1 Improvement of small scale rural infrastructure												
(1) Road	16	1,936.79	30,214		8	1,945.31	16,255		30	1,544.65	46,185	
(2) Irrigation system	12	1,208.50	14,224		6	1,345.63	7,549		6	1,099.67	6,708	
(3) Water supply system	6	613.33	3,680		5	645.80	3,229		3	695.00	2,085	
5 Support for Livelihood Development			**14,784**	**2%**			**7,471**	**2%**			**15,448**	**3%**
5.1 Selection of Livelihood Development Model												
(1) Identification of Priority Livelihood Development Options	22	15.73	346		11	15.82	174		23.0	15.74	362	
(2) Survey on the potential model sites	22	16.18	356		11	16.18	178		23.0	16.17	372	
5.2 Marketing survey and development of marketing strategies	0	0.00	0		0	0.00	0		-	-	0	
5.3 Development of model site and technical training at the model sites												
(1) Set-up of Working groups and preparation of action plans	22	23.36	514		11	23.36	257		23.0	23.39	538	
(2) Development of model sites and provision of technical training on the selected option 1	22	176.45	3,882		11	176.45	1,941		23.0	176.43	4,058	
(3) Development of model sites and provision of technical training on the selected option 2	22	176.45	3,882		11	176.45	1,941		23.0	176.43	4,058	
(4) Development of model sites and provision of technical training on the selected option 3	22	176.45	3,882		11	176.45	1,941		23.0	176.43	4,058	
5.4 Assistance in mangement and use of payments made to the village working groups												
(1) Guidance on the mode of payments from PFMBs/SUFMBs to the village working groups	22	15.82	348		11	15.73	173		23.0	15.83	364	
(2) Workshops/discussions on the Use of Saving Funds of the Village Working Groups	22	15.73	346		11	15.82	174		23.0	15.74	362	
(3) Training on Financial Management	22	24.36	536		11	24.36	268		23.0	24.35	560	
(4) Assistance in the preparation of business plans on potential income generating activities	22	24.36	536		11	24.36	268		23.0	24.35	560	
5.5 Inter district/province Cross Field Visit	4	39.00	156		4	39.00	156		4.0	39.00	156	
6 Forest Fire Control			**4,305**	**1%**			**4,024**	**1%**			**4,887**	**1%**
6.1 Provisoin of equipment for forest fire control	7	451.52	3,161		8	422.82	3,383		9	400.49	3,604	
6.2 Forest Fire control training in 12 provinces	22	52.02	1,144		11	58.32	641		23	55.76	1,282	
7 Base Cost for Components eligible to be loaned			**533,248**	**68%**			**249,660**	**65%**			**292,278**	**66%**
8 Price contingency			127,223				59,700				69,744	
9 Physical Contingency (5% of items 14)			26,834				12,579				14,797	
10 Sub-total of Base Cost (7+8+9)			**687,304**	**88%**			**321,939**	**84%**			**376,818**	**85%**
11 Project Management			**22,244**	**3%**			**21,914**	**6%**			**22,445**	**5%**
11.1 Procurement of equipments			750				750				750	
11.2 Information Dissemination												
(1) Project Orientation	26	14.44	376		15	14.03	211		29	14.33	416	
(2) Annual Planning Workshop	1	8.00	8		1	8.00	8		1	8.00	8	
(3) Orientation and Guidance on Annual Work Plan and Guidelines	4	32.95	132		4	32.95	132		6	34.17	205	
(4) Orientation and Guidance on Benefit Sharing Mechanism	26	17.22	448		15	18.85	283		29	18.48	536	
(5) Orientation and Guidance on JICA Env. Guidelines, ESMF, and REDD+ safeguarrds at the provinces	-	-	0		-	-	0		-	-	0	
11.3 Production and publication of project documents												
(1) Project Brief (Leaflets)	1	19.00	19		1	19.00	19		1	19.00	19	
(2) Project Newsletter	7	20.23	142		7	20.23	142		7	20.23	142	
(3) Awareness Raising Materials	1	48.50	49		1	48.50	49		1	48.50	49	
11.4 Study tour												
(1) Study Tours to JICA 2 Sites for PPMBs and Forest Owners (PFMBs/SUFMBs)	0	0.00	0		0	0.00	0		-	-	0	
(2) Study Tours to SNRMP Sites for Forest Owners (PFMBs/SUFMBs) and Village Working Groups	2	174.28	349		2	174.28	349		2	174.28	349	
(3) Overseas Study Tours for CPMB/MBFPs and PPMBs/DARDs	0	0.00	0		0	0.00	0		-	-	0	
11.5 Technical guidance and training												
(1) Guidance on PLUP and formation of village working groups	1	22	22		1	22	22		1	22	22	
(2) Guidance on operations of GIS	1	29	29		1	29	29		1	29	29	
11.6 Review meetings												
(1) Bi-annual Review Meetings at the Central Level	0	0.00	0		0	0.00	0		-	-	0	
(2) Bi-annual Review Meetings at the Provincial Level	19	8.00	152		19	8.00	152		19	8.00	152	
11.7 Project monitoring and evaluation			0				0				0	
11.8 Forest Monitoring			0				0				0	
11.9 Staff salary and allowance	10	1,253.00	12,530		10	1,253.00	12,530		10	1,253.00	12,530	
11.10 Direct operation expenses	10	724.00	7,240		10	724.00	7,240		10	724.00	7,240	
12 Price contingency			5,259				5,197				5,294	
13 Physical Contingency (5% of items 14)			1,112				1,096				1,122	
14 Administration Cost (11+12+13)			**28,615**	**4%**			**28,206**	**7%**			**28,861**	**7%**
15 Consulting Services / TA												
15.1 Consulting services w/o contingencies												
15.2 Physical and price contigencies												
16 Tax and Duties on the Project Components			**68,653**	**9%**			**32,472**	**8%**			**37,599**	**8%**
16.1 Taxes and Duties on the Project Components except C/S			68,653				32,472				37,599	
16.2 Taxes (CIT and VAT) on Consulting Services												
17 GRAND TOTAL (10+14+15+16)			**784,572**	**100%**			**382,616**	**100%**			**443,278**	**100%**
18 Loan interest during construction			13,092				6,131				7,243	
19 Loan interest during consulting service			0				0				0	
20 Front end fee												
21 GRAND TOTAL (17+18+19+20)			**797,664**				**388,747**				**450,522**	

Table II-4-2 Annual Cost Disbursement Schedule of the Project

Project components	Unit	Q'ty	Unit Cost (mil. VND)	Project Cost (mil. VND) Total		LC	FC	1st (2017/2018) LC	FC	2nd (2018/2019) LC	FC	3rd (2019/2020) LC	FC	4th (2020/2021) LC	FC	5th (2021/2022) LC	FC	6th (2022/2023) LC	FC	7th (2023/2024) LC	FC	8th (2024/2025) LC	FC	9th (2025/2026) LC	FC	10th (2026/2027) LC	FC	11th (2027/2028) LC	FC
1 Survey and Detailed Planning				**65,131**	**3%**	**65,131**				**5,144**		**20,660**		**26,847**		**12,479**													
1.1 Participatory land use planning (PLUP) and formation of village working groups																													
(1) Procurement of satelliteimages	km^2	4,681	0.9	4,371		4,371				4,371																			
(2) PLUP and formation of village worrking groups in the taret communes	communes	64	348.5	22,301		22,301						11,151		11,151															
1.2 Site demarcation and set-ups of land marks	ha	16,010	0.2	3,525		3,525						3,525																	
1.3 Baseline surveys in the target communes	time	1	1,040.3	1,040		1,040								520		520													
1.4 Survey and detailed designs of forestry development and silviculture infrastructure development	ha	74,310	0.3	23,578		23,578				773		5,985		10,019		6,801													
1.5 Survey and detailed designs of small scale rural infrastructure development	ls			10,315		10,315								5,158		5,158													
2 Improvement of Watershed Forests				**984.878**	**44%**	**984.878**								**98.463**		**245.026**		**315.223**		**184.659**		**105.946**		**35.562**					
2.1 Forest Development and Improvement																													
(1) Afforestation	ha	16,010																											
- Afforestation for Protection forest	ha	13,930	53.9	750,270		750,270								74,553		185,798		250,434		140,136		77,618		21,731					
- Afforestation for Nature reserve	ha	2,080	33.8	70,346		70,346								7,625		18,516		24,078		12,006		6,356		1,764					
(2) Forest Protection	ha	45,180	1.6	71,700		71,700								5,736		14,340		14,340		14,340		14,340		8,604					
(3) ANR	ha	13,120	6.9	90,659		90,659								10,548		26,371		26,371		18,132		5,773		3,464					
2.2 Phase-out/Phase-in																													
(1) Guidance on Collaborative Management to PPMBs, DARDs, and PFMBs/SUFMBs	times	5	9.0	45		45														45									
(2) Workshops for Development of Forest Management Plan at the Commune/Village Level	communes	64	15.0	960		960																960							
(3) Guidance on Operation and Maintenance to CPCs, Commune Extension Workers and Users' Groups	communes	64	14.0	898		898																898							
3 Improvement of Silviculture Infrastructure				**112,469**	**5%**	**112,469**						**22,086**		**40,608**		**43,019**		**6,755**											
3.1 Motorbike Road	km	121.5	657.1	79,292		79,292						15,858		31,717		31,717													
3.2 Footpaths	km	30	13.4	436		436						174		261															
3.3 Fire beakline (FBL)	km	278	41.8	11,617		11,617								2,323		4,647		4,647											
3.4 Fire watch towers	no.	29	151.5	4,406		4,406								1,063		1,822		1,521											
3.5 Forest guard office	no.	1	730.3	703		703						703																	
3.6 Forest guard station	no.	33	365.1	11,667		11,667						2,483		4,938		4,246													
3.7 Information boards	no.	68	22.2	1,481		1,481								306		587		587											
3.8 Nursery	no.	10	284.5	2,868		2,868						2,868																	
4 Small scale infrastructure				**148.755**	**7%**	**148.755**								**49.585**		**49.585**		**49.585**											
4.1 Improvement of small scale rural infrastructure																													
(1) Road	km	61	1,729.9	106,141		106,141								35,380		35,380		35,380											
(2) Irrigation system	km	28	1,190.9	33,620		33,620								11,207		11,207		11,207											
(3) Water supply system	no.	14	642.4	8,994		8,994								2,998		2,998		2,998											
5 Support for Livelihood Development				**44.006**	**2%**	**44,006**						**1,098**		**1,925**		**20,127**		**19,034**		**1,666**		**156**							
5.1 Selection of Livelihood Development Model																													
(1) Identification of Priority Livelihood Development Options	communes	64	15.8	1,008		1,008								520		488													
(2) Survey on the potential model sites	communes	64	16.1	1,032		1,032								532		500													
5.2 Marketing survey and development of marketing strategies	time	1	829.3	829		829						829																	
5.3 Development of model site and technical training at the model sites			-																										
(1) Set-up of Working groups and preparation of action plans	communes	64	23.4	1,497		1,497								351		772		374											
(2) Development of model sites and provision of technical training on the selected option 1	communes	64	176.5	11,293		11,293										5,823		5,470											
(3) Development of model sites and provision of technical training on the selected option 2	communes	64	176.5	11,293		11,293										5,823		5,470											
(4) Development of model sites and provision of technical training on the selected option 3	communes	64	176.5	11,293		11,293										5,823		5,470											
5.4 Assistance in mangement and use of payments made to the village working groups																													
(1) Guidance on the mode of payments from PFMBs/SUFMBs to the village working groups	communes	64	15.8	1,013		1,013						269		522		222													
(2) Workshops/discussions on the Use of Saving Funds of the Village Working Groups	communes	64	15.8	1,008		1,008										520		488											
(3) Training on Financial Management	communes	64	24.3	1,558		1,558												803		755									
(4) Assistance in the preparation of business plans on potential income generating activities	communes	64	24.3	1,558		1,558												803		755									
5.5 Inter district/province Cross Field Visit	times	16	39.0	624		624										156		156		156		156							
6 Forest Fire Control				**16,881**	**1%**	**16,881**				**6,430**				**9,386**				**1,064**											
6.1 Provisoin of equipment for forest fire control	sets	-	-	13,308		13,308				6,430				6,878															
6.2 Forest fire control training	times	-	-	3,573		3,573								2,508				1,064											
7 Base Cost for Components eligible to be loaned				1,372,120	**61%**	1,372,120				11,574		43,845		226,815		370,236		391,662		186,325		106,102		35,562					
8 Price contingency	%		3.8	323,356	**14%**	323,356				896		5,191		36,491		75,898		98,224		55,584		36,887		14,185					
9 Physical Contingency (5% of items 14)	%		5.0	68,606	**3%**	68,606				579		2,192		11,341		18,512		19,583		9,316		5,305		1,778					
10 Sub-total of Base Cost (7+8+9)				1,764,082		1,764,082				13,049		51,228		274,647		464,646		509,469		251,225		148,293		51,525					
11 Project Management				**125,580**		**125,580**		**10,644**		**12,847**		**11,602**		**12,939**		**11,888**		**13,341**		**12,227**		**10,713**		**10,713**		**15,994**		**2,674**	
11.1 Procurement of equipments	sets	-	-	3,671		3,671		2,551										1,120											
11.2 Information Dissemination		-	-		20,290																								
(1) Project Orientation	times	83	14.2	1,177		1,177				1,177																			
(2) Annual Planning Workshop	times	5	8.3	42		42				42																			
(3) Orientation and Guidance on Annual Work Plan and Guidelines	times	18	33.4	600		600				600																			
(4) Orientation and Guidance on Benefit Sharing Mechanism	times	83	18.2	1,514		1,514														1,514									
(5) Orientation and Guidance on ESMF	times	24	19.3	462		462		154		154		154																	
11.3 Production and publication of project documents																													
(1) Project Brief (Leaflets)	sets	5	19.0	95		95						95																	
(2) Project Newsletter	sets	35	20.2	708		708						101		101		101		101		101		101		101					
(3) Awareness Raising Materials	sets	4	48.5	194		194								194															
11.4 Study tour																													
(1) Study Tours to JICA 2 Sites for PPMBs and Forest Owners (PFMBs/SUFMBs)	times	2	174.3	349		349				174						174													
(2) Study Tours to SNRMP Sites for Forest Owners (PFMBs/SUFMBs) and Village Working Groups	times	8	174.3	1,394		1,394						523		697				174											
(3) Overseas Study Tours for CPMB/MBFPs and PPMBs/DARDs	times	2	1,334.2	2,668		2,668								1,334				1,334											
11.5 Technical guidance and training																													
(1) Guidance on PLUP and formation of village working groups	times	4	22.0	88		88				88																			
(2) Guidance on operations of GIS	times	4	29.2	117		117						117																	
11.6 Review meetings																													
(1) Bi-annual Review Meetings at the Central Level	times	19	9.5	181		181		10		19		19		19		19		19		19		19		19		10		10	
(2) Bi-annual Review Meetings at the Provincial Level	times	76	8.0	608		608		32		64		64		64		64		64		64		64		64		32		32	
11.7 Project monitoring and evaluation	time	1	6,423.5	6,424		6,424										1,000										5,423			
11.8 Forest Monitoring																													
11.9 Staff salary and allowance	years	10	6,444.0	64,440		64,440		4,833		6,444		6,444		6,444		6,444		6,444		6,444		6,444		6,444		6,444		1,611	
11.10 Direct operation expenses	years	10	4,085.0	40,850		40,850		3,064		4,085		4,085		4,085		4,085		4,085		4,085		4,085		4,085		4,085		1,021	
12 Price contingency	%		3.8	30,868		30,868		404		995		1,373		2,082		2,437		3,346		3,648		3,724		4,273		7,230		1,356	
13 Physical Contingency (5% of items 14)	%		5.0	6,279		6,279		532		642		580		647		594		667		611		536		536		800		134	
14 Administration Cost (11+12+13)				**162.728**	**7%**	**162.728**		11.580		14.484		13.555		15.667		14.919		17.354		16.486		14.973		15.522		24.023		4.164	
15 Consulting Services				**131.050**	**6%**	**64,799**	**66,251**			**6,017**	**8,380**	**10,045**	**10,963**	**11,938**	**12,462**	**11,407**	**11,006**	**8,962**	**8,131**	**8,141**	**7,577**	**6,230**	**6,009**	**2,058**	**1,723**				
15.1 Consulting services w/o contingencies				110,359		51,688	58,671			5,337	7,743	8,598	9,978	9,859	11,171	9,089	9,718	6,889	7,070	6,038	6,490	4,458	5,069	1,420	1,432				
15.2 Physical and price contigencies				20,691		13,110	7,580			680	637	1,448	986	2,079	1,291	2,318	1,289	2,072	1,060	2,103	1,087	1,773	940	638	291				
16 Tax and Duties on the Project Components				**196,778**		**186,840**	**9,938**	**341**		**3,840**	**1,257**	**6,688**	**1,645**	**29,362**	**1,869**	**47,067**	**1,651**	**51,246**	**1,220**	**26,350**	**1,137**	**15,643**	**901**	**5,482**	**258**	**818**		**3**	
16.1 Taxes and Duties on the Project Components except C/S				177,120		177,120		341		2,938		5,181		27,571		45,356		49,902		25,128		14,709		5,173		818		3	
16.2 Taxes (CIT and VAT) on Consulting Services				19,658		9,720	9,938			903	1,257	1,507	1,645	1,791	1,869	1,711	1,651	1,344	1,220	1,221	1,137	935	901	309	258				
17 GRAND TOTAL (10+14+15+16)				**2.254.638**	**100%**	**2.178.449**	**76.189**	**11.921**		**37.391**	**9.637**	**81.516**	**12.608**	**331.614**	**14.331**	**538.038**	**12.657**	**587.031**	**9.350**	**302.202**	**8.714**	**185.140**	**6.910**	**74.587**	**1.981**	**24.841**		**4.167**	

