Annex J

Final Report
for
the Preparatory Survey
on the Project for Restoration and Sustainable Management of Protection Forests in the Socialist Republic of Vietnam

Annex J: Feasibility Study Report of the Project

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Annex J: Feasibility Study

1 Summary of the Feasibility Study

1.1 Project Description, Project Proposing, Implementing and Operating Agencies

1.1.1 Project Description

(1) Project Objectives

The overall goals of the Project are:

i) enhancement of functions of ptotection forests in watersheds and coastal areas,

ii) restoration and conservation of biodiversity; and

iii) poverty reduction in mountainous areas.

To achieve these overall goals, the Project sets the following immediate objectives:

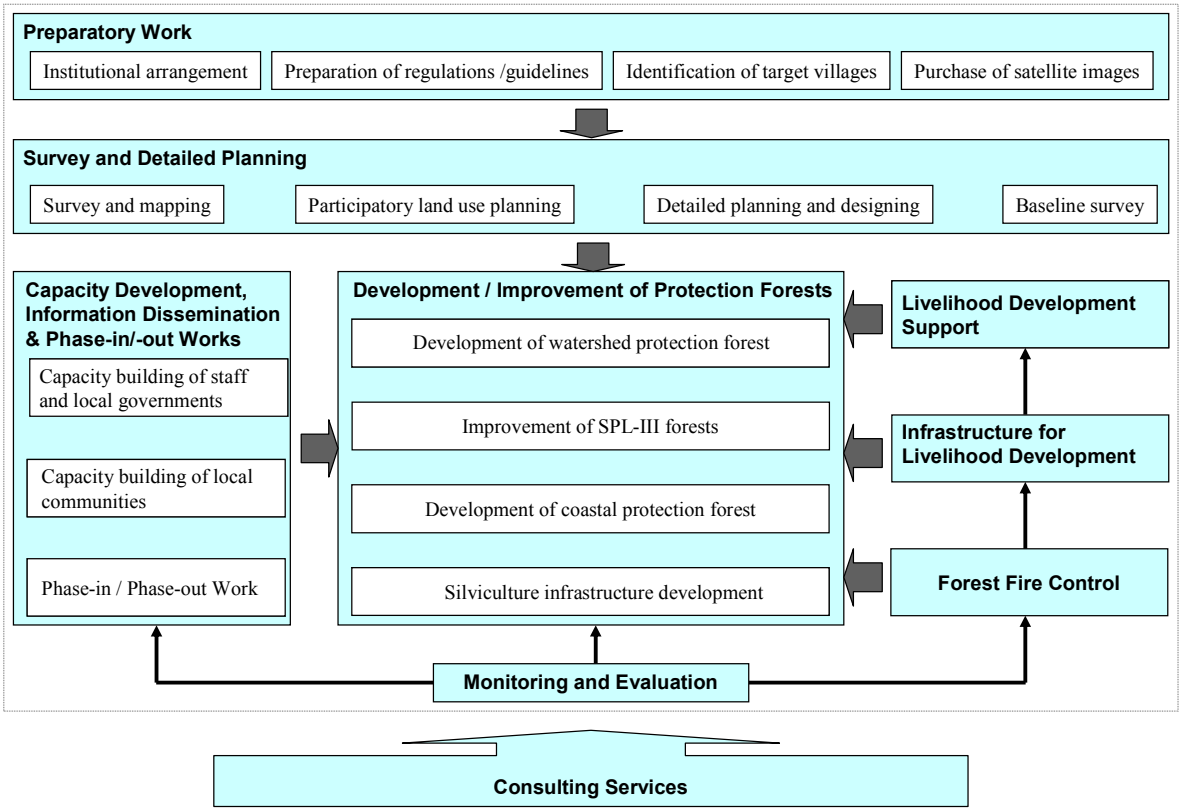
i) to restore and improve watershed and coastal protection forests in the 12 provinces

ii to strengthen the capacity of the local governments and the owners of protection forests; and

iii) to improve the livelihoods of communities who would manage protection forests.

(2) Project Components

The proposed project is composed of nine (9) components, namely, i) preparatory works; ii) survey and detailed planning; iii) capacity development, information dissemination and phase-in/phase-out works; iv) development/improvement of protection forests; v) livelihood development support; vi) infrastructure for livelihood development, vii) forest fire control; viii) monitoring and evaluation; and ix) technical cooperation / consulting services. As shown in the following drawing, the project components will interrelate and interact with each other so as to generate the multiplier effects.



Overview of Project Components

1.1.2 Project Responsible Agencies

In accordance with MPI Circular No. 04/2007/TT-BKH, The project is categorized into the "umbrella project" where the project management units are established at two levels, i.e., central level and provincial level. The agencies responsible for implementation of the project and sub-project at provincial level are as follows.