Table II-4-3 Financial Plan of the Project

Project components	Unit	Q'ty	Unit Cost (mil. VND)	Project Cost (mil. VND) Total		JICA	VN	in kind	1st (2017/2018) JICA	VN	2nd (2018/2019) JICA	VN	3rd (2019/2020) JICA	VN	4th (2020/2021) JICA	VN	5th (2021/2022) JICA	VN	6th (2022/2023) JICA	VN	7th (2023/2024) JICA	VN	8th (2024/2025) JICA	VN	9th (2025/2026) JICA	VN	10th (2026/2027) JICA	VN	11th (2027/2028) JICA	VN
1 Survey and Detailed Plannine				**65.131**	**3%**	**65.131**					**5.144**		**20.660**		**26.847**		**12.479**													
1.1 Participatory land use planning (PLUP) and formation of village working groups																														
(1) Procurement of satelliteimages	km^2	4,681	0.9	4,371		4,371					4,371																			
(2) PLUP and formation of village worrking groups in the taret communes	communes	64	348.5	22,301		22,301							11,151		11,151															
1.2 Site demarcation and set-uns of land marks	ha	16,010	0.2	3,525		3,525							3,525																	
1.3 Baseline surveys in the target communes	time	1	1,040.3	1,040		1,040									520		520													
1.4 Survey and detailed desiens of forestry develoment and silviculture infrastructure develoement	ha	74,310	0.3	23,578		23,578					773		5,985		10,019		6,801													
1.5 Survey and detailed desiens of small scale rural infrastructure development	ls			10,315		10,315									5,158															
2 Improvement of Watershed Forests				**984.878**	**44%**	**984.878**									**98.463**		**245.026**		**315.223**		**184.659**		**105.946**		**35.562**					
2.1 Forest Development and Improvement																														
(1) Afforestation	ha	16,010																												
- Afforestation for Protection forest	ha	13,930	53.9	750,270		750,270									74,553		185,798		250,434		140,136		77,618		21,731					
- Afforestation for Nature reserve	ha	2,080	33.8	70,346		70,346									7,625		18,516		24,078		12,006		6,356		1,764					
(2) Forest Protection	ha	45,180	1.6	71,700		71,700									5,736		14,340		14,340		14,340		14,340		8,604					
(3) ANR	ha	13,120	6.9	90,659		90,659									10,548		26,371		26,371		18,132		5,773		3,464					
2.2 Phase-out/Phase-in																														
(1) Guidance on Collaborative Management to PPMBs, DARDs, and PFMBs/SUFMBs	times	5	9.0	45		45															45									
(2) Workshops for Development of Forest Management Plan at the Commune/Village Level	communes	64	15.0	960		960																	960							
(3) Guidance on Operation and Maintenance to CPCs, Commune Extension Workers and Users' Groups	communes	64	14.0	898		898																	898							
3 Improvement of Silviculture Infrastructure				**112,469**	**5%**	**112,469**							**22,086**		**40,608**		**43,019**		**6,755**											
3.1 Motorbike Road	km	121.5	657.1	79,292		79,292							15,858		31,717		31,717													
3.2 Footpaths	km	30	13.4	436		436							174		261															
3.3 Fire beakline (FBL)	km	278	41.8	11,617		11,617									2,323		4,647		4,647											
3.4 Fire watch towers	no.	29	151.5	4,406		4,406									1,063		1,822		1,521											
3.5 Forest guard office	no.	1	730.3	703		703							703																	
3.6 Forest guard station	no.	33	365.1	11,667		11,667							2,483		4,938		4,246													
3.7 Information boards	no.	68	22.2	1,481		1,481									306		587		587											
3.8 Nursery	no.	10	284.5	2,868		2,868							2,868																	
4 Small scale infrastructure				**148.755**	**7%**	**148.755**									**49.585**		**49.585**		**49.585**											
4.2 Improvement of small scale rural infrastructure																														
(1) Road	km	61		106,141		106,141									35,380		35,380		35,380											
(2) Irrigation system	km	28		33,620		33,620									11,207		11,207		11,207											
(3) Water supply system	no.	14		8,994		8,994									2,998		2,998		2,998											
5 Support for Livelihood Development				**44.006**	**2%**	**44.006**							**1.098**		**1.925**		**20.127**		**19.034**		**1.666**		**156**							
5.1 Selection of Livelihood Development Model																														
(1) Identification of Priority Livelihood Development Options	communes	64	15.8	1,008		1,008									520		488													
(2) Survey on the potential model sites	communes	64	15.8	1,032		1,032									532		500													
5.2 Marketing survey and development of marketing strategies	time	1	829.3	829		829							829																	
5.3 Development of model site and technical training at the model sites																														
(1) Set-up of Working groups and prenaration of action plans	communes	64	23.5	1,497		1,497									351		772		374											
(2) Development of model sites and provision of technical training on the selected option 1	communes	64	176.5	11,293		11,293											5,823		5,470											
(3) Development of model sites and provision of technical training on the selected option 2	communes	64	176.5	11,293		11,293											5,823		5,470											
(4) Development of model sites and provision of technical training on the selected option 3	communes	64	176.5	11,293		11,293											5,823		5,470											
5.4 Assistance in manaement and use of navments made to the villaue working groups																														
(1) Guidance on the mode of navments from PFMBs/SUFMBs to the village working groups	communes	64	16.0	1,013		1,013							269		522		222													
(2) Workshops/discussions on the Use of Saving Funds of the Village Working Groups	communes	64	15.8	1,008		1,008											520		488											
(3) Training on Financial Management	communes	64	24.3	1,558		1,558													803		755									
(4) Assistance in the preparation of business plans on potential income generating activities	communes	64	24.3	1,558		1,558													803		755									
5.5 Inter district/province Cross Field Visit	times	16	39.0	624		624											156		156		156		156							
6 Forest Fire Control				**16.881**	**1%**	**16.881**					**6.430**				**9.386**				**1.064**											
6.1 Provisoin of equipment for forest fire control	sets	-	-	13,308		13,308					6,430				6,878															
6.2 Forest fire control training	times	-	-	3,573		3,573									2,508				1,064											
7 Base Cost for Components eligible to be loaned				1,372,120		1,372,120					11,574		43,845		226,815		370,236		391,662		186,325		106,102		35,562					
8 Price contingency	%		3.8	323,356	**14%**	323,356					896		5,191		36,491		75,898		98,224		55,584		36,887		14,185					
9 Physical Contingency (5% of items 14)	%		5.0	68,606	**3%**	68,606					579		2,192		11,341		18,512		19,583		9,316		5,305		1,778					
10 Sub-total of Base Cost (7+8+9)				1,764,082		1,764,082					13,049		51,228		274,647		464,646		509,469		251,225		148,293		51,525					
11 Project Management				**125,580**	**6%**		**125,580**			**10,644**		**12,847**		**11,602**		**12,939**		**11,888**		**13,341**		**12,227**		**10,713**		**10,713**		**15,994**		**2,674**
11.1 Procurement of equipments	sets	4.0	917.8	3,671			3,671			2,551									1,120											
11.2 Information Dissemination																														
(1) Project Orientation	times	83	14.2	1,177			1,177					1,177																		
(2) Annual Planning Workshop	times	5	8.3	42			42					42																		
(3) Orientation and Guidance on Annual Work Plan and Guidelines	times	18	33.4	600			600					600																		
(4) Orientation and Guidance on Benefit Sharing Mechanism	times	83	18.2	1,514			1,514														1,514									
(5) Orientation and Guidance on ESMF	times	24	19.3	462			462			154		154		154																
11.3 Production and publication of project documents																														
(1) Project Brief (Leaflets)	sets	5	19.0	95			95							95																
(2) Project Newsletter	sets	35	20.2	708			708							101		101		101		101		101		101		101				
(3) Awareness Raising Materials	sets	4	48.5	194			194									194														
11.4 Study tour																														
(1) Study Tours to JICA 2 Sites for PPMBs and Forest Owners (PFMBs/SUFMBs)	times	2	174.3	349			349					174						174												
(2) Study Tours to SNRMP Sites for Forest Owners (PFMBs/SUFMBs) and Village Working Grouns	times	8	174.3	1,394			1,394							523		697				174										
(3) Overseas Study Tours for CPMB/MBFPs and PPMBs/DARDs	times	2	1,334.2	2,668			2,668									1,334				1,334										
11.5 Technical guidance and training																														
(1) Guidance on PLUP and formation of village working groups	times	4	22.0	88			88					88																		
(2) Guidance on operations of GIS	times	4	29.2	117			117							117																
11.6 Review meetings																														
(1) Bi-annual Review Meetings at the Central Level	times	19	9.5	181			181			10		19		19		19		19		19		19		19		19		10		10
(2) Bi-annual Review Meetings at the Provincial Level	times	76	8.0	608			608			32		64		64		64		64		64		64		64		64		32		32
11.7 Project monitoring and evaluation	time	1	6,423.5	6,424			6,424											1,000										5,423		
11.8 Forest Monitoring																														
11.9 Staff salary and allowance	years	10	6,444.0	64,440			64,440			4,833		6,444		6,444		6,444		6,444		6,444		6,444		6,444		6,444		6,444		1,611
11.10 Direct operation expenses	years	10	4,085.0	40,850			40,850			3,064		4,085		4,085		4,085		4,085		4,085		4,085		4,085		4,085		4,085		1,021
12 Price contingency	%		3.8	30,868			30,868			404		995		1,373		2,082		2,437		3,346		3,648		3,724		4,273		7,230		1,356
13 Physical Contingency (5% of items 14)	%		5.0	6,279			6,279			532		642		580		647		594		667		611		536		536		800		134
14 Administration Cost (11+12+13)				**162.728**			**162.728**			11,580		14,484		13,555		15,667		14,919		17,354		16,486		14,973		15,522		24,023		4,164
15 Consulting Services (Base cost)				**131,050**	**6%**	**131,050**					**14,398**		**21,009**		**24,400**		**22,413**		**17,092**		**15,719**		**12,239**		**3,781**					
15.1 Consulting services w/o contingencies		162.728		110,359		110,359					13,081		18,575		21,030		18,807		13,960		12,528		9,527		2,852					
15.2 Physical and price contigencies				20,691		20,691					1,317		2,433		3,370		3,606		3,132		3,190		2,712		929					
16 Tax and Duties on the Project Components				**196.778**	**9%**		**196.778**			**341**		**5.098**		**8.332**		**31.231**		**48.718**		**52.466**		**27.486**		**16.544**		**5.740**		**818**		**3**
16.1 Taxes and Duties on the Project Components except C/S				177,120			177,120			341		2,938		5,181		27,571		45,356		49,902		25,128		14,709		5,173		818		3
16.2 Taxes (CIT and VAT) on Consulting Services				19,658			19,658					2,160		3,151		3,660		3,362		2,564		2,358		1,836		567				
17 GRAND TOTAL (10+14+15+16)				**2,254,638**	**100%**	**1,895,132**	**359,505**	**2,254,638**		**11,921**	**27,447**	**19,581**	**72,236**	**21,888**	**299,047**	**46,899**	**487,059**	**63,637**	**526,561**	**69,820**	**266,944**	**43,972**	**160,532**	**31,518**	**55,306**	**21,262**		**24,841**		**4,167**
18 Loan interest during construction			0.30%	**33.587**		33,587				39		193		1,017		2,414		3,950		4,716		5,175		5,345		5,361		5,377		
19 Loan interest during consulting service			0.01%	**93**		93				1		4		6		8		10		12		13		13		13		13		
20 Front end fee			0.20%	**3.790**			3,790			3,790																				
21 GRAND TOTAL (17+18+19+20)				**2,292,107**		**1,928,812**	**363,296**			**15,711**	**27,488**	**19,581**	**72,433**	**21,888**	**300,070**	**46,899**	**489,481**	**63,637**	**530,521**	**69,820**	**271,671**	**43,972**	**165,720**	**31,518**	**60,664**	**21,262**	**5,374**	**24,841**	**5,390**	**4,167**

Table II-5-1 Economic Project Costs

(1) Overall

a. Financial Cost (Unit: VND Million)

No.	Cost Items	Total	JICA	VN
1	Survey and Detailed Planning	65,131	65,131	0
2	Improvement of Watershed Forests	984,878	984,878	0
3	Improvement of Silviculture Infrastructure	112,469	112,469	0
4	Small scale infrastructure	148,755	148,755	0
5	Support for Livelihood Development	44,006	44,006	0
6	Forest Fire Control	16,881	16,881	0
7	**Sub-total (1~6)**	**1,372,120**	**1,372,120**	**0**
8	Project Management	125,580	0	125,580
9	**Sub-total (7+ 8)**	**1,497,700**	**1,372,120**	**125,580**
10	Price contingency	354,225	323,356	30,868
11	**Sub-total (9 + 10)**	**1,851,925**	**1,695,476**	**156,449**
12	Physical Contingency (5 % of 9)	74,885	68,606	6,279
13	Consulting Services (including Physical cont	115,880	115,880	0
14	Price contingency of CS	15,170	15,170	0
15	Tax and duty	196,778	0	196,778
16	**GRAND TOTAL (11+12+13+14+15)**	**2,254,638**	**1,895,133**	**359,505**

b. Economic Cost (Unit: VND Million)

Total	1	2	3	4	5	6	7	8	9	10	11
58,617	0	4,630	18,594	24,162	11,231	0	0	0	0	0	0
638,146	0	0	0	63,774	158,691	204,108	119,636	68,790	23,148	0	0
89,974	0	0	17,669	32,486	34,415	5,404	0	0	0	0	0
119,004	0	0	0	39,668	39,668	39,668	0	0	0	0	0
39,607	0	0	988	1,733	18,114	17,131	1,501	140	0	0	0
15,195	0	5,789	0	8,447	0	959	0	0	0	0	0
960,544	**0**	**10,418**	**37,251**	**170,270**	**262,120**	**267,269**	**121,137**	**68,930**	**23,148**	**0**	**0**
113,019	9,581	11,561	10,442	11,644	10,698	12,007	11,004	9,641	9,641	14,395	2,406
1,073,563	**9,581**	**21,980**	**47,693**	**181,914**	**272,818**	**279,276**	**132,141**	**78,571**	**32,789**	**14,395**	**2,406**
0	0	0	0	0	0	0	0	0	0	0	0
1,073,563	**9,581**	**21,980**	**47,693**	**181,914**	**272,818**	**279,276**	**132,141**	**78,571**	**32,789**	**14,395**	**2,406**
53,678	479	1,099	2,385	9,096	13,641	13,964	6,607	3,929	1,639	720	120
115,880	0	13,758	19,467	21,936	19,694	14,679	13,134	10,152	3,059	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1,243,122	**10,060**	**36,836**	**69,545**	**212,947**	**306,153**	**307,919**	**151,882**	**92,651**	**37,488**	**15,114**	**2,526**

(2) Dien Bien

a. Financial Cost (Unit: VND Million)

No.	Cost Items	Total	JICA	VN
1	Survey and Detailed Planning	10,355	10,355	0
2	Improvement of Watershed Forests	203,303	203,303	0
3	Improvement of Silviculture Infrastructure	40,273	40,273	0
4	Small scale infrastructure	18,626	18,626	0
5	Support for Livelihood Development	5,474	5,474	0
6	Forest Fire Control	3,665	3,665	0
7	**Sub-total (1~6)**	**281,697**	**281,697**	**0**
8	Project Management	21,824	0	21,824
9	**Sub-total (7+ 8)**	**303,521**	**281,697**	**21,824**
10	Price contingency	71,266	66,063	5,203
11	**Sub-total (9 + 10)**	**374,786**	**347,760**	**27,027**
12	Physical Contingency (5 % of 9)	15,176	14,085	1,091
13	Consulting Services (including Physical cont	0	0	0
14	Price contingency of CS	0	0	0
15	Tax and duty	36,401	0	36,401
16	**GRAND TOTAL (11+12+13+14+15)**	**426,364**	**361,845**	**64,519**

b. Economic Cost (Unit: VND Million)

Total	1	2	3	4	5	6	7	8	9	10	11
9,319	0	242	3,255	3,964	1,858	0	0	0	0	0	0
131,724	**0**	**0**	**0**	**13,037**	**32,507**	**42,007**	**24,863**	**14,407**	**4,903**	**0**	**0**
32,218	0	0	6,150	12,404	12,670	994	0	0	0	0	0
14,902	0	0	0	4,967	4,967	4,967	0	0	0	0	0
4,928	0	0	29	256	2,225	2,173	212	35	0	0	0
3,299	0	1,447	0	1,732	0	120	0	0	0	0	0
196,390	**0**	**1,689**	**9,435**	**36,359**	**54,226**	**50,261**	**25,074**	**14,442**	**4,903**	**0**	**0**
19,641	1,821	2,088	1,855	2,012	1,812	2,165	2,026	1,812	1,812	1,787	452
216,030	**1,821**	**3,777**	**11,289**	**38,372**	**56,038**	**52,427**	**27,100**	**16,254**	**6,715**	**1,787**	**452**
0	0	0	0	0	0	0	0	0	0	0	0
216,030	**1,821**	**3,777**	**11,289**	**38,372**	**56,038**	**52,427**	**27,100**	**16,254**	**6,715**	**1,787**	**452**
10,802	91	189	564	1,919	2,802	2,621	1,355	813	336	89	23
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
226,832	**1,912**	**3,966**	**11,854**	**40,290**	**58,840**	**55,048**	**28,455**	**17,067**	**7,050**	**1,876**	**474**

(3) Lai Chau

a. Financial Cost (Unit: VND Million)

No.	Cost Items	Total	JICA	VN
1	Survey and Detailed Planning	22,043	22,043	0
2	Improvement of Watershed Forests	405,258	405,258	0
3	Improvement of Silviculture Infrastructure	42,170	42,170	0
4	Small scale infrastructure	48,118	48,118	0
5	Support for Livelihood Development	14,784	14,784	0
6	Forest Fire Control	4,305	4,305	0
7	**Sub-total (1~6)**	**536,678**	**536,678**	**0**
8	Project Management	22,244	0	22,244
9	**Sub-total (7+ 8)**	**558,922**	**536,678**	**22,244**
10	Price contingency	132,481	127,223	5,259
11	**Sub-total (9 + 10)**	**691,404**	**663,901**	**27,502**
12	Physical Contingency (5 % of 9)	27,946	26,834	1,112
13	Consulting Services (including Physical cont	0	0	0
14	Price contingency of CS	0	0	0
15	Tax and duty	68,653	0	68,653
16	**GRAND TOTAL (11+12+13+14+15)**	**788,003**	**690,735**	**97,267**

b. Economic Cost (Unit: VND Million)

Total	1	2	3	4	5	6	7	8	9	10	11
19,838	0	257	6,838	8,576	4,166	0	0	0	0	0	0
255,982	**0**	**0**	**0**	25,952	**64,706**	**83,903**	**48,175**	**25,541**	**7,705**	**0**	**0**
33,736	0	0	6,534	12,099	13,002	2,101	0	0	0	0	0
38,494	0	0	0	12,831	12,831	12,831	0	0	0	0	0
13,306	0	0	86	704	6,050	5,914	518	35	0	0	0
3,875	0	1,447	0	2,099	0	329	0	0	0	0	0
365,230	**0**	**1,705**	**13,458**	**62,261**	**100,754**	**105,078**	**48,693**	**25,576**	**7,705**	**0**	**0**
20,019	1,821	2,277	2,012	2,012	1,812	2,008	2,215	1,812	1,812	1,787	452
385,249	**1,821**	**3,982**	**15,471**	**64,274**	**102,566**	**107,086**	**50,908**	**27,388**	**9,517**	**1,787**	**452**
0	0	0	0	0	0	0	0	0	0	0	0
385,249	**1,821**	**3,982**	**15,471**	**64,274**	**102,566**	**107,086**	**50,908**	**27,388**	**9,517**	**1,787**	**452**
19,262	91	199	774	3,214	5,128	5,354	2,545	1,369	476	89	23
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
404,511	**1,912**	**4,181**	**16,244**	**67,487**	**107,694**	**112,440**	**53,453**	**28,757**	**9,992**	**1,876**	**474**

(4) Son La

a. Financial Cost (Unit: VND Million)

No.	Cost Items	Total	JICA	VN
1	Survey and Detailed Planning	10,786	10,786	0
2	Improvement of Watershed Forests	185,821	185,821	0
3	Improvement of Silviculture Infrastructure	16,439	16,439	0
4	Small scale infrastructure	27,033	27,033	0
5	Support for Livelihood Development	7,471	7,471	0
6	Forest Fire Control	4,024	4,024	0
7	**Sub-total (1~6)**	**251,574**	**251,574**	**0**
8	Project Management	21,914	0	21,914
9	**Sub-total (7+ 8)**	**273,488**	**251,574**	**21,914**
10	Price contingency	64,897	59,700	5,197
11	**Sub-total (9 + 10)**	**338,385**	**311,274**	**27,110**
12	Physical Contingency (5 % of 9)	22,118	12,579	1,096
13	Consulting Services (including Physical cont	0	0	0
14	Price contingency of CS	0	0	0
15	Tax and duty	32,472	0	32,472
16	**GRAND TOTAL (11+12+13+14+15)**	**392,975**	**323,853**	**60,678**

b. Economic Cost (Unit: VND Million)

Total	1	2	3	4	5	6	7	8	9	10	11
9,708	0	122	3,332	4,248	2,007	0	0	0	0	0	0
120,882	**0**	**0**	**0**	12,185	30,222	38,586	22,456	12,964	4,468	**0**	**0**
13,151	0	0	3,081	4,192	4,621	1,258	0	0	0	0	0
21,626	0	0	0	7,209	7,209	7,209	0	0	0	0	0
6,724	0	0	42	257	3,279	2,856	255	35	0	0	0
3,622	0	1,447	0	2,010	0	165	0	0	0	0	0
175,713	**0**	**1,569**	**6,455**	**30,101**	**47,338**	**50,073**	**22,711**	**12,999**	**4,468**	**0**	**0**
19,722	1,821	2,129	2,012	2,012	1,812	2,008	2,066	1,812	1,812	1,787	452
195,435	**1,821**	**3,697**	**8,467**	**32,113**	**49,149**	**52,081**	**24,777**	**14,811**	**6,280**	**1,787**	**452**
0	0	0	0	0	0	0	0	0	0	0	0
195,435	**1,821**	**3,697**	**8,467**	**32,113**	**49,149**	**52,081**	**24,777**	**14,811**	**6,280**	**1,787**	**452**
9,772	91	185	423	1,606	2,457	2,604	1,239	741	314	89	23
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
205,206	**1,912**	**3,882**	**8,891**	**33,719**	**51,607**	**54,685**	**26,016**	**15,551**	**6,594**	**1,876**	**474**

(5) Hoa Binh

a. Financial Cost (Unit: VND Million)

No.	Cost Items	Total	JICA	VN
1	Survey and Detailed Planning	16,536	16,536	0
2	Improvement of Watershed Forests	190,496	190,496	0
3	Improvement of Silviculture Infrastructure	13,586	13,586	0
4	Small scale infrastructure	54,978	54,978	0
5	Support for Livelihood Development	15,448	15,448	0
6	Forest Fire Control	4,887	4,887	0
7	**Sub-total (1~6)**	**295,930**	**295,930**	**0**
8	Project Management	22,445	0	22,445
9	**Sub-total (7+ 8)**	**318,376**	**295,930**	**22,445**
10	Price contingency	75,037	69,744	5,294
11	**Sub-total (9 + 10)**	**393,413**	**365,674**	**27,739**
12	Physical Contingency (5 % of 9)	15,919	14,797	1,122
13	Consulting Services (including Physical cont	0	0	0
14	Price contingency of CS	0	0	0
15	Tax and duty	37,599	0	37,599
16	**GRAND TOTAL (11+12+13+14+15)**	**446,931**	**380,471**	**66,460**

b. Economic Cost (Unit: VND Million)

Total	1	2	3	4	5	6	7	8	9	10	11
14,882	0	75	5,169	6,907	2,732	0	0	0	0	0	0
129,559	0	0	0	12,599	31,257	39,612	24,141	15,878	6,072	0	0
10,869	0	0	1,903	3,791	4,123	1,051	0	0	0	0	0
43,982	0	0	0	14,661	14,661	14,661	0	0	0	0	0
13,903	0	0	86	516	6,561	6,188	518	35	0	0	0
4,399	0	1,447	0	2,607	0	345	0	0	0	0	0
217,595	**0**	**1,522**	**7,157**	**41,081**	**59,334**	**61,857**	**24,659**	**15,913**	**6,072**	**0**	**0**
20,201	1,821	2,380	2,012	2,012	1,812	2,008	2,294	1,812	1,812	1,787	452
237,795	**1,821**	**3,902**	**9,170**	**43,093**	**61,146**	**63,865**	**26,953**	**17,725**	**7,884**	**1,787**	**452**
0	0	0	0	0	0	0	0	0	0	0	0
237,795	**1,821**	**3,902**	**9,170**	**43,093**	**61,146**	**63,865**	**26,953**	**17,725**	**7,884**	**1,787**	**452**
11,890	91	195	458	2,155	3,057	3,193	1,348	886	394	89	23
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
249,685	**1,912**	**4,097**	**9,628**	**45,248**	**64,203**	**67,058**	**28,300**	**18,611**	**8,278**	**1,876**	**474**

(6) CPMU

a. Financial Cost (Unit: VND Million)