At central level

a. Line agency/Executive agency of the whole project: MARD

b. Project owner/implementing agency for the whole project: MBFP

c. Project management unit/Project operating agency for the whole project: CPMU

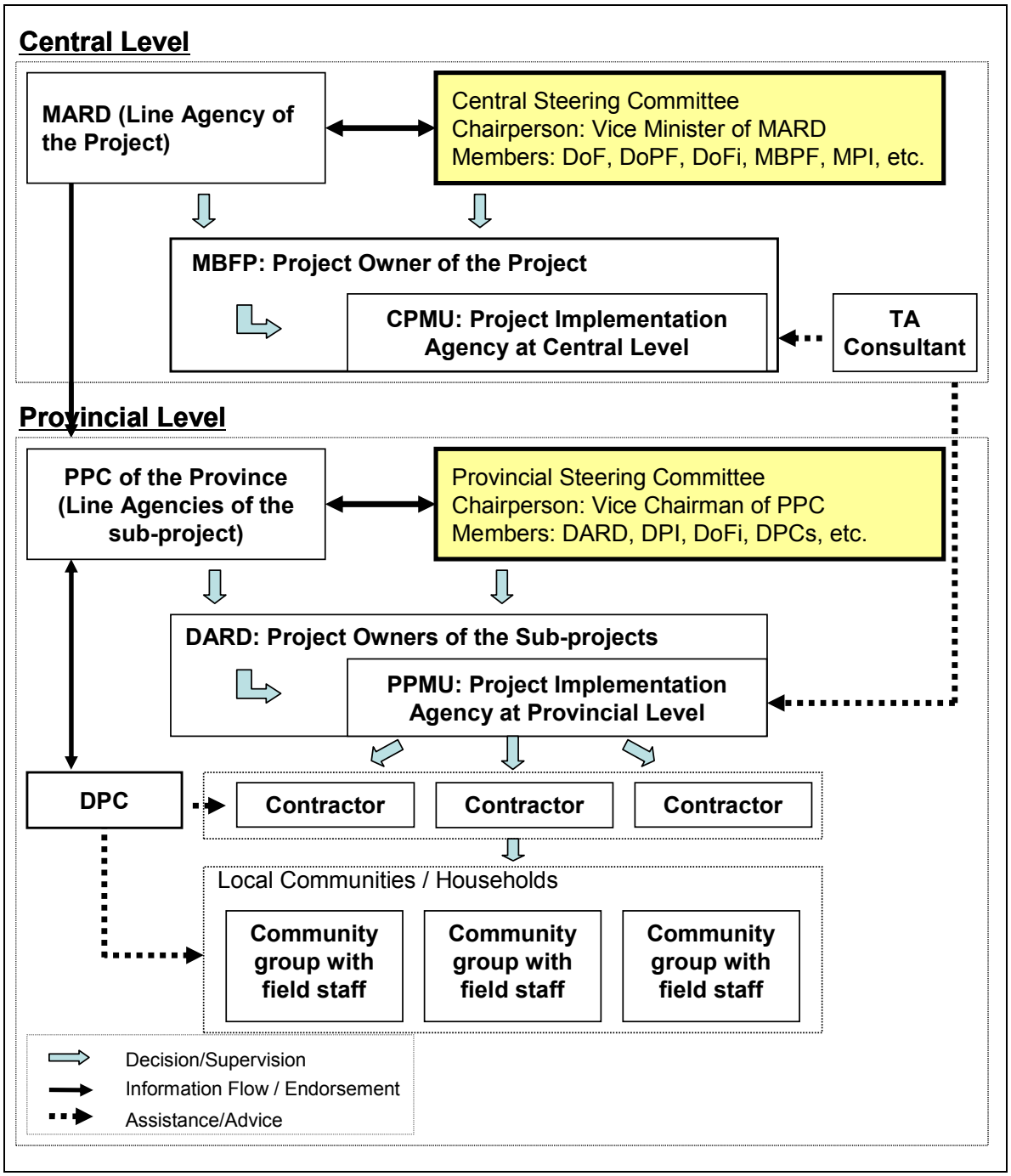
At provincial level

a. Line agency/Executive agency of the sub-project: PPC

b. Project owner/implementing agency for the sub-project: DARD

c. Project management unit/Project operating agency for the sub-project:: PPMU

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

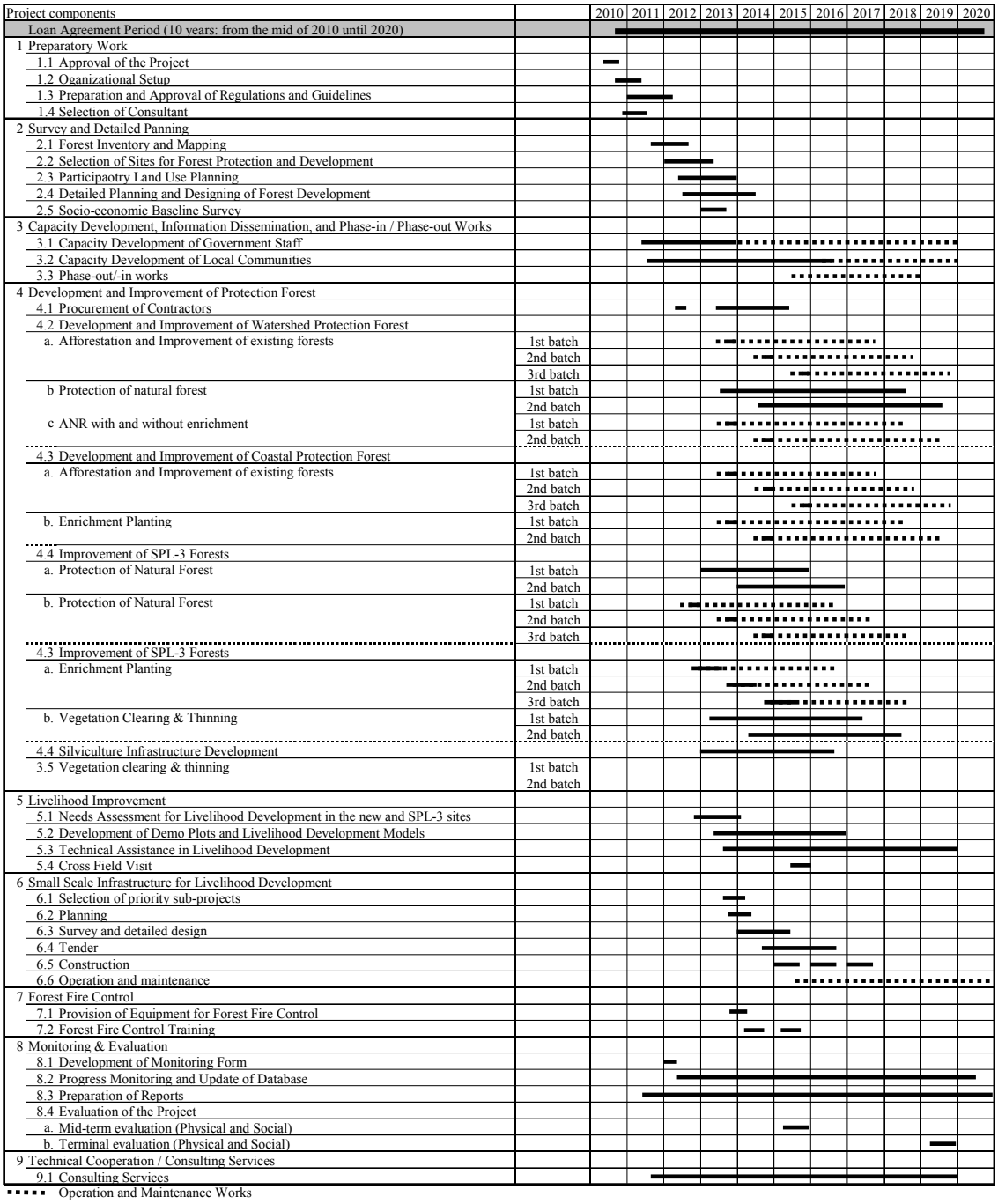


Institutional Set-up for Project Implementation

1.2 Project Implementation Schedule

The project implementation plan is presented in Chapter J.5 and the following chart shows the summary of the proposed project implementation schedule of the project.

Summary of Project Implementing Schedule



1.3 Project Site

The project will be implemented in the 12 provinces shown in Location map of the project. In accordance with the minimum requirement and evaluation criteria for selection of the project areas, a total of 23,090ha, 3,300 ha and 89,920 ha were selected for afforestation, improvement of existing plantations, and ANR/protection of natural forest in watershed protection forests, respectively. Likewise, 1,550 ha, 800 ha, and 1,600 ha in coastal protection forests were selected for the same sub-components. In addition to the new sites, a total of 15,670 ha of the plantations/forests developed by the SPL-3/Afforestation Project were selected for improvement.

Results of the Provision Selection of the Project Areas

Province	Watershed PF			Coastal PF			Improve. of SPL-3 forests	No. of Communes concerned
	Afforest. / Reforest.	Improve. of existing plantations	Protection/ ANR	Afforest. / Reforest.	Improve. of existing plantations	Protection/ ANR		
1. Thanh Hoa	1,270	1,400	7,400	0	0	0	0	12
2. Nghe An	2,300	900	4,100	0	0	0	0	39
3. Ha Tinh	1,960	1,000	8,510	0	0	0	0	18
4. Quang Binh	1,600	0	3,800	400	800	0	0	15
5. Quang Tri	2,900	0	6,750	0	0	0	3,610	17
6. T.T. Hue	3,000	0	10,500	0	0	0	4,100	8
7. Quang Nam	970	0	10,200	0	0	0	1,550	19
8. Quang Ngai	3,500	0	6,500	0	0	0	3,790	9
9. Binh Dinh	2,480	0	8,410	0	0	0	0	10
10. Phu Yen	1,500	0	5,250	0	0	0	2,620	4
11. Ninh Thuan	1,610	0	10,600	50	0	0	0	7
12. Binh Thuan	0	0	7,800	1,100	0	1,600	0	9
Total	23,090	3,300	89,920	1,550	800	1,600	15,670	167

Sources: JICA Survey Team

Figure J-3-1 shows the locations of the selected project areas in the 12 provinces. The following table gives its summary.

Number of District, Communes and the Project Area

Province	No. of Districts & Township	No. of Communes	Project Area (ha)
1. Thanh Hoa	6	12	10,170
2. Nghe An	6	39	7,300
3. Ha Tinh	5	18	11,400
4. Quang Binh	3	15	6,600
5. Quang Tri	7	17	13,260 (3,610)
6. T.T. Hue	3	8	17,600 (4,100)
7. Quang Nam	6	19	12,720 (1,550)
8. Quang Ngai	4	9	13,790 (3,790)
9. Binh Dinh	5	10	10,800
10. Phu Yen	3	4	9,370 (2,620)
11. Ninh Thuan	4	7	12,260
12. Binh Thuan	3	9	10,500
Total	**54 district & 1 township**	**167**	**135,930**

Source: JICA Survey Team

1.4 Project Funding

1.4.1 Summary of Project Financial Plan

The project will be implemented with the financial assistance from JICA's ODA fund. The project loan will be adopted to finance the project activities. The project financial plan is described in Chapter J.4 and summarized below.

Total:	VND 2,956.9 billion (equivalent to US$ 174.3 million)
ODA: JICA Project Loan:	VND 2,489.6 billion (equivalent to US$ 146.7 million)
Counterpart Budget:	VND 457.3 billion (equivalent to US$ 27.0 million)

1.4.2 Rationale of Use of JICA's Assistance

JICA has long experiences of assisting several forestry projects and is one of the largest donors in the forestry sector in Vietnam. Its accomplishments have been remarkable and notable especially for achievement of sustainable forest management. The activities planned under the proposed project covers forest planning, afforestation in watershed and coastal sandy area, assisted natural regeneration, support for livelihood improvement of mountain communities, among others. Hence, the experiences of JICA are quite useful and best fit to the project.

On the other hand, JICA's loan is more favourable to Vietnam than those of other donors. It provides a concessionary loan with annual interest rate of 0.65% per annum, a maturity term of 30 years and a grace period of 10 years for environmental projects in Vietnam.

2. Project Context and Rationale

2.1 Necessity of the Project Interventions

2.1.1 Macro Economic Situation and Five-Year Socio-economic Development Plan

The five-year Socio-economic Development Plan 2006-2010 specifies directions and tasks for a 5 year (2005-2010) based on the accomplishments and assessment of the previous five year (2001-2005) plan and current macro economic conditions in the country.

The country maintained rapid and stable economic growth in the previous five years (2001-2005). The estimated annual average growth rate of GDP during the period was 7.5%, reaching the target set for the five year plan of 2001-2005. In the agriculture, forestry and fishery sectors, the growth in production value (5.5%) during the five year period (2001-2005) was higher than the planned target of 4.8%. More specifically, the production value of agriculture went up by 4.2%, forestry up by 1.3%, and fishery up by 12.2%. But, the average annual growth rate of GDP (3.8%) in the sector was lower than that of production value (5.5%) due to high production costs.

The growth rate of production value in the forestry sub-sector was low compared with other sub-sectors mainly because the government focused its attention on reforestation and the preservation of natural forests in 2001-2005. Though the contribution to the national economy was small during this period, forest coverage rose from 33.7% in 2000 to 37.4% in 2005 (target: 38-39%). Also there was a gradual shift in forest management and development from State management to the participation of various economic sectors.

There was a shift in the labour structure along with the shift of economic structure to industrialization and modernization. The ratios of the industry and construction sector in economic and labour

structures in 2005 increased to about 41% and 17.9%, respectively, while the ratios of the agriculture, forestry, and fishery sector in the same structures decreased to about 20.9% and 56.8%, respectively.

Selected Economic Indicators (%)

Indicators	1995	1996-2000	2001-05	2006-10 (target)
Economic growth rate (GDP)	-	6.9	7.5	7.5-8.0
Of which				
Agriculture, forestry and fishery	-	4.4	3.8	-
Industry and construction	-	10.6	10.2	-
Services	-	5.7	7.0	-
2. Growth rate in production value				
Agriculture, forestry and fishery	-	5.8	5.5	-
Industry	-	13.9	15.9	-
Services	-	6.8	7.6	-
Indicators	1995	2000	2005	2010 (target)
Economic structure (GDP)	100.0	100.0	100.0	100.0
Of which				
Agriculture, forestry and fishery	27.2	24.5	20.9	15-16
Industry and construction	28.8	36.7	41.0	43-44
Services	44.0	38.8	38.1	40-41
4. Labor structure	100.0	100.0	100.0	100.0
Of which				
Agriculture, forestry and fishery	71.1	68.2	56.8	50.0
Industry and construction	11.4	12.1	17.9	-
Services	17.5	19.7	25.3	-

Source: The Five-Year Socio-Economic Development Plan 2006-2010, MPI (March 2006)

The major aims of the Five-year Socio-economic Development Plan (2006-2010) are development of a conducive environment for stable economic growth and achievement of socio-economic well being, particularly focusing on reduction of the economic gap between the rich and the poor. The five-year plan (2006-2010) also provides the following development orientations in the forestry sector.

a. reform of the forestry sector with a strong link between protective and economic functions
b. reduction of state-management forests
c. afforestation / reforestation to increase forest coverage and establish raw material supply areas for forest processing industries
d. examination and inspection of quality of forest product
e. improvement of 5MHRP by introduction of afforestation with dual purposes of wood production and environmental protection
f. completion of land and forest allocation

The proposed project has the same orientations with the five-year plan. The proposed project can also directly generate additional income for rural population by involving them in forest development and management works.

2.1.2 Framework, Conditions and Background of the Project

2.1.2.1 Forest Sector in Vietnam

(1) Forest Situation in Vietnam

An estimated 25 million Vietnamese population are living in or near forests and depend on forest resources. Forestry not only creates forest products as commodities and services contributing to the national economy, but also plays an important role in environmental protection, such as protection of watershed and coastal areas, soil and water conservation, and mitigation of climate change, and contributes to protecting national security, livelihood improvement and poverty reduction for people in the rural and mountainous areas. [1]

Forest cover in Vietnam decreased until 1990 and has increased since then mainly due to reforestation and forest protection efforts of the government. Although the forest area is increasing, the quality of the forests is still poor and does not reach to sufficient level. Per capita forest area in Vietnam is currently 0.15 ha/person, which is very low compared with the average of Southeast Asian countries (0.37ha/person) and the entire world (0.63ha/person).[2]

(2) Forest Classification

Pursuant to the Prime Minister Decision No. 1267/QD-BNN-KL dated 05/5/2009, Vietnam had a forest area of 13.1 million ha at the end of 2008, comprising 10.3 million ha of natural forest (78.9%) and 2.8 million ha of plantation forest (21.1%). The ratio of national forest cover was 38.7 %.

Forests are classified into three types: special-use, protection and production forests. In 2008, Vietnam had 2.1 million ha of special-use forests (15.7%), 4.7 million ha of protection forests (36.1%), and 6.2 million ha of production forests (47.3%). Special-used forests are divided into (a) national parks, (b) natural reserves and flora and fauna habitat reserves, (c) historical, cultural and environmental relics or landscape protected area. Protection forests are expected to functions to protect watersheds and soils, prevent soil erosion and mitigate natural disasters. The major role of production forests is to supply timber and non-timber forest products (NTFPs) but also provide environmental protection.

Area by Forest Types in Vietnam in 2008 (1,000 ha)

	Total	Forest Classification			Others
		Special-use	Protection	Production	
Total Forest Area	**13,117**	**2,062**	**4,739**	**6,199**	**119**
A. Natural Forest	**10,349**	**1,985**	**4,168**	**4,170**	**26**
1. Timber forest	8,221	1,542	3,297	3,366	16
2. Bamboo forest	641	61	184	393	3
3. Mixed forest	687	128	233	324	3
4. Mangrove forest	60	14	41	4	0
5. Rocky mountain forest	739	240	412	84	4
B. Plantation Forest	**2,770**	**77**	**571**	**2,029**	**93**
1. Plantation with standing volume	1,305	47	324	919	16
2. Plantation without volume	1,155	26	210	879	40
3. Bamboo	90		6	83	0
4. Special trees	207	3	24	147	33
5. Wetlands trees, alum	13	1	7	1	4

Source: MARD Minister's Decision No. 1267/QD-BNN-KL dated 05/5/2009

(3) Changes in Forest Cover

Vietnam had 14.3 million ha of natural forests in 1943, corresponding to 43.2% of the country's land area. The forest area had decreased dramatically particularly from 1976 to 1990. During the period,

1. Vietnam Forestry Development Strategy (2006-2020), Decision No. 18/2007/QD-TTg dated 5 February 2007, by the Prime Minister
2. State of World Forest 2007, FAO

about 98,000 ha were contracted for logging annually mainly by state organizations. Other causes of deforestation include, among others:

a) Conversion of forest land into farm land by the government policy to increase food production;

b) Devastation by two wars during 1945-1954 and 1961-1975.

c) Forest fires

d) Illegal logging by individuals and units.[3]

Changes in Forest Cover in Vietnam (1,000 ha)

	1943	1976	1980	1985	1990	1995	2000	2004	2008
Total forest area	14,300	11,169	10,608	9,892	9,176	9,302	10,916	12,307	13,117
Natural forest		11,077	10,016	9,308	8,431	8,253	9,444	10,088	10,349
Planted forest		93	422	583	745	1,048	1,471	2,219	2,770
Forest cover (%)	43.2%	33.7%	32.0%	29.9%	27.7%	28.1%	33.0%	37.2%	39.6%

Source: Forest Rehabilitation in Vietnam: Histories, realities and future (2006) and MARD Minister's Decision No. 1267/QD-BNN-KL dated 05/5/2009

Since 1990, forest area has increased mainly as a result of the government's reforestation efforts notably 327 and 661 programs. Between 1990 and 2008, natural forest has increased by 1,918 thousand ha through rehabilitation, while planted forest by 2,025 thousand ha. Despite of the increase, the quality of rehabilitated natural forest is still low: it was estimated that poor quality of natural forest with a forest stock of less than 80m^3/ha occupied up to 80% of the natural forest area.[4] Similarly, forest plantations without standing tree volume occupied about 42% of the total planted forest in 2008.

(4) Forest Administration at Central Level

Ministry of Agriculture and Rural Development (MARD) is responsible for performing the function of State administration on agriculture, **forestry**, salts industry, water resources and rural development in the whole country, pursuant to Decree No. 01/2008/NĐ-CP dated 3/01/2008 of the Government. MARD's responsibilities on forest include:

a) Periodical inventory, re-checking, classify forest, make statistics of the area and volume of forest, making forest and forestry land maps on a nation-wide scale.

b) Planning and plan of forests protection, development and use for long term in the whole country in order to submit them to the Government for approval.

c) Submit the Government the volume of timber permitted to be exploited and consumed from natural forests every year in the whole country. Evaluate synthetic documents on designing and exploitation of natural forests and decide to open the forest gates for exploitation for provinces and cities.

d) Propose the Government to establish national parks, nature reserves, protected areas with national importance or in the territory shared by many provinces, national seed orchards and assign agencies of MARD, other relevant sectors or Provincial Peoples' Committees (PPC) to manage, protect and develop.

[3] ibid
[4] ibid

e) Formulate by-law documents to submit to the Government and promulgate policies, regimes, rules, procedures, technical manuals relating to management, protection, development and use of the forest and forest land in the whole country

f) Organize and cooperate with the State Inspectorate to carry out inspection and checking of State administration on authorities at all levels. Inspect the execution on forest laws of organisations, households, individuals allocated forest and forestry land.

g) Settle disputes over forest, coordinate with General Department of Land Management to solve disputes over forest land between forest owners in different provinces; commend and reward organisations, households and individuals having outstanding achievements.

There are two agencies under MARD which are tasked with forest administration: Department of Forestry (DOF) and Department of Forest Protection (DOFP). DOF performs the State administrative function on forest activities in whole country focusing on forest management, forest development, forest utilization, and forest seed work.[5] On the other hand, DOFP undertakes the function of State administration function in forest management and protection, ensuring legal enforcement of forest protection and development.[6]

Beside DOF and DOFP, Department of Processing and Trade for Agro-forestry - Fisheries Products and Salt Production under MARD is administrating forest product processing sector. Forest Inventory and Planning Institute (FIPI) organizes, implements and manages uniformly forest inventory and planning work aimed at supporting State forest management and strategies for forest development.