No.	Cost Items	Total	JICA	VN
1	Survey and Detailed Planning	5,411	5,411	0
2	Improvement of Watershed Forests	0	0	0
3	Improvement of Silviculture Infrastructure	0	0	0
4	Small scale infrastructure	0	0	0
5	Support for Livelihood Development	829	829	0
6	Forest Fire Control	0	0	0
7	**Sub-total (1~6)**	**6,240**	**6,240**	**0**
8	Project Management	37,154	0	37,154
9	**Sub-total (7+ 8)**	**43,394**	**6,240**	**37,154**
10	Price contingency	10,543	627	9,916
11	**Sub-total (9 + 10)**	**53,937**	**6,867**	**47,070**
12	Physical Contingency (5 % of 9)	2,170	312	1,858
13	Consulting Services (including Physical cont	115,880	115,880	0
14	Price contingency of CS	15,170	15,170	0
15	Tax and duty	21,653	0	21,653
16	**GRAND TOTAL (11+12+13+14+15)**	**208,810**	**138,229**	**70,581**

b. Economic Cost (Unit: VND Million)

Total	1	2	3	4	5	6	7	8	9	10	11
4,870	0	3,934	0	468	468	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
746	0	0	746	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
5,616	**0**	**3,934**	**746**	**468**	**468**	**0**	**0**	**0**	**0**	**0**	**0**
33,438	2,298	2,688	2,550	3,595	3,452	3,818	2,403	**2,394**	2,394	7,249	599
39,054	**2,298**	**6,622**	**3,296**	**4,063**	**3,920**	**3,818**	**2,403**	**2,394**	**2,394**	**7,249**	**599**
0	0	0	0	0	0	0	0	0	0	0	0
39,054	**2,298**	**6,622**	**3,296**	**4,063**	**3,920**	**3,818**	**2,403**	**2,394**	**2,394**	**7,249**	**599**
1,953	115	331	165	203	196	191	120	120	120	362	30
115,880	0	13,758	19,467	21,936	19,694	14,679	13,134	10,152	3,059	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
156,887	**2,413**	**20,711**	**22,928**	**26,202**	**23,810**	**18,688**	**15,657**	**12,666**	**5,573**	**7,611**	**628**

Table 5-2 Emission Reduction of CO_2 per year by Afforestation and ANR

Project Name

The Preparatory Survey for the Project of Sustainable Forest Management in the Northwest Sub-region in the Socialist Republic of Vietnam

Country

Viet Nam

Emission Reduction

		Value	Unit
$ER_{AR,y}$	Net absorption	165825	tCO_2/year
$\Delta C_{PJ,y}$	Project absorption	195177	tCO_2/year
$\Delta C_{BL,y}$	Baseline absorption	0	tCO2/year
PE_y	Project emission	29352	tCO_2/year

Inputs

*Input only orange cell

Parameter	Description		Value	Unit
$A_{PJ,i}$	Acreage of the stratum i in the forested land	AFF-01A Pinus massonia	6965	ha
		AFF-01A Schima wallichii Choisy	6965	ha
		AFF-01B Acasia Mangium	0	ha
		AFF-01B Chukrasia tabularis	6965	ha
		ANR	12500	ha
		AFF-02	2080	ha
$T_{A,y,i}$	Per hectare aboveground biomass in the stratum i in year y	AFF-01A Pinus massonia	6.23	t dm/ha
		AFF-01A Schima wallichii Choisy	5.06	t dm/ha
		AFF-01B Acasia Mangium	0.00	t dm/ha
		AFF-01B Chukrasia tabularis	8.1361	t dm/ha
		ANR	2.68	t dm/ha
		AFF-02	8.14	t dm/ha
$T_{A,y-1,i}$	Per hectare aboveground biomass in the stratum i in year y-1	AFF-01A Pinus massonia	4.10	t dm/ha
		AFF-01A Schima wallichii Choisy	2.45	t dm/ha
		AFF-01B Acasia Mangium	0.00	t dm/ha
		AFF-01B Chukrasia tabularis	4.13	t dm/ha
		ANR	1.35	t dm/ha
		AFF-02	4.13	t dm/ha
CF_i	Carbon fraction of trees in the stratum i	AFF-01A Pinus massonia	0.5	tC/tdm
		AFF-01A Schima wallichii Choisy	0.5	tC/tdm
		AFF-01B Acasia Mangium	0	tC/tdm
		AFF-01B Chukrasia tabularis	0.5	tC/tdm
		ANR	0.47	tC/tdm
		AFF-02	0.5	tC/tdm
R_i	Ratio of belowground biomass to aboveground biomass (ratio of belowground vs. aboveground) for the stratum i	AFF-01A Pinus massonia	0.265	
		AFF-01A Schima wallichii Choisy	0.265	
		AFF-01B Acasia Mangium	0.265	
		AFF-01B Chukrasia tabularis	0.265	
		ANR	0.203	
		AFF-02	0.265	
$A_{gr,j}$	Acreage of the stratum j	Ia (Grass land)	9930	ha
		Ib (bush, small trees)	6080	ha
		Ic, II, III	12500	ha
				ha
$V_{A,py,j}$	Per hectare aboveground biomass in the stratum j in the year of clearance	Ia (bare lands/grass lands)	1	t dm/ha
		Ib (bushes/scrubs)	1	t dm/ha
		Ic, II, III	0	t dm/ha
				t dm/ha
R_j	Ratio of belowground biomass to aboveground biomass for the stratum j	Ia (bare lands/grass lands)	0	
		Ib (bushes/scrubs)	0	
		Ic, II, III	0	

Table 5-3 Emission Reduction of CO_2 per year by Reduction of Deforestation and Forest Degradation

Project Name

The Preparatory Survey for the Project of Sustainable Forest Management in the Northwest Sub-region in the Socialist Republic of Vietnam

Country

Viet Nam

Emission Reduction

		Value	Unit
$ER_{AR,y}$	Emission reduction	338,499	tCO_2/year
$\Delta C_{PJ,y}$	Project emission	0	tCO_2/year
$\Delta C_{BL,y}$	Baseline emission	398234	tCO_2/year
$\Delta C_{LK,y}$	Leakage	59735	tCO_2/year

Inputs

*Input only orange cell

Parameter	Description		Value	Unit
$A_{BL,y,k}$	Acreage of the stratum k in the forest in the year y in the case of without project	Evergreen broadleaf forest, rich forest	6365.5	ha
		Evergreen broadleaf forest, medium forest	11888.8	ha
		Evergreen broadleaf forest, poor forest	18100.3	ha
				ha
				ha
$A_{BL,y+1,k}$	Acreage of the stratum k in the forest in the year y+1 in the case of without project	Evergreen broadleaf forest, rich forest	5886.155761	ha
		Evergreen broadleaf forest, medium forest	11620.2179	ha
		Evergreen broadleaf forest, poor forest	17721.7737	ha
				ha
				ha
$A_{PJ,y,k}$	Acreage of the stratum k in the forest in the year y in the case of project	Evergreen broadleaf forest, rich forest	6365.5	ha
		Evergreen broadleaf forest, medium forest	11888.8	ha
		Evergreen broadleaf forest, poor forest	18100.3	ha
				ha
				ha
$A_{PJ,y+1,k}$	Acreage of the stratum k in the forest in the year y+1 in the case of project	Evergreen broadleaf forest, rich forest	6365.5	ha
		Evergreen broadleaf forest, medium forest	11888.8	ha
		Evergreen broadleaf forest, poor forest	18100.3	ha
				ha
				ha
$TT_{A,y,k}$	Per hectare aboveground biomass in the stratum k in year y	Evergreen broadleaf forest, rich forest	267	tdm/ha
		Evergreen broadleaf forest, medium forest	143	tdm/ha
		Evergreen broadleaf forest, poor forest	71	tdm/ha
				tdm/ha
				tdm/ha
CF_k	Carbon fraction of trees in the strata i	Evergreen broadleaf forest, rich forest	0.47	tC/tdm
		Evergreen broadleaf forest, medium forest	0.47	tC/tdm
		Evergreen broadleaf forest, poor forest	0.47	tC/tdm
				tC/tdm
				tC/tdm
R_k	Ratio of belowground biomass to aboveground biomass (ratio of belowground vs. aboveground) for the stratum i	Evergreen broadleaf forest, rich forest	0.1927	
		Evergreen broadleaf forest, medium forest	0.1982	
		Evergreen broadleaf forest, poor forest	0.1965	

Table II-5-4 Summary of Cost Benefit Analysis of the Project

Year	Project Cost							O&M and Replacement		Total Cost	Benefit				Balance
	Survey and Detailed Planning	Improvement of Watershed Forest	Improvement of Silviculture Infrastructure	Improvement of Rural Infrastructure	Support for Livelihood Development	Forest Fire Control	Other Costs	Forest Management	Silviculture and Rural Infrastructure		Sales of forest product	REDD+ (CO2 sequestration)	REDD+ (Reduction of GHG emission	Total	
1	0	0	0	0	0	0	10,060	0	0	10,060	0	0	0	0	-10,060
2	4,630	0	0	0	0	5,789	26,418	0	0	36,836	0	0	0	0	-36,836
3	18,594	0	17,669	0	988	0	32,294	0	0	69,545	0	0	0	0	-69,545
4	24,162	63,774	32,486	39,668	1,733	8,447	42,676	0	0	212,947	0	12,014	24,524	36,537	-176,409
5	11,231	158,691	34,415	39,668	18,114	0	44,033	0	0	306,153	0	12,014	24,524	36,537	-269,616
6	0	204,108	5,404	39,668	17,131	959	40,650	0	0	307,919	0	12,014	24,524	36,537	-271,382
7		119,636	0	0	1,501	0	30,745	0	2,090	153,972	0	12,014	24,524	36,537	-117,435
8			0	0	140	0	23,721	68,790	2,090	94,741	26,902	12,014	24,524	63,440	-31,302
9					0	0	14,340	23,148	2,090	39,578	53,805	12,014	24,524	90,342	50,764
10							15,114	35,340	2,090	52,544	96,470	12,014	24,524	133,007	80,464
11								33,835	2,090	35,925	85,331	12,014	24,524	121,868	85,944
12								33,835	2,090	35,925	85,331	12,014	24,524	121,868	85,944
13								36,838	2,090	38,928	71,740	12,014	24,524	108,277	69,349
14								54,076	2,090	56,166	143,479	12,014	24,524	180,016	123,850
15								56,869	2,090	58,959	156,342	12,014	24,524	192,879	133,920
16								25,185	2,090	27,275	25,726	12,014	24,524	62,263	34,989
17								25,185	2,090	27,275	25,726	12,014	24,524	62,263	34,989
18								21,591	2,090	23,681	65,297	12,014	24,524	101,834	78,154
19								25,573	2,090	27,663	195,891	12,014	24,524	232,428	204,765
20								33,681	2,090	35,770	345,734	12,014	24,524	382,272	346,501
21								37,408	2,090	39,498	351,925	12,014	24,524	388,463	348,965
22								36,612	2,090	38,702	325,806	12,014	24,524	362,344	323,642
23								27,564	4,386	31,950	261,188	12,014	24,524	297,725	265,775
24								27,564	14,304	41,868	261,188	12,014	24,524	297,725	255,857
25								27,564	14,913	42,477	261,188	12,014	24,524	297,725	255,248
26								27,564	14,671	42,235	261,188	12,014	24,524	297,725	255,490
27								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
28								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
29								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
30								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
31								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
32								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
33								27,564	4,638	32,202	261,188	12,014	24,524	297,725	265,523
34								27,564	6,041	33,605	261,188	12,014	24,524	297,725	264,120
35								27,564	5,486	33,050	261,188	12,014	24,524	297,725	264,675
36								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
37								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
38								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
39								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
40								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
41								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
42								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
43								27,564	2,090	29,654	261,188	12,014	24,524	297,725	268,071
									NPV	986,495			NPV	1,061,531	75,037
														B/C	1.08
														EIRR	10.7%

Table II-5-5 Results of Sensitivity Analyses

Year	Case 0: Base Case			Case 1: Cost 10% Up			Case 2: Cost 20% Up			Case 4: Benefit 10% Down			Case 5: Benefit 20% Down		
	Total Cost	Total Benefit	Balance	Total Cost	Total Benefit	Balance	Total Cost	Total Benefit	Balance	Total Cost	Total Benefit	Balance	Total Cost	Total Benefit	Balance
1	10,060	0	-10,060	11,065	0	-11,065	12,071	0	-12,071	10,060	0	-10,060	10,060	0	-10,060
2	36,836	0	-36,836	40,520	0	-40,520	44,204	0	-44,204	36,836	0	-36,836	36,836	0	-36,836
3	69,545	0	-69,545	76,499	0	-76,499	83,454	0	-83,454	69,545	0	-69,545	69,545	0	-69,545
4	212,947	36,537	-176,409	234,241	36,537	-197,704	255,536	36,537	-218,999	212,947	32,884	-180,063	212,947	29,230	-183,717
5	306,153	36,537	-269,616	336,769	36,537	-300,231	367,384	36,537	-330,847	306,153	32,884	-273,270	306,153	29,230	-276,924
6	307,919	36,537	-271,382	338,711	36,537	-302,174	369,503	36,537	-332,966	307,919	32,884	-275,036	307,919	29,230	-278,689
7	153,972	36,537	-117,435	169,369	36,537	-132,832	184,766	36,537	-148,229	153,972	32,884	-121,088	153,972	29,230	-124,742
8	94,741	63,440	-31,302	104,215	63,440	-40,776	113,689	63,440	-50,250	94,741	57,096	-37,646	94,741	50,752	-43,990
9	39,578	90,342	50,764	43,535	90,342	46,807	47,493	90,342	42,849	39,578	81,308	41,730	39,578	72,274	32,696
10	52,544	133,007	80,464	57,798	133,007	75,209	63,053	133,007	69,955	52,544	119,707	67,163	52,544	106,406	53,862
11	35,925	121,868	85,944	39,517	121,868	82,351	43,109	121,868	78,759	35,925	109,682	73,757	35,925	97,495	61,570
12	35,925	121,868	85,944	39,517	121,868	82,351	43,109	121,868	78,759	35,925	109,682	73,757	35,925	97,495	61,570
13	38,928	108,277	69,349	42,821	108,277	65,456	46,713	108,277	61,563	38,928	97,449	58,521	38,928	86,621	47,694
14	56,166	180,016	123,850	61,783	180,016	118,234	67,399	180,016	112,617	56,166	162,015	105,848	56,166	144,013	87,847
15	58,959	192,879	133,920	64,855	192,879	128,025	70,751	192,879	122,129	58,959	173,591	114,633	58,959	154,303	95,345
16	27,275	62,263	34,989	30,002	62,263	32,261	32,730	62,263	29,534	27,275	56,037	28,762	27,275	49,811	22,536
17	27,275	62,263	34,989	30,002	62,263	32,261	32,730	62,263	29,534	27,275	56,037	28,762	27,275	49,811	22,536
18	23,681	101,834	78,154	26,049	101,834	75,786	28,417	101,834	73,418	23,681	91,651	67,970	23,681	81,467	57,787
19	27,663	232,428	204,765	30,429	232,428	201,999	33,195	232,428	199,233	27,663	209,185	181,523	27,663	185,942	158,280
20	35,770	382,272	346,501	39,347	382,272	342,924	42,924	382,272	339,347	35,770	344,045	308,274	35,770	305,817	270,047
21	39,498	388,463	348,965	43,448	388,463	345,015	47,398	388,463	341,065	39,498	349,616	310,118	39,498	310,770	271,272
22	38,702	362,344	323,642	42,572	362,344	319,772	46,442	362,344	315,902	38,702	326,109	287,408	38,702	289,875	251,174
23	31,950	297,725	265,775	35,145	297,725	262,580	38,340	297,725	259,385	31,950	267,952	236,003	31,950	238,180	206,230
24	41,868	297,725	255,857	46,054	297,725	251,670	50,241	297,725	247,484	41,868	267,952	226,085	41,868	238,180	196,312
25	42,477	297,725	255,248	46,724	297,725	251,001	50,972	297,725	246,753	42,477	267,952	225,476	42,477	238,180	195,703
26	42,235	297,725	255,490	46,458	297,725	251,267	50,682	297,725	247,043	42,235	267,952	225,718	42,235	238,180	195,945
27	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
28	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
29	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
30	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
31	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
32	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
33	32,202	297,725	265,523	35,422	297,725	262,303	38,642	297,725	259,083	32,202	267,952	235,751	32,202	238,180	205,978
34	33,605	297,725	264,120	36,965	297,725	260,760	40,326	297,725	257,399	33,605	267,952	234,348	33,605	238,180	204,575
35	33,050	297,725	264,675	36,355	297,725	261,370	39,660	297,725	258,065	33,050	267,952	234,903	33,050	238,180	205,130
36	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
37	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
38	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
39	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
40	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
41	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
42	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
43	29,654	297,725	268,071	32,619	297,725	265,106	35,584	297,725	262,141	29,654	267,952	238,299	29,654	238,180	208,526
NPV	**986,495**	**1,061,531**	**75,037**	**1,085,144**	**1,061,531**	**-23,613**	**1,183,793**	**1,061,531**	**-122,262**	**986,495**	**955,378**	**-31,117**	**986,495**	**849,225**	**-137,270**
		B/C	**1.08**		**B/C**	**0.98**		**B/C**	**0.90**		**B/C**	**0.97**		**B/C**	**0.86**
		EIRR	**10.7%**		**EIRR**	**9.8%**		**EIRR**	**9.0%**		**EIRR**	**9.7%**		**EIRR**	**8.6%**