Currently MARD is planning the establishment of General Forestry Office (GFO) aiming at better consolidating and arranging organization of forestry-related state administration agencies under MARD. In the plan, GFO will work under MARD and carry out state administration functions on forestry and forestry-related public services. At district level, a pilot project to unify all existing forest agencies into a District Forest Office has been implemented in Thai Nguyen province with assistance of GTZ based on the Prime Minister Decision No. 1134/QD-TTg dated 21/08/2008.

(5) Forest Administration at Provincial Level

At the provincial level, two forest administration agencies are under Provincial People's Committee (PPC). The Forestry sub-department (FsD) under Department of Agriculture and Rural Development (DARD) operates as a specialized agency to assist Director of DARD in forestry activities. The Forest Protection sub-department (FPsD), which moved to DARD in 2008, serves to advise the provinces about forest protection and enforce the Forest Protection and Development Law.

DARD is under the guidance, management on organization, staff and work of Provincial People's Committee as well as under the directions and control on profession work of MARD. Pursuant to MARD Circular No. 94/2001/TT-BNN-TCCB dated 21/9/2001, the functions and tasks of DARD are defined as follow:

- Organize to survey and classify the area and volume of forest types; prepare maps, identify boundaries and demarcate of forest types and forestry land in the provinces following the guidelines of MARD.

[5] MARD Minister's decision No.21/2008/QD-BNN dated 28/01/2008 defining functions, tasks, authority and organizational structure of Department of Forest

[6] MARD Minister's Decision No.22/2008/QD-BNN dated 28/01/2008 defining functions, tasks, authority and organizational structure of Department of Forest Protection

- Assist PPC in preparing long-term, medium-term and short-term plans on development and utilization of forests and forestry land of localities for submission to competent authorities for approval.

- Appraise and present PPC to decide or to submit decisive agencies for establishment of protection and special-use forest areas in the province according to the current stipulations of the Government.

- Guide DPCs to make plans for management, use and development of forests for appraisal from decisive agency; synthesize planning and plans submitted by DPC for approval by the PPC; and direct and organize to implement when the plans are approved by the PPC.

- Organize the Councils for Assessment and sum-up designs for exploitation of natural forest by forest owners to submit PPC for approval and report to MARD; upon receipt of appraisal and decision of MARD for forest exploitation, assist PPC to issue permits of natural forests exploitation to forest owners and check progress and exploitation activities of the forest owners; and assist PPC in preparing development plans and management of forest product processing activities in the province.

- Formulate and present PPC or issue documents within its competence and guide DPCs and CPCs, organisations, households and individuals in the province to implement policies, regimes, and rules of the Government on management, use and development of forests.

- Manage and steer seed works (seed collection and management) in forestry and forestry extension work in the province.

- Annually check the implementation of procedures and regulations for exploitation of timber, forest products and forest use.

- Organize and steer the implementation of projects for production forest, protection forest, social forestry, and mountainous rural development.

(6) Protection Forest Management Boards

Protection Forest Management Boards (PFMBs) also play an important role in protection and management of protection forests as public service agencies belonging to DARD or DPC. According to Decree No.23/2006/ND-CP dated 3/03/2006 on the implementation of the Law on Forest Protection and Development, PFMBs shall be established for headwater protection forest with an area of more than 5,000 ha or for important protection forest in terms of their protection function even the area is less than 5,000 ha. Decree No. 200/2004/ND-CP dated 3/12/2004 defines that PFMBs can also operate as profit-making public service agencies.

(7) Stakeholders at district and commune levels

At district level, the Economics Division on Agricultural and Rural Development under the control of District People's Committee (DPC) employs one or two forestry staff responsible for monitoring forestry activities. In districts where forests exist, Forest Protection Unit attached to FPsD operates and Forest Protection Stations are also established.

In each commune, one member of Commune People's Committee (CPC) is responsible for preparing plan on agriculture, forestry, water resources and rural development. The Forest Protection and Development Law require communes with forests to recruit forest staff. However, most of communes have so far failed to employ commune forestry staff due to budget constraints. Where Forest

Protection Unit operates, they assign one forest ranger to work in one commune. In some commune, Commune Forestry Boards are set up under the leadership of CPC's Chairman sand under professional guidance of Forest Protection Station.

2.1.2.2 Present Conditions of the Target Provinces

(1) Administrative Situations

The target provinces have 133 districts, 12 cities, 8 towns, and 2,375 communes as shown below.

Number of Administrative Units in the Twelve Target Provinces

Province	Districts	Cities	Towns	Communes
1. Thanh Hoa	24	1	2	586
2. Nghe An	17	1	2	436
3. Ha Tinh	10	1	1	238
4. Quang Binh	6	1		141
5. Quang Tri	8		2	118
6. T.T. Hue	8	1		119
7. Quang Nam	16	2		210
8. Quang Ngai	13	1		166
9. Binh Dinh	10	1		129
10. Phu Yen	8	1		91
11. Ninh Thuan	5	1		45
12. Binh Thuan	8	1	1	96
Total	**133**	**12**	**8**	**2,375**

Source: Statistical Year Book of Viet Nam 2008

(2) Rainfall

The following table shows the mean monthly rainfalls in the target provinces. All the provinces except Thanh Hoa have the highest rainfall in October and November and the least rainfall in June and July. The highest peak rainfall in Thanh Hoa province is recorded in August and the least in February.

Monthly Rain Fall at Meteorological Station in the Target Provinces (mm/month)

Province	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1. Thanh Hoa #	3	21	25	68	196	205	189	313	221	332	12	9	1,595
2. Nghe An	90	23	57	65	141	107	110	205	300	694	119	40	1,952
3. Ha Tinh	101	47	52	77	173	44	29	154	373	1,109	140	176	2,476
4. Quang Binh	53	18	36	14	165	45	12	66	698	682	353	97	2,240
5. Quang Tri	38	49	15	33	142	28	56	41	423	999	394	174	2,392
6. T.T. Hue	118	85	80	74	195	24	26	63	479	1,524	608	510	3,786
7. Quang Nam #	7	225	207	35	150	18	47	225	301	891	1,196	153	3,455
8. Quang Ngai #	197	1	102	48	132	48	41	244	107	797	1,328	78	3,123
9. Binh Dinh	258	26	35	23	80	23	27	76	425	520	851	251	2,596
10. Phu Yen	48	7	82	46	162	14	13	130	101	678	1,428	29	2,789
11. Ninh Thuan	N.A.												
12. Binh Thuan	0	0	0	4	266	164	170	231	201	114	176	2	1,328
Average	83	46	63	44	164	65	65	159	330	758	605	138	2,521

Source: DARDs of 12 province, #: Data in 2007. Other data is for 2008.

(3) Land Use

The present land use in the target provinces is summarized below. In the 12 target provinces as a whole, the forestry land occupies 62% of the total land area, followed by the agricultural land (17%).

"Others" include the residential area, industrial zone, government offices and facilities, and water bodies. As the forestry land occupies more than 50 % of the land in most of the provinces, its proper management and utilization are essential to sustainable socioeconomic development of the provinces.

Land Use in the Twelve Target Provinces

Province	Forestry Land	Agricultural Production Land	Others	Total
1. Thanh Hoa	629,099	246,200	238,201	1,113,500
2. Nghe An	1,178,182	251,700	220,018	1,649,900
3. Ha Tinh	365,577	116,700	120,323	602,600
4. Quang Binh	621,056	68,600	116,844	806,500
5. Quang Tri	330,126	75,000	69,274	474,400
6. T.T. Hue	307,871	53,900	144,729	506,500
7. Quang Nam	677,783	111,900	254,117	1,043,800
8. Quang Ngai	296,087	123,700	95,513	515,300
9. Binh Dinh	320,140	136,400	147,460	604,000
10. Phu Yen	250,000	122,300	133,800	506,100
11. Ninh Thuan	199,169	70,000	66,631	335,800
12. Binh Thuan	370,012	284,000	226,788	781,000
Total	**5,545,102**	**1,560,600**	**1833,698**	**8,939,400**
%	**62 %**	**17 %**	**21 %**	**100 %**

Source: PPC Decision on the survey results of land use planning, 2007
Statistical Year Book of Viet Nam, 2008

(4) Forest Classification and Land Use

As the table below shows, the total forest land of the 12 target provinces is 5,545,102 ha which accounts for 34% of the same land in the county (16,247,492 ha), while the total land area of the provinces (8,939,400 ha) accounts 27% of that of the country (33,114,600 ha). In other words, the ratio of forest land in the target provinces (62 % of total land area) is higher than the same of the country (49 % of the same).