Table II-6-1 (1) Draft Environmental Checklists (Forestry Project)

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N/A (d) N	(a) As regulated in the Decree No 18/2015/ND-CP dated February 14th 2015 and Circular No 27/2015/TT-BTNMT dated May 29th 2015, an EIA is required as part of the project approval process on GoV side but has not been conducted yet. (b) EIA report shall be prepared by the project proponent (MBFPs) and submitted to MONRE for obtaining of approval before submission of pre-F/S for approval of PM. (c) See above. (d) Beyond the project-level EIA, no further approvals are required.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Stakeholder Consultation Meetings were held during the project preparation survey, however this was restricted to consultations with local level government authorities and mass organisations and did not include adequate consultation with project affected communities and households. Further consultation is therefore required specifically at project site levels prior to implementation of specific activities. Such consultation is provided for in the ESMF - see Consultation and Participation Guidelines (Appendix D) (b) Comments from project stakeholders (Forest Management Boards, Local government authorities (PPC, CPC, DARD, DoNRE, CEMA etc.) and mass organisations) were noted and reflected in project design. However, comments from affected communities and households should be absorbed into detailed design of interventions at the site level.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Full consideration of an alternative for the project has not been considered however the project design has been examined with respect to environmental and social considerations during the preparatory survey. Certain activities have been eliminated or altered so as to ensure that environmental and social impacts are avoided, minimised or otherwise mitigated during implementation (see ESMF).
2 Pollution Control	(1) Air Quality	(a) Do air pollutants, such as dust, soot and dust, sulphur oxides (SOx), nitrogen oxides (NOx), and organic chemical substances emitted from various sources, such as logging operations, forest products manufacturing processes, and incinerators comply with the country's emission standards and ambient air quality standards? Are any mitigating measures taken?	(a) N/A	(a) There will be no project activities with any significant impact in terms of air pollution.
	(2) Water Quality	(a) Is there a possibility that the use of chemicals, such as fertilizers, and agrochemicals will cause water pollution? (b) Where facilities, such as forest products manufacturing facilities are installed, do effluents from the facilities comply with the country's effluent standards and ambient water quality standards?	(a) N (b) N	(a)There may be some limited use of fertilizer in afforestation and fertilizers/pesticides for certain agricultural/NTFP livelihood activities, however these will have a very minimal environmental impact. In general the project will promote organic farming and the use of bio-fertilizers. In case that this is not feasible in certain areas and the use of chemicals is inevitable for some agricultural livelihood models, the project will develop instructions on the use of fertilizers/pesticides throughout the

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
				introduction of farming good practices. There will not be any noticeable impact on water sources. (b) There will be no 'manufacturing' of forest products under the project, except for small scale honey production. No pulp, paper or timber operations with factories etc. Thus any associated effluent and effect on water sources/supply will be nil or negligible.
	(3) Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations?	(a) Y	(a) There will not be any significant waste associated with project activities since there will be no manufacturing.
	(4) Soil Contamination	(a) Are adequate measures taken to prevent contamination of soil and groundwater by use of chemicals, such as agrochemicals? (b) Are any agrochemicals management plans prepared? Are any usages or any implementation structures organized for proper use of the plans?	(a) N/A (b) N/A	(a) Use of such chemicals will be minimal under the project (b) Agricultural livelihood interventions in the project are very small scale and mainly restricted to technical trainings with limited provision of inputs such as the provision of fertilizers and pesticides. Agricultural models will not promote the extensive use of agrochemicals, indeed organic production models are preferred.
3 Natural Environ-ment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) Y	(a) The project will not involve any significant discharge from construction or other production activities such as wood processing. The project aims to implement the forest development and improvement activities in protected areas (e.g., nature reserves); however, the project interventions are primarily beneficial to the conservation and protection of the protected areas. In addition, the project will strengthen the capacity of SUFMBs concerned, which will further contribute to strengthen the management of the protected areas.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation? (d) Is there a possibility that a large-scale timber harvesting will result in loss of breeding and feeding grounds for wildlife? (e) In the case of reforestation projects, is there a possibility that mono-species plantations will adversely affect wildlife habitats? Is there a possibility that mono-species plantations will cause outbreaks of pests? (f) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (g) Isn't an illegal deforestation associated with the project being carried out, or is an acquisition of the forest certification by the project proponent being carried out?	(a) Y (b) Y (c) N (d) N (e) N (f) N/A (g) N	(a) The project will be implemented at several protected area sites and in other tropical rain forest areas. However, project interventions are aimed at forest protection and restoration. (b) A number of the forest sites, especially the designated protected area sites, include important habitats for endangered species. However, project interventions are primarily beneficial (and not damaging) to the conservation and protection of the protected areas (c) No large scale timber harvesting activities (d) No large scale timber harvesting activities (e) Mix planting of indigenous species and fast growing species is the main design of afforestation in protection forests, while planting of several indigenous species is the main design of the same in nature reserves. (f) Significant ecological impacts are not anticipated since sub-projects activities with significant ecological impacts are eliminated (see Negative Checklist in ESMF Appendix A) (g) The project supports sustainable forest development and protection and thus does not include any significant deforestation activities. Moreover, any clearance of natural forest is also eliminated through the Negative Checklist in ESMF Appendix A.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(3) Hydrology	(a) Is there a possibility that alteration of rainwater runoff and runoff characteristics due to a large-scale timber harvesting and access road construction will cause impacts on the hydrology of the surrounding areas? (b) Is there a possibility that decreased water retention capacity due to deforestation will affect the existing drainage patterns of the forest?	(a) N (b) N	(a) There is no large scale timber harvesting activities planned in the project. (b) The project supports sustainable forest development and protection and thus does not include any significant deforestation activities. The project is aimed at enhancing water retention in critical watersheds.
	(4) Topography and Geology	(a) Is there a possibility that loss of forest stability due to timber harvesting will cause slope failures or landslides?	(a) N	(a) There is no significant timber harvesting activities planned in the project, although some minimal clearance may be associated with establishment of fire-breaks, constructing forest roads, and upgrading small scale village roads.
	(5) Management of Abandoned Sites	(a) Are adequate restoration and vegetation plans considered for the harvested areas? In particular, are adequate measures taken to prevent soil runoff from the harvested areas? (b) Is a sustainable management system for the harvested areas established? (c) Are adequate financial provisions secured to manage the harvested areas?	(a) N/A (b) N/A (c) N/A	(a) There is no significant timber harvesting activities planned. (b) Ditto (c) Ditto
4 Social Environ-ment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) N (b) N/A (c) N/A (d) N/A (e) N/A (f) N/A (g) N/A (h) N/A (i) N/A (j) Y	(a) There will be no physical displacement nor land acquisition under the project. (b) There will not be any resettlement associated with the project. (c) Ditto. (d) Ditto. (e) Ditto. (f) Ditto. (g) Ditto. (h) Ditto. (i) Ditto. (j) Guidance on GRM is prepared as part of IPPF substantive requirements and included as part of the Consultation and Participation Guidelines (ESMF Appendix D)
	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? Is particular attention paid to the inhabitants whose livelihoods are based on primary industries, such as farming, raising livestock, or hunting and gathering in the forests? (b) Are adequate measures taken to prevent illegal entry into the forestry resource areas from the outside through newly constructed access roads? (c) Is there a possibility that the forest right of common is obstructed?	(a) N (b) N/A (c) N (d) Y	(a) There may be the possibility for some loss of access to productive assets and livelihoods by introduction of afforestation and ANR activities in lands under customary use. However, this threat can be avoided and mitigated through consultations with local communities including participatory land use planning activities planned in the project. Procedures and measures for consultations are described in Consultation and Participation Guidelines of ESMF. In fact, it is expected that local people can increase their cash earnings through participation of the project because of the following reasons:

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(d) Are considerations given to life of residents before implementation of project?		- In general, the project will use abandoned areas where local communities have left as fallow over years and do not plan to use for farming in coming years; and - Local communities will gain cash income from the forest development and improvement activities during the project period; and - They will be able to earn cash income from thinning of subordinate (economic) species, collection of NTFPs, and payment of PFES after the end of the project under the collaborative management agreement with PFMBs/ SUFMBs. (b) Forestry road is basically developed for carrying seedlings for afforestation and patrolling the areas. Hence, the major part of it will be just good for motorbike use, which cannot be used for transportation of timber illegally cut. (c) The project does not include activities which significantly strengthen forest law enforcement or create additional restrictions of access to forest lands and resources (d) A socio-economic baseline survey is planned to be conducted in the beginning of the project to clarify the life of local communities residing in the project areas. Consultations will also be carried out to give due considerations to local livelihoods and life style in making detailed designs of the project activities. Detailed description of consultation and participation procedures to be applied prior to and during project implementation are included in ESMF (Please see ESMF Appendix D).
	(3) Heritage	(a) Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) There is no archaeological, historical, cultural, and religious heritage sites in and around the project areas.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) The project promotes sustainable forest development and protection, as such it aims to enhance local landscapes.
4 Social Environ-ment	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) Y (b) Y	(a) An Integrated ESMF is prepared to meet the substantive requirements of an IPPF, which details the procedures for consultations to reduce and minimize impacts on culture and lifestyle of ethnic minorities in the Consultation and Participation Guidelines (see ESMF Appendix D). (b) The project avoids any involuntary resettlement or formal land acquisition of ethnic minority households. The project does not include significant additional restrictions on access to forest resources. Where there are situations of existing latent land tenure conflict these are to be resolved through a process of free, prior and informed consultation (FPIC) leading to broad community support and agreements on spatial land use plans which acknowledge customary/informal land use areas to avoid and mitigate any loss of livelihoods (see ESMF, especially Appendix D).

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N/A (b) N/A (c) N/A (d) N/A	(a) No physical development relating to forestry development is planned in the project. (b) Ditto. (c) The majority of the works to be undertaken by local communities are simple and less dangerous, as they are similar to farming activities, such as weeding, hole digging, carrying materials, and planting seedlings. Hence, health program and safety training are not necessarily required for the project. (d) No security guard will be placed in the project.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) N/A (b) N/A (c) N/A	(a) No physical development relating to forestry development is planned in the project. (b) Ditto. (c) Ditto.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) N/A (b) N/A (c) N/A (d) N/A	(a) Environmental Management and Monitoring Framework developed in ESMF can be used for the basis of monitoring plan. (b) Ditto. (c) Ditto. (d) Environmental monitoring will be carried out as a part of regular monitoring defied by Decision No. 18/2016.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Agriculture checklist should also be checked.	(a) N/A	(a) Agricultural activities under the project are extremely small-scale, restricted mainly to capacity-building and do not involve significant environmental or social risks.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to trans-boundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as trans\boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N/A	(a) No significant negative impacts on trans-boundary or global issues are expected. To the contrary, the project is expected to enhance GHG sequestration as forest carbon sinks.

Remarks: "Y," "N," and "N/A" means "Yes," "No," and "Not Applicable."