Forest Land Area of 12 Provinces

Province	Total Forest Land (a)	Total Land Area (b)	Ratio of Forest Land (b /a)
Total of 12 Provinces (c)	5,545,102	8,939,400	62 %
Whole country (d)	16,247,492	33,114,600	49 %
(c /d)	34 %	27%	

Source: PPC Decisions issued in 2007 on the planning of three types of forests

The next table indicates the forest areas in the target provinces. Nghe An province has the largest forest land (1,178,182 ha) among the 12 target provinces and the area is around two to five times larger than that of other provinces. The total area of protection forest in the 12 provinces is 2,047,334 ha, which is more than one third (37 %) of total protection forest in the country (5,552,327 ha).

Area of Forests by Forest Type in the 12 provinces

(Unit: Ha)

Province	Special Use Forest	Protection Forest	Production Forest	Total of Forest Land	Total Land Area
1. Thanh Hoa	81,504	191,944	355,651	629,099	1,113,500
2. Nghe An	170,004	395,146	613,032	1,178,182	1,649,900
3. Ha Tinh	74,641	120,390	170,546	365,557	602,600
4. Quang Binh	125,498	174,482	321,076	621,056	806,500
5. Quang Tri	68,790	95,794	165,542	330,126	474,400
6. T.T. Hue	88,317	88,129	131,425	307,871	506,500
7. Quang Nam	133,772	327,711	216,300	677,783	1,043,800
8. Quang Ngai		130,499	165,588	296,087	515,300
9. Binh Dinh	33,844	155,148	131,148	320,140	604,000
10. Phu Yen	19,160	101,110	129,730	250,000	506,000
11. Ninh Thuan	42,327	115,864	40,987	199,169	335,800
12. Binh Thuan	32,485	151,117	186,410	370,012	781,000
Total of 12 porivnces	870,341	2,047,334	2,627,427	5,545,102	8,939,400
Whole country	2,199,342	5,552,327	8,495,823	16,247,492	33,114,600

Source: PPC Decisions issued in 2007 on the planning of three types of forests

Forest cover is classified into three (3) types: natural forest, plantation and bare land. The figures in the next table show the areas of three types of forest in each province. As a whole, the average ratio of bare land to the total forest land is 23 %, which is higher than the national average of 17 %. It suggests the need for reforestation and rehabilitation in the 12 provinces is relatively high in the country.

Forest Land Use in the 12 provinces

Unit: ha

Province	Total Forest Land	Covered with Natural Forest	Covered with Plantation [1)]	Bare land and others	Ratio of Bare Land (%)
	(a = b +c+d)	(b)	(c)	(d)	(d /a)
1. Thanh Hoa	629,099	388,782	151,871	88,446	14
2. Nghe An	1,178,182	688,941	137,253	351,988	30
3. Ha Tinh	365,557	210,485	112,391	42,701	12
4. Quang Binh	621,056	457,383	95,488	68,185	11
5. Quang Tri	330,126	135,059	87,108	107,959	33
6. T.T. Hue	307,871	203,763	103,725	383	0
7. Quang Nam	677,783	387,063	78,484	212,236	31
8. Quang Ngai	296,087	105,564	143,324	47,199	16
9. Binh Dinh	320,140	187,188	87,505	45,447	14
10. Phu Yen	250,000	126,233	41,228	82,539	33
11. Ninh Thuan	199,169	141,201	6,159	51,809	26
12. Binh Thuan	370,012	257,351	27,183	85,478	23
Total of 12 provinces	5,545,102	3,289,013	957,135	1,298,954	23
Whole country	16,247,492	10,348,591	13,461,503	2,785,989	17

Source: (1) MARD Decision, No. 1267/QD-BNN-KL, Dated on 04/05/2009
(2) PPC Decisions issued in 2007 on the planning of three types of forests

1) "Coverage of plantation" includes the plantation extending to the outside of forest land. In case of T.T. Hue the private plantations extends in the agricultural production land which account for almost same scale as forestry land. As a result, the figures of bare land ratio became zero. However, there are actually vast bare land in the hilly and mountain areas in T.T.Hue which needs to be rehabilitated through the Project.

(5) Forest Degradation and Forest Fire

The main causes of forest destruction in the watersheds and coastal areas in the target provinces are: i) cutting and fetching trees for firewood, ii) clearing forest for crop production, and iii) unplanned and over exploitation of high valued timber wood. In addition to those causes, the forest fire is also one of the major threats to natural forest and plantations in the provinces. The risk of forest fire becomes high during the dry season when the dry heated winds blow from Lao border. Statistical data reveal that 1,711 forest fires occurred in the twelve target provinces from 2001 to 2008 and damage 6,904 ha of plantation and natural forest. On average, 214 forest fires occurred and damaged 863 ha per year.

(6) Population

The total population in the 12 target provinces in 2008 is estimated to be 17.8 million. Thanh Hoa and Nghe An provinces are the most populous with 3.7 million and 3.1 million in the same estimation (2008 projection), respectively. The average annual population growth rate between 2005 and 2008 is 0.8% in the project area which is lower than the national average of 1.2%. Nghe An, Phu Yen, Ninh Thuan and Binh Thuan provinces indicated the higher rate of the same among the target provinces. Thanh Hoa and Ha Tinh provinces marked the lowest annual population growth rate of 0.4%.

The proportion of rural population in the target provinces is higher than the national average of 71.9%. In the target provinces, 81.5%, on average, lives in rural area. Thanh Hoa province has the highest rural population in the target provinces, which accounts for 90.0%, followed by the Nghe An province (87.7%) and Ha Tinh province (86.9%).

Population of Target Provinces, Rural population and average annual population growth rate

Unit: thousand persons

Year	2000	2004	2005	2006	2007	2008	Rural Population (2008) %	Annual average population growth (2005-2008)
Thanh Hoa	3,494	3,647	3,671	3,682	3,697	3,713	90.0%	0.4%
Nghe An	2,887	3,003	3,039	3,064	3,101	3,131	87.7%	1.0%
Ha Tinh	1,275	1,287	1,299	1,289	1,294	1,307	86.9%	0.4%
Quang Binh	802	832	839	846	853	858	85.5%	0.8%
Quang Tri	581	616	622	625	630	636	75.4%	0.8%
T.T. Hue	1,064	1,120	1,134	1,138	1,145	1,151	68.2%	0.7%
Quang Nam	1,389	1,452	1,463	1,474	1,484	1,492	82.5%	0.7%
Quang Ngai	1,200	1,259	1,269	1,281	1,292	1,303	85.3%	0.8%
Binh Dinh	1,481	1,545	1,557	1,567	1,579	1,593	73.4%	0.8%
Phu Yen	801	849	861	871	880	886	79.7%	1.1%
Ninh Thuan	515	555	562	569	577	583	67.7%	1.3%
Binh Thuan	1,066	1,136	1,151	1,163	1,175	1,189	60.0%	1.1%
Project Target Province Total	16,554	17,300	17,467	17,569	17,706	17,840	81.5%	0.8%
National Total	77,635	82,032	83,106	84,137	85,172	86,211	71.9%	1.2%

Source: Statistical Year Book of Vietnam (2008)

(7) Ethnicity

Vietnam is known as a country with ethnic minority groups. The number of ethnic minority groups in the country is reported to be 54.[7] In the target provinces, the dominant ethnicity of the population in

[7] Committee for Ethnic Minority. (2005). Socio-Economic Development Program for Extremely Difficult Communes in Ethnic Minority and Mountains Areas in the Period 2006-2010. (Downloaded on 08/08/09 http://cema.gov.vn/modules.php?mid=4405&name=Content&op=details)

the rural households[8] is the Kinh which accounts for 90.4% of the total population on average[9]. The remaining rural population is comprised of various ethnic groups including Thai, Muong and Cham ethnicities.

Ethnic distribution in the rural household of the 12 target provinces (% of the head of household)

	Kinh	Thai	Muong	Cham	Others
Thanh Hoa	83.4	6.11	9.63	-	0.85
Nghe An	86.3	9.89	0.01	-	3.84
Ha Tinh	99.9	-	0.03	-	0.04
Quang Binh	97.9	-	-	-	2.08
Quang Tri	89.1	-	-	-	10.90
T.T. Hue	94.7	0.01	0.01	-	5.33
Quang Nam	92.9	0.03	0.02	-	7.03
Quang Ngai	86.2	0.01	0.01	-	13.79
Binh Dinh	97.6	0.01	0.01	0.30	2.09
Phu Yen	94.2	0.02	0.01	2.59	3.20
Ninh Thuan	72.0	-	0.01	13.34	14.70
Binh Thuan	90.9	0.03	0.04	3.52	5.51
Project Target Province Total	**90.4**	**2.01**	**0.98**	**4.94**	**1.65**
National Total	**85.1**	**2.01**	**1.81**	**0.18**	**10.93**

Source: GSO (2007). The results of rural agriculture, forestry, and fishery census 2006.

(8) Employment

Although the GDP from industry, construction and service sectors are increasing, the agriculture, forestry and fishery sector still provide most of the employment opportunities and household income in the target provinces. In 2007, the agriculture sector provided employment to 63.6% in the target provinces. Especially in the northern provinces of Thanh Hoa, Nghe An, Ha Tinh and Quang Binh has the high employment rates.

Employed population of agriculture, forestry and fisheries sectors (2005-2007)

Unit: thousand persons

Provinces	Total employed population			% of population employed by the agriculture, forestry and fishery			Average annual growth rate of employed population by sector		
	2005	2006	2007	2005	2006	2007	Agri., forestry, fishery	Construc-tion & Industry	Services
Thanh Hoa	1,902	1,953	1,994	78.3%	74.8%	72.0%	-2%	15%	18%
Nghe An	1,506	1,549	1,692	79.0%	70.4%	68.2%	-1%	32%	32%
Ha Tinh	639	619	625	80.1%	70.1%	69.6%	-7%	34%	19%
Quang Binh	411	416	421	71.0%	69.8%	68.7%	0%	0%	9%
Quang Tri	282	289	318	64.1%	62.1%	59.8%	3%	28%	7%
T.T. Hue	513	517	521	42.2%	39.7%	39.7%	-2%	3%	3%
Quang Nam	747	760	778	71.3%	69.8%	67.4%	-1%	8%	9%
Quang Ngai	645	687	705	77.4%	61.5%	60.3%	-7%	27%	56%
Binh Dinh	796	809	822	69.0%	67.4%	66.3%	0%	4%	9%
Phu Yen	418	479	483	84.8%	75.0%	74.9%	1%	2%	2%
Ninh Thuan	262	279	282	62.3%	53.2%	52.8%	-4%	17%	17%

[8] The enumeration unit of the census is comprised of households in rural areas and agriculture, forestry and fishery households in urban areas (GSO, 2007. The results of the 2006 agriculture, forestry and fishery census).

[9] ibid

Provinces	Total employed population			% of population employed by the agriculture, forestry and fishery			Average annual growth rate of employed population by sector		
	2005	2006	2007	2005	2006	2007	Agri., forestry, fishery	Construc-tion & Industry	Services
Binh Thuan	539	557	575	65.9%	64.8%	63.6%	1%	7%	7%
Project Target Province Total	10,662	10,920	11,222	70.4%	64.9%	63.6%	-2%	15%	16%
National Total	42,527	43,339	44,172	-	-	-	-	-	-

Source: GSO (2009) .Socio-Economic Statistical Data of 63 Provinces and cities.

(9) Average Income

The average monthly income per capita is reported to be 470,000 VND in the target provinces, which accounts for 74% of the national average (636,000VND) (GSO 2008). On average, 27.9% of the income derives from the agriculture, forestry and fishery, while 32.2% was earned from the salary/ wage.

Monthly average income per capita in 2006 at current prices by income source and by province

(Unit: Thousand VND)

Provinces	Total	Salary/ wage	Agriculture	Non agriculture	Others
Thanh Hoa	395	31.4%	33.7%	13.9%	20.8%
Nghe An	413	25.4%	32.2%	16.5%	25.9%
Ha Tinh	400	18.3%	32.0%	22.3%	27.5%
Quang Binh	420	32.1%	29.5%	13.6%	24.8%
Quang Tri	436	29.1%	30.7%	24.5%	15.6%
T.T. Hue	517	34.2%	17.4%	30.4%	18.0%
Quang Nam	459	39.9%	26.4%	19.2%	14.6%
Quang Ngai	455	36.7%	25.1%	24.0%	14.3%
Binh Dinh	553	34.0%	24.2%	30.6%	11.0%
Phu Yen	523	34.4%	32.1%	21.8%	11.7%
Ninh Thuan	491	36.0%	18.3%	31.6%	14.1%
Binh Thuan	577	31.5%	35.7%	22.7%	9.9%
Project Target Province Total	470	32.2%	27.9%	23.0%	16.7%
National Total	636	34.3%	24.8%	22.8%	18.1%

Source: Statistical Year Book of Vietnam (2008)

(10) Poverty Situation

Despite the recent improvement in the poverty ratio, the inequality in distribution of wealth remains evident with 0.42 of the gin coefficient of the national average. The rural poverty rate is still high (18.0%), while that of the urban area is 7.7% in 2006 according to the new government poverty line[10]. The target provinces indicated the poverty rate of 21.6%, which is higher than the national average. Within the target province, the highest poverty rate was marked by Ha Tinh province (30.8%), followed by Quang Tri (27.6%), Thanh Hoa (26.6%), and Nghe An (25.20%) in 2007.

[10] Poverty line for 2006-2010: 200,000VND/person/ month for rural and 260,000VND/ person/ month for urban areas. Up to 2002, poverty line of Vietnam has been defined by two authorities, MOLISA and GSO. In 2005, a government order was issued to set the poverty line as 200,000 VND/ month/ person (rural) and 260,000 VND/ month/ person (urban) to adopted between 2006 and 2010 (Decision No. 170/2005/ QD-TTg of July 8, 2005 promulgating the poverty line for the 2006-2010 period).

Poverty Rate based on the new government poverty line in 2006-2010[11]

Province	2006	2007
Thanh Hoa	27.5	26.6
Nghe An	26.0	25.2
Ha Tinh	31.5	30.8
Quang Binh	26.5	26.0
Quang Tri	28.5	27.6
T.T. Hue	16.4	15.6
Quang Nam	22.8	22.1
Quang Ngai	22.5	21.7
Binh Dinh	16.0	15.4
Phu Yen	18.5	17.8
Ninh Thuan	22.3	21.2
Binh Thuan	11.0	10.5
Project Target Province Average	22.5	21.6
National Average	15.5	14.8

Source: Statistical Year Book of Vietnam (2008)

(11) Rural Infrastructure

a. Road

Roads in the target Provinces are classified into central managed road, provincial and city managed road, and district and commune managed road in accordance with the location and responsibility of the operation and maintenance. According to the Statistical Year Book 2007, the condition of the district and commune roads is poorer than that under the management of city and central governments.

b. Water Supply

According to the Poverty Profile Survey carried out by JBIC in 2008, the clear gap in the accessibility to the safe water is observed in the region-wise and area-wise. The population in the South East region covering Ninh Thuan and Binh Thuan provinces has more access to the safe water than the households in the North Central Coast and South Central Coast regions. Accessibility to the safe water in the rural area is lower than the one in the urban area. Although 92.2% of people living in the urban area in the North Central Coast region can access to the safe water, only 74.5 % can do in the rural area.

Access to the Safe Water

Region	Total	Urban Area	Rural Area
North Central Coast	76.6 %	92.2 %	74.5 %
South Central Coast	83.9 %	92.0 %	80.7 %
South East	93.9 %	98.3 %	89.8 %

Source: Poverty Profile Vietnam, JBIC Feb.2008

c. Irrigation

Total length of irrigation canal in the 12 target provinces is 34,141 km. Out of 34,141km, 11,733 km canal is solid and lined by the concrete or other materials. The coverage of solid or concrete lines canal is 34% in the 12 Provinces and it is high in North Central Coast region (40.4%). A total of 3,094 pump stations are available in the target Provinces serving

[11] ibid

agriculture, forestry and fishery production in the communes. The pumping stations are concentrated in the North Central Coast region.

Available Irrigation Facilities

Region	Province	Length of Irrigation Canal (km)	Length of Solid Irrigation Canal		Number of Pump station
North Central Coast	Thanh Hoa	7,347.5	3,093.0	(42 %)	756
	Nghe An	6,413.0	3,009.0	(47 %)	596
	Ha Tinh	3,758.6	1,342.3	(36 %)	375
	Quang Binh	1,528.3	676.7	(44 %)	223
	Quang Tri	1,667.0	373.3	(22 %)	155
	Thua.Thien- Hue	1,512.5	480.9	(32 %)	355
South Central Coast	Quang Nam	1,214.8	362.3	(30 %)	184
	Quang Ngai	4,506.5	1,660.7	(37 %)	111
	Binh Dinh	2,557.6	156.2	(6 %)	198
	Phu Yen	1,666.2	272.5	(16 %)	96
South East	Ninh Thuan	677.3	248.3	(37 %)	20
	Binh Thuan	1,292.0	98.4	(8 %)	25
Total		34,141.3	11,733.6	(34 %)	3,094

2.1.2.3 Development, Master Plan and Strategies of the Sector

Vietnam Forestry Development Strategy 2006-2020 (Prime Minister Decision No.18/2007/QD-TTg) approved by Prime Minister on the 5th of February 2007 provides long-term development orientation of the forestry sector with new viewpoints to meet the requirements for renovation, international economic integration and sustainable development.

The overall objectives of the strategy until 2020 are:

(a) To sustainably establish, manage, protect, develop, and use 16.24 million ha of land planned for forestry;

(b) To increase the forest cover ratio up to 42-43% by 2010 and 47% by 2020;

(c) To ensure a wider participation from various economic sectors and social organizations in forest development;

(d) To increase contributions to socio-economic development, environmental protection, biodiversity conservation and environmental services supply;

(e) To reduce poverty and improve the livelihoods of rural mountain people; and

(f) To contribute to national defence and security.