Note:

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

Table II-6-1 (2) Environmental Checklists (Silviculture and Small Scale Rural Infrastructure Project)

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N (d) N	(a) As regulated in the Decree No 18/2015/ND-CP dated February 14th 2015 and Circular No 27/2015/TT-BTNMT dated May 29th 2015, an EIA is required as part of the project approval process on GoV side but has not been conducted yet. (b) EIA report shall be prepared by the project proponent (MBFPs) and submitted to MONRE for obtaining of approval before submission of pre-F/S for approval of PM. (c) See above. (d) Beyond the project-level EIA, no further approvals are required.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Stakeholder Consultation Meetings were held during the project preparation survey, however this was restricted to consultations with local level government authorities and mass organisations and did not include adequate consultation with project affected communities and households. Further consultation is therefore required specifically at project site levels prior to implementation of specific activities. Such consultation is provided for in the ESMF - see Consultation and Participation Guidelines (Appendix D) (b) Comments from project stakeholders (Forest Management Boards, Local government authorities (PPC, CPC, DARD, DoNRE, CEMA etc.) and mass organisations) were noted and reflected in project design. However, comments from affected communities and households should be absorbed into detailed design of interventions at the site level.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Full consideration of an alternative for the project has not been considered however the project design has been examined with respect to environmental and social considerations during the preparatory survey. Certain activities have been eliminated or altered so as to ensure that environmental and social impacts are avoided, minimised or otherwise mitigated during implementation (see ESMF).
2 Pollution Control	(1) Air Quality	(a) Do air pollutants, (such as sulphur oxides (SOx), nitrogen oxides (NOx), and soot and dust) emitted from the proposed infrastructure facilities and ancillary facilities comply with the country's emission standards and ambient air quality standards? Are any mitigating measures taken? (b) Are electric and heat source at accommodation used fuel which emission factor is low?	(a) N/A (b) N/A	(a) The rehabilitation/upgrading of small-scale rural infrastructure and silviculture infrastructure could generate unnoticeable dust. However, these impacts are inconsiderably temporal and below the country's emission standard. These potential risks will be further minimized by following the environmental management plan, particularly the Environmental Code of Practice (ECOP) given by ESMF. ECOPs outline typical generic low risk techniques that can be applied to a wide range of small scale temporary construction activities in the four provinces. ECOPs include mitigation measures and procedures for introduction of mitigation measures in the construction works. They include mitigation measures for these impacts and a process for including them in the construction contracts of contractors. Detailed designs shall be developed in accordance with ECOPs and also other specific measures identified in the environmental management plan. (b) All the construction work is seasonal and temporal. In fact, the construction period is

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
				estimated at less than 6 months in general. Therefore, no electric and heat source is required during the construction. Furthermore, no infrastructure development associated with an electric and heat source is planned in the project.
	(2) Water Quality	(a) Do effluents or leachates from various facilities, such as infrastructure facilities and the ancillary facilities comply with the country's effluent standards and ambient water quality standards?	(a) Y	(a) The rehabilitation/upgrading of small-scale rural infrastructure and silviculture infrastructure could only generate small amount of effluents; therefore, these impacts are inconsiderably temporal and below the country's emission standard. However, EMP/ECOP included in ESMF specifies the mitigation measures to control the effluent to minimize the water pollution during the construction phase.
	(3) Wastes	(a) Are wastes from the infrastructure facilities and ancillary facilities properly treated and disposed of in accordance with the country's regulations?	(a) Y	(a) There will not be any significant waste associated with project activities since any small-scale issues of waste will be dealt with according to national regulations and in accordance with the proposed Environmental Code of Practice (ECOP - see ESMF Appendix C).
	(4) Soil Contaminatio n	(a) Are adequate measures taken to prevent contamination of soil and groundwater by the effluents or leachates from the infrastructure facilities and the ancillary facilities?	(a) Y	(a) Likewise, the impact will be temporal and minimal, and a potential risk of effluents will be strictly dealt with by applying the ECOPs.
	(5) Noise and Vibration	(a) Do noise and vibrations comply with the country's standards?	(a) Y	(a) Given that small-scale rural infrastructure focuses on rehabilitation/ upgrading and the scale of silviculture infrastructure is small, noise and vibration are expected to be very small. Furthermore, the locations of the construction sites are remote and mountainous areas, there will be less households who might be affected by the construction. Moreover, the issue can be properly dealt with by applying the noise/vibration mitigation measure described in the ECOPs.
	(6) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N/A	a) No extraction of a large volume of groundwater is associated with the construction works of such small scale infrastructure and silviculture infrastructure.
	(7) Odor	(a) Are there any odor sources? Are adequate odor control measures taken?	(a) N	a) No odor sources are foreseen during the project implementation.
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas? (b) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) Y	(a) The project will not involve any significant discharge from construction. (B) No physical development of small scale rural infrastructure is planned in the project. Only minor works, such as set-ups of watch towers and information boards, may be undertaken in the special use forests. However, they are generally simple interventions which will not disturb ecosystem around them. Moreover, they are primarily part of the management works of SUFMBs concerned and beneficial to strengthening of conservation and protection in the protected areas.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on ecosystems? (d) Are adequate protection measures taken to prevent impacts, such as distribution	(a) N (b) N (c) Y (d) Y (e) Y (f) N/Y	(a) No infrastructure development even watch tower and information board is not planned in primary forests and tropical rain forests, which are designated as strictly conservation sub-zone. (b) As described above, no infrastructure development is planned in the protected habitats (or nature reserves). Any potential impacts on ecosystems in protection forests can be eliminated by applying the Negative Checklist given in ESMF. (c) Only motorbike road is proposed as the forestry road in principle so as to minimize significant negative impact on ecosystems. All

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystem due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environment?		construction works for small scale rural infrastructure are upgrading of existing facilities; hence, the construction works will be extremely small-scale and temporal. Furthermore, any potential impacts can be minimized or prevented by application of the negative checklists and mitigation measures described in in the ECOPs of the ESMF. (d) Ditto. (e) Natural vegetation might be cleared by installation of the forestry road. However, as described above, the installation of motorbike road can mitigate such a risk. Furthermore, forestry road (either motorbike road or forestry road) will not be developed in existing forests but in degraded vegetation areas; hence destruction of forest is considered minimal. Again, the application of the negative checklists and mitigation measures described in in the ECOPs could minimize the risk. (f) Any infrastructure development will not be undertaken in undeveloped areas.
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to the project will adversely affect surface water and groundwater flows? (b) Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?	(a) N (b) N/Y	(a) Given that the scale and scope of "improvement of small-scale rural infrastructure" and "development of silviculture infrastructure" and small and scattered, and mainly focus on rehabilitation/upgrading of existing facilities, the potential risks on surface water and groundwater flows are expected to be minimal. Furthermore, the impacts on surface water and groundwater flows can be eliminated by applying the Negative Checklist in ESMF. In addition, the ECOPs with mitigation measures will help the contractors not to cause any adverse impacts. (b) No physical development which might cause the alteration of topographic features is planned in the project.
	(4) Topography and Geology	(a) Is there a possibility the project will cause large-scale alteration of the topographic features and geologic structures in the project site and surrounding areas? (b) Is there any soft ground on the route that may cause slope failure or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (c) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides (d) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) N	(a) No large scale alternation of topographic features and geologic structures are expected and eliminated by using the Negative Checklist. (b) The size and scale of construction works are minimal and the extent of ground work is limited. The potential risk of slope failure and landslide can also be minimize and eliminated by application of the negative checklist and mitigation measures described in in the ECOPs. (c) Some cutting and filling will be associated with construction of motorbike/forestry road as well as improvement of rural roads. However, the size of filling and cutting is minimal; therefore the potential impacts is likely negligible. ECOPs describe the necessary mitigation measures to protect slopes (cutting and filling areas) from erosion and failures. (d) In theory, there is possibility that soil runoff can happen in cut and fill areas. However, the size of the construction site is general minimal and construction period is seasonal (mainly dry season) and temporal, hence the potential risk is also minimal. Plus, the application of the mitigation measures described in in the ECOPs can further minimize the risks.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?	(a) N (b) N/A (c) N/A (d) N/A (e) N/A	(a) There will be no physical displacement nor land acquisition under the project. (b) There will not be any resettlement associated with the project. (c) Ditto

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(f) N/A (g) N/A (h) N/A (i) N/A (j) Y	(d) Ditto (e) Ditto (f) Ditto (g) Ditto (h) Ditto (i) Ditto (j) Guidance on GRM is prepared as part of IPPF substantive requirements and included as part of the Consultation and Participation Guidelines (ESMF).
	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? (b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target populations? Are adequate measures considered to reduce the impact, if necessary? (c) Is there any possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary? (d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas? (e) Is there any possibility that roads will impede the movement inhabitants? (f) Is there any possibility that structures associated with roads will cause a sun shading and radio interference?	(a) N (b) N (c) N (d) N (e) N (f) N	(a) The rehabilitation/upgrading of small-scale rural infrastructure and silviculture infrastructure will not adversely affect the living conditions of inhabitants. However, ESMF includes a detailed description of consultation and participation procedures to be applied for the adequate consideration of local livelihoods and consultation with affected communities and households prior to and during project implementation (see ESMF Appendix D). (b) No adverse influence is caused by the project. If anything, all the small scale rural infrastructure will give substantial benefits to local communities and improve their living conditions. (c) The construction works for all the infrastructure is at the small scale, hence, casual labourers will be mainly local people living in the target areas. The risk of the outbreak of HIV or other transmittable diseases is limited. (d) There is no possibility of affecting the existing road traffic. (e) There is no possibility of impeding the movement of inhabitants as the scale of the planned rural and silviculture infrastructure facilities is small. (f) There is no possibility of sun shading and radio interference.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) There is no archaeological, historical, cultural, and religious heritage sites in and around the project areas. Also any such activities can be further eliminated by using a negative checklist presented in ESMF Appendix A.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken? (b) Is there a possibility that landscape is spoiled by construction of high-rise buildings such as huge hotels?	(a) N (b) N	(a) The project will not adversely affect the local landscapes. (b) No high building is proposed in the project

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) Y (b) Y	(a) An Integrated ESMF is prepared to meet the substantive requirements of an IPPF, which details the procedures for consultations to reduce and minimize impacts on culture and lifestyle of ethnic minorities in the Consultation and Participation Guidelines (see ESMF Appendix D). (b) Any involuntary resettlement or land acquisition will not occur along with improvement of small scale rural infrastructure and development of silviculture infrastructure in general. In the process of free, prior and informed consultation (FPIC), which leads the participatory land use planning, the proposed locations of village roads or forest roads to be developed could be discuss with local communities to avoid land acquisition and cause any loos of livelihood.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) Y (c) Y (d) Y	(a) The project will not violate any laws regarding working conditions (see Environmental Code of Practice in ESMF Appendix C) (b) Environmental Code of Practice in ESMF Annex C is included the content of Worker safety which require the worker should wear protective labour equipment at construction site. (c) Environmental Code of Practice in ESMF Appendix C include the contractor's workers environmental code of conducts to cope with risk and emergency at construction site and provide training for workers on occupational safety regulations. (d)Environmental Code of Practice is also included the requirement of Installation of fences, barriers, lighting system against traffic accidents, dangerous warning/prohibition site around the construction area which showing potential danger to public people .
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) Y (c) Y	(a) Construction activities in the project are small scale (primarily upgrading existing infrastructure); therefore, the potential adverse impact is expected to be minimal. However, measures to reduce impacts are specified as the ECOP in ESMF Annex C) (b) There will be no clearance of natural forest under the project nor any construction of new roads, even forestry road in the nature reserves (protected areas). Forestry or motorbike roads will be developed in the protection forests, but its scope (width) is narrow and the lengths are also limited; therefore, the potential impact is expected to be less. Moreover, any significant impact can be avoided by applying the Negative Checklist in ESMF Appendix A. (c) There will be no physical resettlement or land acquisition in the project; therefore social issues can be expected to be minimal and temporary disruption during the construction phase. These are generally mitigated by application of the ECOP in ESMF Appendix C.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and	(a) Y (b) Y (c) Y (d) Y	(a) Environmental Management and Monitoring Framework developed in ESMF can be used for the basis of monitoring plan. (b) Ditto. (c) Ditto. (d) Environmental monitoring will be carried out as a part of regular monitoring defied by Decision No. 18/2016.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?		
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Roads, Railways and Bridges checklist should also be checked (e.g., projects including access roads to the infrastructure facilities).	(a) N/A	(a) The small-scale rural infrastructure and silviculture infrastructure under the project are extremely small-scale, restricted mainly to rehabilitation/upgrading/restoration the existing works and do not involve significant environmental or social risks.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to trans-boundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as trans-boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N/A	(a) No significant negative impacts on trans-boundary or global issues are expected. To the contrary, the project is expected to enhance GHG sequestration as forest carbon sinks.

Remarks: "Y," "N," and "N/A" means "Yes," "No," and "Not Applicable."

Note:

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

Table II-6-2 (1) Results of Environmental Scoping (Forestry Development)

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
Pollution control measures	1	Air	D	D	Before/during construction Any activities planned before and during the project are not expected to cause air pollution. After construction No activity which might cause air pollution will be carried out in the post project period.
	2	Water	D	D	Before/during construction Any activities planned before and during the project are not expected to cause water pollution as the opportunity to use fertilizer in the project is limited and the amount of use is also small. After construction No activity which might cause water pollution will be carried out in the post project period.
	3	Waste	D	D	Before/during construction Any activities planned before and during the project are not expected to generate significant waste. After construction No activity which might generate waste will be carried out in the post project period.
	4	Soil	D	D	Before/during construction As the use of chemical (e.g., fertilizers and agrochemicals) is limited, the possibility of soil contamination is nil. After construction No activity which might cause soil pollution and degradation will be carried out in the post project period.
	5	Conservation area	D	B+	Before/during construction Although special use forests, namely nature reserves, are part of the project areas in the project, the project plans to restore deforested areas into forests of indigenous species, assist natural regeneration of degraded forests, and protect natural forests in such areas. Hence, no adverse effect caused by the project is foreseen. After construction The project plans to strengthen the capacity of SUFMBs responsible for management of the conservation areas.
	6	Ecosystem	B+	B+	Before/during construction The project activities, particularly those under "Improvement of Watershed Forests," will improve the function of ecosystems through restoration/rehabilitation of degraded areas and protection of natural forests. After construction Under the collaborative management agreement, local communities and SUFMBs will protect the ecosystems in a sustainable manner. As mentioned above, SUFMBs will be capacitated to manage the protected areas in a proper manner.
	7	Hydrology	D	D	Before/during construction Any activities planned before and during the project are not expected to alter the hydrologic characteristics of the project areas. After construction No large scale timber harvesting or deforestation activity will be carried out in the post project period.
	8	Topography and geology	D	D	Before/during construction Any activities planned before and during the project are not expected to alter the topographic conditions of the project areas.

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
					After construction No large scale timber harvesting or deforestation activity will be carried out in the post project period.
Natural environment	9	Resettlement	D/B-	D/B-	Before/during construction No physical displacement, land acquisition, or any other types of resettlement will be associated with the project. Loss of assets or limited access to productive asset could also be eliminated and minimized as long as the project will hold adequate consultation meetings as planned in the participatory land use planning as well as indicated in the Consultation and Participation Guidelines (CPGs) in the ESMF. After construction Likewise, no physical displacement or any types of resettlement is foreseen in the post project period. Some communities might want to convert forested areas into farms.
Social environment	10	Living and Livelihood	B+	B+	Before/during construction Temporary employment opportunities will be heightened during the project period. After construction Livelihood conditions of local communities will be improved by improvement of small scale rural infrastructure, introduction of additional income generating activities, and PFES payment.
	11	Heritage	D	D	Before/during construction T There is no archeological, historical, cultural, and religious heritage sites in and around the project areas. After construction Ditto.
	12	Landscape	D	D	Before/during construction T There is no physical development activity which might change the landscape of the project areas. After construction Ditto.
	13	Ethnic minority・ indigenous people	B+	B+	Before/during construction Ethnic minorities can enhance their skills and techniques on agriculture and forestry production and livelihood development activities. After construction They can use the skills and techniques that they learned from the project for operations of improved agriculture and forestry production and livelihood development activities in the pot project period. They can also earn cash income from forestry products under the collaborative management agreement with SUFMBs concerned.
	14	Gender	C	D	Before/during construction An in-depth gender sensitive analysis will be carried out in the beginning of the project so that the project could further give consideration to gender aspect. After construction No significant impact is expected.
	15	Work environment (including work safety)	D	D	Before/during construction The majority of the works will be simple and less dangerous. In fact, they are similar to farming activities. Hence, there is no possibility of i) violating any laws and ordinances associated with the working conditions or ii) causing any risks to health conditions of local communities. After construction Only patrolling works will be carried out in the post project period, which do not require any physical

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
					development; therefore, any risk is not foreseen in the post project period.