The specific objectives and targets of the strategies are shown below:

Specific objectives and targets of FDS

Specific objectives	Targets by 2020
1. **Economic objectives**: Existing natural forests should be well-managed; forest plantations should be expanded and their productivity should be improved; agro-forestry extension should be strengthened; bare land should be used more effectively to develop forest. Processing of timber and NTFP must be more competitive and sustainable to meet the domestic and export demands.	♦ Increase 4-5%/year in forest production growth, ♦ Maintain 2.3-2.4 mil. ha of industrial plantations and 4.0 mil. ha of natural forest, ♦ Plant 200 mil. trees/year of scattered trees, ♦ Produce 20 mil. m^3/year of timbers including 10 mil. m^3/year of large timber, ♦ Export US$ 4.0 bil. of forest products including US$3.2 bil. of timber products and US$0.8bil. of NTFP, ♦ Improve environmental services of forest (CDM, eco-tourism, erosion prevention, watershed protection, etc.) by US$9.0 bil., and, ♦ Certify 30% of production forest area for sustainable forest management.
2. **Social objective**: Livelihood of forest-dependent people should be improved through socialization and diversification of forest activities. Employments should be generated, capacity and awareness of people should be improved, particularly minority groups, poor households and women in remote areas, so that step by step they could basically live on forest in a sustainable manner and contribute to poverty alleviation, social security and national defense.	♦ Generate 2.0 mil. of labors, ♦ Improve income and contribute to poverty alleviation, ♦ Completely allocate and lease forest/forest land to forest owners by 2010, and ♦ Increase vocationally trained workers up to 50% with special focus on ethnic groups, poor households and women in remote and isolated area.
3. **Environmental objective**: Forest protection, nature protection and bio-diversity conservation should be well undertaken to effectively contribute to protection of watershed, coastal and urban area, mitigation of natural disaster, prevention of erosion, and protection of water sources while creating income from environmental services (environmental fee, CO_2 market, eco-tourism, etc.)	♦ Increase forest cover by 43% by 2010, paying attention to forest quality, ♦ Efficiently manage and utilize 5.7 mil. ha of protected forest and 2.3 mil. ha of special use forest, ♦ Minimize forest violation, and ♦ Develop payment mechanisms for environmental services of the forest starting early 2006 to re-invest in forest management and protection.

There are three development programs under the Forestry Development Strategy, namely (a) Sustainable forest management and development program, (b) Forest protection, biodiversity conservation and environmental services development program, and (c) Forest products processing and trade program.

The Strategy provides forest development orientations and measures for implementation that are relevant to the proposed project:

(1) General development orientations

(a) For watershed protection forests, it is necessary to focus on developing investment projects in order to protect and restore protection forests in Northern mountainous region, **Northern Central region, Central Coastal region** and Central Highlands.

(b) For tide-shielding, sea encroachment, wind- and sand-shielding, focus should be put on developing projects on protection, restoration and development of mangrove forests in Northern, **North Central, Central Coastal regions** and the Mekong river delta, and to

consolidate and develop the system of sand- and wave-shielding forests in **Central Coastal regions**.

(c) By 2010, all forest areas and forest land basically have to be allocated and leased to forest owners belonging to economic entities: State organization (PFMB) will manage 70% of large-scale and nationally important protection forests. The remaining 30% of protection forest will be managed by private enterprises, communities, cooperatives, households, and individuals as stipulated in the Forest Protection and Development Law.

(d) People's awareness should be changed from purely protection of forest trees to protection of continuous ecosystems as well as to ensure an optimal way for forest regeneration and utilization capacity. Forest protection and conservation must be based on the development principles, which create conditions for forest owners and local people to engage in forest protection and development activities in order to make legitimate income on forest activities.

(e) Forest protection and conservation is the direct responsibility of the forest owners with collaboration of local village communities and effective support of the state forestry management agencies and local authorities.

(f) Planting and using NTFPs should be strengthened, focusing on advantageous products such as bamboo, rattan, medicinal herbs, and foodstuff, and raising forest animal is encouraged.

(2) Orientation of forest development by region

(a) Northern Central region (Thanh Hoa, Nge An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue provinces):

- Concentrate on establishment and consolidation of protection forest for watershed, coastal protection, sand and wave-shielding, and prevention of erosion and earth crumbling along the sea coast.

- Strengthen community-based forest management modality, especially for protection forests in scattered watersheds and areas needing sand-shielding and improvement of poor soils.

(b) Southern Central Coastal region (Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan and Binh Thuan):

- Strengthen the watershed protection forest system, particularly in steeply-sloping mountainous areas, where the forest has been lost, and enhance the establishment of protection plantations for wind- and sand-shielding and for control of coastal erosion and earth crumbling.

- Enhance the protection of the existing forests and plant new forests in dry areas, such as Ninh Thuan and Binh Thuan, to improve water sources and cultivated land.

(3) Measures for implementation

(a) Develop and step-by-step implement mechanisms for fee collection for environmental services that forestry is making and supplying for the society, such as watershed protection for hydro-power plants, irrigation, city environment and coastal protection, ecotourism and outdoor recreation.

(b) Develop small scale CDM-afforestation projects to generate income for the poor people.

(c) Increase budget from the State allocated for management, protection and development of special-use, protection, production forests, scientific research, forestry extension, human resource training, development of a modern forest management system, forest inventory and planning, establishment of high-quality forests for seed and nurseries, and adequate investments in construction of forestry infrastructure similar to agriculture infrastructure.

(d) For special use and protection forests, allocate the annual State budget for administrative cost for management boards and operational costs for commune and village forest protection groups.

(e) Strengthen contract-based protection for protection forests, by promoting getting direct benefits from forests and other income sources, including payments for environmental services. Sufficient investment will be given to developing agro-forestry and NTFP (concentrated plantations and establishment under forest canopy areas) so as to replace the current contract mechanism, which uses money from the state budget.

(f) Provide seedlings, fertilizer to, households, individuals, and village communities, especially poor households, to establish small-scale production plantations. This support can be considered as the State's payments for the environmental benefits that these forests provide to the society.

The proposed project is expected to contribute to achievement of all the overall objectives set by the Forestry Development Strategy. Furthermore, the concepts and framework of the proposed project are in line with the above-mentioned development orientations of the strategy. The propose project could be a driving force for implementation of the strategy particularly in Northern Central and Southern Central Coastal regions after 5MHRP will end in 2010.

2.1.3 Demand/Needs of the Project (Demand and supply analysis and Necessity of the Project)

2.1.3.1 Demand of Timber Production

Because of its geographical advantage, the provinces in the central region are the leading producers of wood and timber products to export abroad in the country. Wood and timber are mainly produced in the production forest land. Small timbers and wood chips of Acacia species are the main industrial products in the target provinces. In many rural areas, making a contract with private companies, such as milling and processing factories in the capital city of the provinces, is the prevailing practice. The rotation period of Acacia and Eucalyptus are seven to ten years on average. After harvesting woods, local communities replant the seedlings in the same plot.

The next table shows the timber production in the target provinces for the last five (5) years. The total production of timber in the 12 target provinces have been gradually increasing. The market of wood chips and small round timber in the provinces is stable and has been expanding recently. In Binh Dinh and Phu Yen provinces, paper mill factories in the provincial capital cities make agreements with rural farmers to sell Acacia wood directly to the factories. Apart from the market of round wood and wood chips, local farmers also sold small trees and branches of Acacia as a fuel wood in the local market.

Timber Production in 12 Provinces (unit: m^3)

Province	2000	2004	2005	2006	2007	2008
1. Thanh Hoa	38,400	33,100	33,700	46,100	45,800	51,600
2. Nghe An	93,800	92,100	93,500	92,700	98,900	100,200
3. Ha Tinh	28,500	44,000	47,500	49,200	73,100	62,300
4. Quang Binh	30,800	39,600	37,300	34,800	43,500	43,200
5. Quang Tri	13,400	34,300	44,600	48,400	54,200	65,500
6. T.T. Hue	31,100	49,100	54,200	58,100	64,600	65,400
7. Quang Nam	69,100	91,700	128,700	141,200	156,000	206,300
8. Quang Ngai	57,900	150,600	151,400	150,200	180,600	180,400
9. Binh Dinh	78,400	125,200	127,300	138,800	152,100	161,800
10. Phu Yen	13,200	11,100	11,700	13,600	18,500	21,500
11. Ninh Thuan	6,100	500	3,300	3,900	2,100	3,900
12. Binh Thuan	39,900	26,300	36,700	37,100	38,400	35,700
Total of 12 provinces (% over the country total)	501,600 (21 %)	697,600 (27 %)	769,900 (26 %)	814,100 (26 %)	927,800 (27%)	997,800 (28 %)
Total of the country	2,375,600	2,627,800	2,996,400	3,128,500	3,461,800	3,562,300

Source: Statistical Year Book of Vietnam, 2008

Non-timber forest products (NTFP) are also collected from forests and sold in the local market. Although there is no statistical datum of NTFP production and consumption, some NTFPs such as rattan, bamboo shoots, mushrooms and traditional medicines are quite popular in the target province sand sold in the local markets in the district and commune centers.