Remarks: The alphabets indicate the extent of impact, namely, A: Highly possible, B: Slightly possible, C: Unknown, and D: Less possible, while the mathematical symbols (- and +) indicate the types of impact, namely, - : negative and + : positive.

Table II-6-2 (2) Results of Environmental Scoping (Silviculture and Small-Scale Rural Infrastructure Development)

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
Pollution control measures	1	Air	D/B-	D	Before/during construction The construction works might generate innoticeable dust. However, these impacts re inconsiderably temporal and below the country's emission standard. These potential risks will be further minimized by following the environmental management plan, particularly the Environmental Code of Practice (ECOP) described in the ESMF. After construction No physical development works which might generate dust or cause air pollution is planned in the post project period.
	2	Water	D/B-	D	Before/during construction The construction works might generate small amount of effluents. As they will be small, inconsiderably temporal and below the contry's emission standard. Likewise, potential adverse impact can be minimized and eliminated by following the EMP/ECOP in the ESMF. After construction No physical development works which might cause water pollution is planned in the post project period. .
	3	Waste	D/B-	D	Before/during construction There will not be any significant waste associated with the project activities. After construction No physical development works which might generate waste is planned in the post project period. .
	4	Soil	D/B-	D	Before/during construction The construction works might generate small amount of effluents or leachates from the infrastructure facilities. As they will be small, inconsiderably temporal and below the country's standard. Likewise, potential adverse impact can be minimized and eliminated by following the EMP/ECOP in the ESMF. After construction No physical development works which might cause water pollution is planned in the post project period.
	5	Noise ・Vibration	D/B-	D	Before/during construction Likewise, noise and vibration associated with the construction works are expected to be very small in consideration of the types and scale of rural and silviculture infrastructure. The occurrence of noise and vibration can be minimized by applying the mitigation measures described in ECOP. After construction No physical development works which might cause noise and vibration is planned in the post project period.

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
	6	Land sinkage	D	D	Before/during construction There is no construction work which requires the extraction of groundwater in the project. After construction No physical development works which might cause land sinkage is planned in the post project period.
	7	Bad odor	D	D	Before/during construction There is no construction work which might generate sources of bad odor in the project. After construction No physical development works which might cause bad odor is planned in the post project period.
Natural environment	8	Conservation area	D	D	Before/during construction No physical development of small scale rural infrastructure is planned in the project. Only minor works, such as set-ups of watch towers and information boards, may be undertaken in the special use forests. However, they are generally simple interventions which will not disturb ecosystem around them; therefore, no adverse impact on conservation area is foreseen during the construction. After construction No physical development or construction work within the special use forests is planned in the post project period.
	9	Ecosystem	D/B-	D/B-	Before/during construction Natural vegetation might be cleared by installation of the forestry road. However, the installation of motorbike road, as proposed in the plan, can mitigate such a risk. Furthermore the application of the mitigation measures described in ECOP in the ESMF can further minimize and eliminate the adverse impact on the natural ecosystems in the project areas. After construction No physical development or construction work within the special use forests is planned in the post project period. Silviculture /motorbike roads might facilitate the human encroachment of natural resources in ecosystems in the project areas.
	10	Hydrology	D	D	Before/during construction No large scale deforestation which may cause hydrologic changes would happen in the project. After construction Ditto.
	11	Topography and geology	D	D	Before/during construction No large scale physical development which cause the alteration of topographic/geologic conditions is not planned in the project. There will be some cutting and filling works associated with parts of infrastructure development in the project. However, the size of filling and cutting is minimal; therefore, the potential impacts is likely

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
					negligible. Moreover, potential impacts can be further minimized by applying the mitigation measures described in ECOP in the ESMF. After construction No large scale physical development which cause the alteration of topographic/geologic conditions is not planned in the post project period.
Social environment	12	Resettlement	D	D	Before/during construction No physical displacement nor land acquisition is expected to occur in the project. After construction Ditto.
	13	Living and Livelihood	B+	B+	Before/during construction The rehabilitation and upgrading of small scale rural infrastructure will not adversely affect the living conditions of local communities. If anything, the construction works associated with the infrastructure development can generate additional employment opportunities for local communities. After construction Livelihoods of local communities will be improved by improvement of marketability of local products and productivity of major crops.
	14	Heritage	D	D	Before/during construction T There is no archeological, historical, cultural, and religious heritage sites in and around the project areas. After construction Ditto.
	15	Landscape	D	D	Before/during construction T There is no physical development activity which might change the landscape of the project areas. After construction Ditto.
	16	Ethnic minority・ indigenous people	D	B+	Before/during construction The majority of local communities in the project areas are ethnic minorities. There is no involuntary resettlement nor land acquisition (including any forms of resettlement) caused by the silviculture and rural infrastructure development. After construction As described above, the economic conditions and local livelihoods of ethinic minorities will be improved owing to the improvement of small scale rural infrastructure.
	17	Work environment (including work safety)	D/B-	D	Before/during construction The project will not violate any laws and regulations relating to working environment. As long as ECOP described in the ESMF is properly observed, workers' safety can be protected and maintained. After construction No physical development is planned in the post project period. Local communities will

Category		Item	Evaluation		Reason for evaluation
			Before/ during construction	After construction	
					be involved in daily maintenance on a voluntary base.
	18	Gender	C	D	Before/during construction An in-depth gender sensitive analysis will be carried out in the beginning of the project so that the project could further give consideration to gender aspect. After construction No significant impact is expected.

Remarks: The alphabets indicate the extent of impact, namely, A: Highly possible, B: Slightly possible, C: Unknown, and D: Less possible, while the mathematical symbols (- and +) indicate the types of impact, namely, - : negative and + : positive.

Table II-6-3 Potential Negative Environmental Impacts and Mitigation Measures

Component	Activities	Potential Environmental Issues	Possible Mitigation Measures
1. Survey and Detailed Planning	1.1 Purchase of high resolution satellite images 1.2 Participatory land use planning (including development of land use and forest maps for forest management) 1.3 Demarcation of boundaries of target areas (perimeter surveys) 1.4 Baseline surveys at target sites/communes. 1.5 Detailed designs of forest development, silviculture and small-scale rural infrastructure development	• Inaccurate or inappropriate land use zoning could lead to negative impacts on forests and wildlife • Lack of environmental considerations in the design of forest development, silviculture and small-scale rural infrastructure could lead to negative environmental impacts e.g. selection of exotic species for afforestation may have negative impacts on biodiversity, or minor effects of small-scale infrastructure (e.g. air and water pollution, minor land/forest clearance)	• Verify afforestation and ANR sites in the field to confirm appropriateness. • Eliminate activities (e.g. no conversion of natural forest, no conversion of any protection/SUF forest >5 ha, roads <50 km etc. – see Negative Checklist). • Do not use non-native species for Afforestation/ANR in special use forests (see Negative Checklist). • Use native species in principle or at least mixed stand designs (mainly native species) approved by MARD for Afforestation/ANR in protection forests.
2. Protection and improvement of critical watershed forest	2.1 Afforestation 2.2 Assisted Natural Regeneration 2.3 Forest Protection 2.4 Introduction of benefit sharing mechanism and collaborative management	• Use of exotic species in afforestation and/or assisted natural regeneration could have negative impacts on biodiversity	• Select severely degraded forests/bushes or bare or glass lands for afforestation (see Negative Checklist). • Use native species or at least mixed stand designs approved by MARD for Afforestation/ANR in protection foresst. • Do not use non-native species in special use forests
3. Development of silviculture infrastructure	3.1 Watch tower 3.2 Nursery 3.3 Motor bike roads 3.4 Forest fire prevention line 3.5 Forest guard station	• Construction of new motorbike roads could cause forest/tree loss, damage habitats, split populations of certain species (e.g. primates) • Construction/upgrading of motorbike roads could facilitate extraction of forest resources and negatively impact forest cover and ecosystems • Minor small scale /temporary/reversible environmental impacts on air/dust, water sources, chemicals/pollutants, noise, waste disposal during the construction of watchtowers, nurseries, checkpoints, guard stations	• Do not convert natural forests for silviculture infrastructure (see Negative Checklist). • Do not implement any construction works in special use forests (see Negative Checklist). • Construct/upgrade forestry/motorbike roads which do not cause forest clearance more than 5 hain protection forest (see Negative Checklist). • Place the primary focus of road upgrading on upgrading– no new roads (see Negative Checklist). • Apply ECOP into the bidding document of the contractors who then will be responsible for mitigation measures during the construction phase (refer to the Appendix C).
4. Improvement of small-scale rural infrastructure	4.1 Rural road construction/improvement 4.2 Small-scale irrigation system construction/upgrade 4.3 Rural water supply system construction/upgrade	• Minor environmental impacts in construction of small-scale infrastructure (temporary/reversible impacts e.g. on air/dust, water sources, chemicals/pollutants used in construction, noise, tree removal, minor damage to habitats, waste disposal etc.)	• Focus on upgrading/restoring existing infrastructure – avoid new infrastructure • Do not exceed scale/size for District EPP clearance (see Negative Checklist). • Apply ECOP into the bidding document of the contractors who then will be responsible for mitigation

Component	Activities	Potential Environmental Issues	Possible Mitigation Measures
			measures during the construction phase,
5. Support for livelihood improvement (including technical trainings, model implementation support and marketing)	5.1 Fuel-saving models; a) Biogas; b) Improved cookstoves 5.2 Alternative income generating models: a) Vegetable garden and fruit trees; b) Fodder grass; c) Apiculture (beekeeping) model; d) Contract farming (business-matching and quality improvement through TA) 5.3 Market assessment 5.4 Forestry/Agroforestry models: Fruit trees, spices, bamboo, rattan, (mixed planting on forest land) 5.5 Technical trainings on Sloping Agricultural Land Techniques (SALT)	• Promotion of contract farming (likely products will be maize, cassava, tea, coffee, rubber) could encourage deforestation • Development of certain cash crop/ NTFP models could enhance illegal and unsustainable extraction or deleterious impacts on forest understorey • Ecological impacts from cassava and maize production (on soils) and processing from waste in processing (on water sources)	• Select potential livelihood activities to ensure appropriateness (see TA Guidance) • Develop agriculture and livelihood models which can improve productivity or profitability of the exiting practices to prevent agricultural expansion and deforestation. • Provide guidelines for NTFP/cash crop models to employ quotas and environmentally-friendly/sustainable production techniques (see TA Guidance).
6. Prevention of forest fires	6.1 Provision of fire preventive equipment 6.2 Conduct of fire drills	• No significant environmental issues foreseen	
7. Project Management	7.1 Awareness raising and information dissemination to local communities and local government units	• No significant environmental issues foreseen	-

Table II-6-4 Potential Negative Social Impacts and Mitigation Measures

Component	Activities	Potential Social Issues	Possible Mitigation Measures
1. Survey and Detailed Planning	1.1 Purchase of high resolution satellite images 1.2 Participatory land use planning (including development of land use and forest maps for forest management) 1.3 Demarcation of boundaries of target areas (perimeter surveys) 1.4 Baseline surveys at target sites/communes. 1.5 Detailed designs of forest development, silviculture and small-scale rural infrastructure development	• Involuntary Resettlement/Land Acquisition: Formal acquisition of (agricultural or forest) unallocated lands by PFMBs (not funded by project but parallel to project in same sites). • Involuntary Resettlement/Loss of Access to Productive Assets and Loss of Livelihoods: Use of lands by the project for afforestation/ANR or other activities which are claimed or customarily used by ethnic minority communities or households • Land use conflict (between households, between communities or between communities and forest management boards): Any conflict over lands as a result of land use planning, particularly where it reinforces inequitable distribution of land/resource access. • Inequitable distribution of benefits based on forest land tenure arrangements.	• Do not implement any activities which cause: - physical relocation/resettlement; - ormal land acquisition at project sites, even where financed by GoV i.e. remove site from project; and - involuntary resettlement/loss of livelihoods or access to productive assets. • Conduct a process of FPIC including participatory land use planning and verification of support for the land use arrangements for selection of the project areas without any conflict with local communities (see Consultation and Participation Guidelines). • Select communities/households through accountable and transparent beneficiary selection process and equitable benefit-sharing mechanism (see Consultation and Participation Guidelines).
2. Protection and improvement of critical watershed forest	2.1 Afforestation 2.2 Assisted Natural Regeneration 2.3 Forest Protection 2.4 Introduction of benefit sharing mechanism and collaborative management	• Afforestation on lands needed by households for agricultural production could affect livelihoods, reduce incomes, food security, increase vulnerability etc.	• Mitigate and avoid any social risks through Consultation and Participation Guidelines (see 1 above).
3. Development of silviculture infrastructure	3.1 Watch tower 3.2 Nursery 3.3 Motor bike roads 3.4 Forest fire prevention line 3.5 Forest guard station	• Land acquisition associated with road construction	• No land acquisition - use existing routes or new routs where land acquisition is not required (see Negative Checklist) or only small areas of voluntary land acquisition on the communities' initiatives take place (see Consultation and Participation Guidelines).
4. Improvement of small-scale rural infrastructure	4.1 Rural road construction/ improvement 4.2 Small-scale irrigation system construction/upgrade 4.3 Rural water supply system construction/upgrade	• Land acquisition associated with rural infrastructure • Small-scale infrastructure benefits elites or non-equitable receipt of benefits among community	• No land acquisition - upgrade existing infrastructure or ensure route which does not require land acquisition (see Negative Checklist) or small areas of voluntary land acquisition on the communities' initiatives.
5. Support for livelihood improvement (including technical trainings, model implementation support and	5.1 Fuel-saving models; a) Biogas; b) Improved cookstoves 5.2 Alternative income generating models: a) Vegetable garden and fruit trees; b) Fodder grass; c) Apiculture	• Inequitable selection of beneficiaries • Exclusion of vulnerable groups from project activities and benefits	• Identify specific activities for marginalized groups such as landless, poor households, female headed households, women etc. in site level plans. • Specify minimum quotas for the selection of women as beneficiaries (e.g. 50% poor/near

Component	Activities	Potential Social Issues	Possible Mitigation Measures
marketing)	(beekeeping) model; d) Contract farming (business-matching and quality improvement through TA) 5.3 Market assessment 5.4 Forestry/Agroforestry models: Fruit trees, spices, bamboo, rattan, (mixed planting on forest land) 5.5 Technical trainings on Sloping Agricultural Land Techniques (SALT)		poor and 30% women) of livelihood development activities – see Consultation and Participation Guidelines.
6. Prevention of forest fires	6.1 Provision of fire preventive equipment 6.2 Conduct of fire drills	• No significant social issues foreseen	-
7. Project Management	7.1 Awareness raising and information dissemination to local communities and local government units	• An over-emphasis on improved forest law enforcement capacity could lead to worsening relationships between communities and forest management boards/forest protection authorities.	• Place the focus of capacity building and training on social aspects of forestry, co-management etc. (see Capacity development for ESMF).

Table II-8-1 Risk Management Framework

Project Name: The Project of Sustainable Forest Management in the Northwest Sub-region
Country: The Socialist Republic of Vietnam
Sector: Forestry

Officers in charge:
- Operational staff
- Engineering staff:
- Country office staff:

Potential project risks	Assessment
1. Stakeholder Risk	Probability: H/M/L
(Description of risk) The priority of the project is considered higher amoing the projects and programs in the ministry (MARD), especially in the forestry sector, due to the following reasons: i) The project is in line with the relevant government policies; ii) The project mees the needs of the provincial governments, namely the improvement of the living conditions of rural poor while balancing with environmental protection; iii) The project helps the Government of Vietnam (GoV) fulfill its committments to the international communities, particularly for reduction of GHG emission and conservation biodiversity; and iv) The project contributes to the enhncement of the function of the major hydropower plants in the country	Impact: H/M/L Analysis of probability and impact: Less probability of stakeholder risk Mitigation measures: Not required Action during the implementation: Not required Contingency plan (if applicable): Not applicable
2. Executing Agency Risk	
2.1. Capacity Risk	Probability: H/M/L
(Description of risk) 1. The target provincial governments seem to have sufficient budget allocation to cover the necessary expenditures to be shouldered by the provincial government (counterpart fund) as examined in the preparatory survey. There has been no financial problem observed in the JICA 2 project which is similar in nature to the proposed project. However, it might be difficult for the provincial governments to repay part of the loan amount when the on-lending scheme is applied to the project. 2. MBFPs, the project owner of the project at the central level, has sufficient experience in the impelmentation of similar projects; therefore, they already have systems and capable human resources that can be used for implmenetation of the proposed project. However, the experineces of the DARDs concerned in the project management are rather limited, especially in the implemmentation of a yen-loan projecct. It might take some time for the project officers at the provincial level are familiar with the project implementation guidelines to be developed in the beginning of the project.	Impact: H/M/L Analysis of probability and impact: It may be difficult for the provincial project stakeholders to operate and implement the project in the initiall years as they have less experience in implementation of a yen-loan project. However, once they learn how to operate and manage the project in accordance with the project implementation guidelines, it is expected that there would be less difficulties that they would face in the project operation. Mitigation measures: The project implementation guidelines should be developed by MBFPs immediately after the L/A is effective. After preparation of the project implementation guidelines, seminars on the same should be held at both the central and provincial levels to familiarize the project staff with the guidelines. Action during the implementation: MBFPs or the Central Project Management Board with tecchnical assistance from the project consultant shall i) prepare the project implementation guidelines, ii) hold orientation and guidance seminars on theguidelines for the project officers, and iii) provide periodic coarching and on-the-job-training to the provincial project staff to enable them to operate and manage the project in a proper manner. Contingency plan (if applicable): Not applicable

Potential project risks	Assessment
2.2. Governance Risk	Probability: H/M/L
(Description of risk) The establishment of the project steering committee (PSC) is proposed as a part of the proposed organizational structure for the project. If the PSC is established at both the central and provincial levels as proposed, the coordination between/among the relevant departments would be easy and smooth. Hence there would be less constraints foreseen, which might affect the coordination between/among relevant ministries and departments necessary for the project implementation.	Impact: H/M/L Analysis of probability and impact: As long as the PSCs are established at the central and provincial level as proposed in the project plan developed by the preparatory survey, the prospect of any difficulty or delay caused by insufficient coordination would be less. Mitigation measures: The PSCs which should be led by vice minister at the central level and vice chairman at the provincial level should be established at the respective levels. Action during the implementation: Same as above. Contingency plan (if applicable): Not applicable
2.3. Fraud & Corruption Risk	Probability: H/M/L
(Description of risk) 1. The necessary regulations on management of ODA fund (e.g.,PM Decree No. 16/2016 ND-CP) have already been in place. In fact, there has been no problem or issue on procurement, financial management and corruption/abuses happening in the SPL-3 Afforestation project and the JICA 2 project, which are similar in nature to the proposed project. All the local biddings planned in the projects have been properly conducted in accordance with the national regulations. As the nature of the proposed project are similar to the said projects, the potential risk for fraud and corruption is considered less. 2. The project implementation guidelines/regulations, which will be developed in the beginning of the project, would also help the PPMB officers manage and operate the project in a proper and transparent manner. CPMB will also monitor the project activities at the provincial level and provide guidance and advice to the provincial officers for proper project operations. 3. Nevertheless, there is some uncertainity left in the selection and determination of a sub-project of small scale rural infrastructure development, as details of the project component (improvement of small scale infrastructure), such as location, size, and beneficiaries, are not clearly determined in the planning stage, but will be determined only after the project areas are selected in the participatory land use planning, which will be carried out in the beginning of the project.	Impact: H/M/L Analysis of probability and impact: 1. There is less probability that any fraud, abuse, and issues on financial management would take place based on the experiences of the past and on-going similar projects as well as the current institutional set-up of the GoV. 2. There is a possibility that a wrong sub-project of small scale rural infrastructure, which may not necessarily benefit local people who participate in the project activities, might be selected and implemented. Mitigation measures: 1. It is recommendable to obligate MARD/MBFPs to obtain prior-concurrence from JICA on the implementation of sub-projects of small scale rural infrastructure development before starting the detailed design works. 2. To simplify the process but also maintain the validity, CPMB/MBFPs shall be requested to prepare a list of sub-projects with project descriptions of the respective sub-projects with technical review and field validation by the project consultant and submit the same at the beginning of the years when the detained desin works are conducted. Action during the implementation: 1. Financial management MBFPs/CPMB with tehcnial assistance from the project consultant will monitor and supervise the project financial management of PPMBs/DARDs and provide guidance and advice to them for proper and transparent management on a regular basis over the course of the project. 2. Prior concurrence of sub-projects of small scale rural infrastructure PPMBs shall develop a list of sub-project with necessary information of sub-projects to CPMB one year before the detained design works are planned. After careful reviews with field validation, CPMB will finalize and submit the list and project descriptions with maps of sub-projects to JICA for its concurrence with technical assistance from the project consultant. Contingency plan (if applicable): Not applicable

Potential project risks	Assessment
3. Project Risk	
3.1. Design Risk	Probability: H/M/L
(Description of risk) 1. Techniques required for physical develoment components, such as improvement of watershed forests, improvement of silviculture infrastructure, and improvement of small scale rural infrastructure, are rather simple and easy to apply. However, PPMBs/DARDs may not be necessarily familiar with community-based approaches as well as REDD+ safeguard requirements Hence, the process of consultation and FPIC might be skipped or simplified or altered to their own ways, 2. All the necessary project components and activities (sub-projects) are incoporated into the project design; hence, the project design is considered appropriate. 3. MBFPs, which will be the project owner of the entire project and the mother organization of CPMB, has long and consderable experiences in the operation and management of similar projects. However, DARDs, which are the project owner of the project at the provincial level, may have less experience in the implementation and management of a laon project. 4. As a number of projet activities will be outsourced through either local competitive bidding or direct appointment, the administrative capacity of PPMBs may need to be strengthened to ensure the smooth and proper operations of the project at the field level. 5. A wide range of stakeholders will be involved in the implementation of the project The roles and reponsibilities of the relevant stakeholders during the project period are clear, but it is necessary to introduce an institutional mechanism for sustainable management of forests in the post project period with clear definition of roles and responsibilities of relevant stakeholders.	Impact: H/M/L Analysis of probability and impact: 1. It might be difficult for PPMBs to find out contrctors/facilitators capable to lead th FPIC process at the provincial level. In case there is no competent organization at the provincial level, CPMB shall procure a contractor at the national or regional level and provide necessary guidance to the contractor with assistance from the project consultant. 2. The PPMBs will need managerial and technical support from CPMB and the project consultant for smooth operations of the project, especially in the supervision and technical guidance to contractors, monitoring and data management, and reporting. In case the PPMB officials are not properly guided by provision of orientation and project implementation guidelines in the beginning of the project, the project implementation might be affected. Mitigation measures: 1. In order to help the PPMB officers understand their roles and responsibilities in the project framework and learn necessary procedures for operations and management of the project, the following activities shall be conducted in the beginning of the project. - Project orientation and guidance for the project officers - Preparation of the project implementation guidelines - Periodical coaching the project officers 2. The contractor for consultations and FPIC including PLUP should also be guided and supervised by CPMB with technical assistance from the project consultant prior to and during their field activities. Action during the implementation: As mentioned above, the project implementation guidelines should be developed in the preparatory stage, and project orientation and guidance should be held for the project officers in the beginning of the project. Periodic coarching and support to the project officers should be done from time to time over the course of the project. Review meetings shall also be held on a bi-annual basis from the beginning to the end of the project to review the performance and discuss any improvement of the management and operations of the project. Contingency plan (if applicable): Not applicable
3.2. Program & Donor Risk	Probability: H/M/L
(Description of risk) 1. The proposed project will make use of the results of SNRMP. In case that the progress of SNRMP is substantally delayed, some of the project activities, such as promotion of PFMS, might be affected. 2. The PFES scheme is essential to ensuring the sustainable forest management especially in the project areas in the post project period. Any changes in the policy and system relating to the PFES scheme might affect the sustainability of the project.	Impact: H/M/L Analysis of probability and impact: It is unlikely that SNRMP will be significantly delayed as its schedule and progress will be strictly monitored and supervised by JICA and MARD. It is also unlikely that the current PFES scheme will be drastically changed. The GoV recognizes that PFES is requisite to sustainable management and protection of forests in critical watersheds in the country. Mitigation measures: Not required Action during the implementation: Not required Contingency plan (if applicable): Not applicable

Potential project risks	Assessment
3.3. Delivery Quality Risk	Probability: H/M/L
(Description of risk) 1. It would not be difficult for PPMBs to collect necessary data and information for the operation and effect indicators. All the information and data could be collected through regular monitoring by PPMBs or reviews of outputs submitted by the contractors (e.g., accomplishment reports from PFMBs/SUFMBs and as-buit report from the ctractractors). 2. All the forests developed/protected by the project will be managed and protected by the 10 PFMBs and 6 SUFMBs in collaboration with local communities in the post project period. The roles and reponsibilities of PFMBs and SUFMBs are quite clear and tehcnically and financially capable to manage and protect forests in general. It is, however, necessary to develop and introduce a mechanism for collaborative management of the project areas for sustainable forest management in the post project period. 3. There is little possibility that natural distasters or social turmoils which would adversely affect the proress and effect of the project will happen during the project period. 4. There is a risk that the project benefit might be skewed toward households who are already better off (e.g., those who hold a large size of lands). However, it is expected that the project beneficiaries or local communities who participate in the project could be properly selected without exclusion of socially vulnerable groups (e.g., women and poorers) as long as consultations and FPIC are properly conducted as planned and described in the Consultation and Participation Guidlines given in ESMF shown in Annex J of the report.	Impact: H/M/L Analysis of probability and impact: 1. There is less probability that PPMBs would face difficulties in gathering/collecting necessary data and information for motniroing of the operation and effect indicators. 2. All the areas will be managed and protected by the PFMBs and SUFMBs in collaboration with local communities. In case that a collaborative management system is not developed or introduced in the course of the project implementation, sustainble forest management in the project areas, especially those with less amount of PFES payment, may be questioned. 2. Inequitable distribution of benefits to elites or better-off households might happen in case the selection of beneficiaries and identification of potential livelihood options are not carried out properly. Mitigation measures: 1. The project counsultant shall assist CPMB in i) developing a collaborative management system with a benefit sharing mechanism suitable for the project areas through field trials and ii) providing guidance and orientation for introduction of the collaborative management system for the relevant stakeholders in the course of the project implementation. 2. The processes of i) selection of local communities who participate in the project and ii) identification of livelihood development options should be carried out in accordance with the the Consultation and Participation Guidlines given in ESMF under the supervision of PPMBs and the project consultant. Action during the implementation: 1. For introduction of a collaborative managemet system, the following actions shall be taken. - Introduction of the concept of collaborative management and benefit sharing in the beginning of the project to CPMB, PPMBs, and PFMBs/SUFMBs - Development of the draft collaborative management system with a benefit sharing mechanism - Field trial of the draft collaborative management system with the benefit sharing mechanism - Consultation with relevant stakeholders at both the central and provincial levels about the draft collaborative management mechanism - Finalization of the government circular on the collaborativ management system 2. In order to ensure the equitable benefit sharing, the following actions shall be taken. - Provision of the guidance to PPMBs and contractors on the Consultation and Participation Guidlines given in ESMF - Supervision of the contractors' works for "participatory land use planning and formation of village working groups" and "selection of potential livelihood options" at the commune/village level Contingency plan (if applicable): Not appricable
4. Other Risk	Probability: H/M/L
(Description of risk) None	Impact: H/M/L Analysis of probability and impact: Mitigation measures: Action during the implementation: Contingency plan (if applicable):

Potential project risks	Assessment
5. Overall Risk Rating	Probability: H/M/L
(Overall comments)	Impact: H/M/L
Overall, it is judged that the potential risks inherent in the proposed project is low and manageable within the framework of the project. It is, however, necessary to provide sufficient orientation and guidance to the project officers esepcially at the provincial level along with peridic technical and managerial assistance over the course of the project so that the project could be implemented on the right truck. It is also important to pay due attention to safeguard issues (such as consultations and selection of the project areas as well as beneficiaries) to avoid potential adverse social risks in the course of the project.	

1/ Descriptions in the risk management matrix can be brief and concise. In order to record the description of each risk as well as the evidence for the team's assessment, a separate sheet should be prepared to describe the details.