2.1.3.2 Need to Prevent Natural Calamities

Although the current trend in forest area shows that forested area has been increasing recently, the quality of the forests has not reached the target and the forest is being destroyed due to changes of land use purposes, illegal logging, and slash-and-burn agriculture. Forest loss or degradation has partly caused unusual floods, soil erosion, and landslides in the target provinces. Consequently, forest development, protection and management shall be still applied in protection forests, especially in those classified into extremely important protection forests.

2.1.3.3 Need for Compliance with the National Target Program of UNFCCC

On the other hand, the Government of Vietnam has worked actively to mitigate and adapt to climate change by ratifying the Kyoto Protocol under the United Nations Framework Convention on Climate Change (UNFCCC). In fact, in December 2008, the Prime Minister approved the National Target Program (NTP) to respond to climate change (PM Decision No. 158/2008/QD-TTg dated 2/12/2008).

NTP requires ministries to develop their action plans to respond climate change by 2010 and to implement the action plans by 2015. The budget for implementing activities of NTP will be sourced from both foreign and domestic capitals. NTP specifies MARD's tasks as (i) to propose measures to develop protection forests (upstream forests and coastal forests) in accordance with climate change scenarios; (ii) to propose projects on socio-economic development in regularly dry areas; and (iii) to integrate climate change issues into development of measures to ensure security of water sources, sea dyke system and reservoirs. In response to NTP and recognizing the important role of forestry in climate change mitigation and adaptation, DOF has developed an Action Plan on climate change mitigation and adaptation for agriculture and rural development sector, in collaboration with different departments under MARD, other related ministries and local authorities.

Consequently, forest development, protection and management is essential to fulfilment of the international commitment made by the government.

2.1.3.4 Needs for Compliance with Other International Conventions

Aside from UNFCCC, Vietnamese Government has also worked on biodiversity conservation (Convention on Biological Diversity: CBD) and land degradation/desertification (United Nation Convention to Combat Desertification: UNFCCD). In order for the Government to fulfil its commitments with the international communities, forest protection and restoration should be promoted actively and this proposed project will be one of the engines for such interventions.

2.1.4 Project Rationale

The project rationale is supported by the following reasons.

2.1.4.1 Contribution to the Existing Policies and Strategies

The proposed project is expected to contribute to achievement of the objectives set by the Forestry Development Strategy. Furthermore, the concepts and framework of the proposed project are in line with the development orientations of the strategy. Hence, the propose project could be a driving force for implementation of the strategy particularly in Northern Central and Southern Central Coastal regions after 5MHRP will end in 2010.

Furthermore, the proposed project can contribute to the achievement of goals set by the Socio-Economic Development Plan since the project has the same orientations and directly or indirectly generate additional income for rural population by involving them in the components of the project.

2.1.4.2 Compliance with International Conventions

As described above, the Government of Vietnam has worked actively on mitigation and adaptation of climate change issues because Vietnam is one of the most vulnerable countries to climate change. Recognizing the importance and urgency of the actions against climate change, the government ratified several international conventions related to climate change, such the United Nations Framework Convention on Climate Change (UNFCCC), Convention on Biological Diversity (CBD), and the United Nation Convention to Combat Desertification (UNFCCD). The government's action to climate change is not only for the international commitment but for national security.

Restoration and sustainable management of protection forests are important mitigation as well as adaptation measures against climate change, land degradation, and degradation of biodiversity.

2.1.4.3 Necessity of Restoration of Protection Forest

The Five Million Hectare Reforestation Program (5MHRP) that has been implemented since 1998 will end in 2010. By 2008, the program has achieved 2.8 million ha of forest protection contract, 0.8 million ha of regeneration, 1.5 million ha of afforestation and 0.1 ha of industrial and fruit plantations. However, the quality of the forests is still at low level and further investment and efforts are necessary. In view of such remarkable accomplishments made by the program and a fact that financial support from international donors to forestry sector has declined, the GoV is likely to formulate a new forestry program/project succeeding the 5MHRP before it ends, although such program/project has not been officially announced by the government yet.

The forest area in Vietnam has increased mainly as a result of the government's reforestation efforts. But it is said that the quality of forest is still low and thus, tangible benefits from the forest are not expected in the near future. There are still bare lands and poor natural forests within protection forests. Severe flood and land slides frequently occurred in the central coastal provinces are partly attributable to degraded protection forest land. Restoration of protection forests is essential in these areas to

improve its protective functions. In Ninh Thuan and Binh Thuan provinces, restoration and protection of protection forests are also important to combat desertification. It is also important to enhance the economic value of protection forests for sustainable management by local communities. These actions would contribute not only to national security in terms of conservation of water resources, prevention of soil erosion, mitigation of natural disasters, poverty alleviation, etc. but also for mitigation of global climate change.

Unlike infrastructure projects, forest restoration and materializing sustainable forest management will need longer time, continuous efforts and a certain amount of fund. Momentum of forest protection and development achieved in the 2000's should be maintained and guided to better direction by the proposed project.

2.1.4.4 Necessity of JICA's Assistance

JICA has long experiences of assisting several forestry projects and is one of the largest donors in the forestry sector in Vietnam. Its accomplishments have been remarkable and notable especially for achievement of sustainable forest management. Recently the following projects have contributed to restoration and sustainable management of forests and capacity development of stakeholders in forest management.

a. The Project for Afforestation in Coastal Sandy Area

b. Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam

c. The Project for Village Support for Sustainable Forest Management in the Central Highland

d. Capacity Building for Preparing Feasibility Study and Implementation Plan for Afforestation Projects

e. Rural Infrastructure Development and Living Standard Improvement Project III (SPL-III) / Afforestation Component Sector

e. Study on Capacity Development for AR-CDM Promotion in Vietnam

The activities planned under the proposed project covers forest planning, afforestation in watershed and coastal sandy area, assisted natural regeneration, support for livelihood improvement of mountain communities, among others. Hence, the experiences of JICA are quite useful and best fit to the project.

2.2 Project Objectives

The overall goals of the Project are:

i) enhancement of the functions of watershed and coastal protection forests;

ii) restoration and conservation of biodiversity; and

iii) poverty reduction in mountainous areas.

To achieve these overall goals, the Project sets the following immediate objectives:

i) to restore and improve watershed and coastal protection forests in the 12 provinces

ii to strengthen the capacity of the local governments and the owners of protection forests; and

iii) to improve the livelihoods of communities who would manage protection forests.

2.3 Suitability with and Contribution to Government Strategies

As described in sub-section J.2.1.4.1, the proposed project will contribute to the achievement of the government strategies of Forest Development Strategy and Socio-Economic Development Plan.

2.4 Relations with Other Project

2.4.1 Interrelations with Similar Forestry Projects in the Past and at Present

2.4.1.1 Relationship / Similarities with Other Projects

The Vietnam forestry sector has received significant support from international donors. International supports from donors have contributed to the achievements in reforestation, forest employment, forest protection and conservation, forest industry and shift to social/community forestry regime. List of completed and on-going ODA-funded forestry projects are given below:

Major ODA Forest Projects in Vietnam

Projects	Total Cost (mil. US$)	Project Area (provinces)	Reforestation Area	Project Duration
I. Grant Projects				
1. PAM 4304	33.0	20 provinces		1992-1998
2. SFDP	EUR 10.3	Song La and Lai Chau	-	1993-2004
2. MRDP	18.1	Phu Tho, Yen Bai and Lao Cai		1996-2002
3. KfW1	5.7	Lang Son, Bac Gian	15,593 ha	1995-2000
4. PAM 5322	18.4	14 provinces		1997-2002
5. KfW2	9.3		21,000 ha	1997-2002
6. KfW3	6.0	Bac Giang, Quang Ninh, Lang Son	17,175 ha	1999-2005
7. KfW3 phase 2	3.0	Bac Giang, Quang Ninh, Lang Son	9,390 ha	2002-2008
8. PACSA	11.5	**Quang Nam, Phu Yen**	**3,670ha**	2001-2005
9. KfW4	9.4	Thanh Hoa, Nghe An	*10,500 ha	2002-2008
10. KfW6	112.3	**Quang Nam, Quang Ngai, Binh Dinh, Phu Yen**	*22,700 ha	2005-2013
11. KfW3 phase 3	4.0	Bac Giang, Quang Ninh, Lang Son	*7,000 ha	2007-2013
II. Loan Projects				
1. ADB 1	24.5	**Thanh Hoa, Quang Tri, Phu Yen** and Gia Lai	12,226 ha (**6,332 ha**)	1997-2005
2. WB 1	22.0	**Thanh Hoa, Quang Tri,** Lam Dong, Kon Tum, Binh Phuoc	- *Protection only*	1998-2006
3. WB 2	56.0	Tra Vinh, Soc Trang, Bac Lieu, Ca Mau	5,790 ha (**4,662 ha**)	2000-2007
4. JBIC	16.5	**Quang Tri, T.T. Hue, Quang Nam, Quang Ngai, Phu Yen**	**22,724 ha**	2002-2008
5. WB 3	67.1	**TT Hue, Quang Nam, Quang Ngai, Binh Dinh**	*66,000 ha	2005-2011
6. KfW7	17.2	Hoa Binh, Son La	*3,000ha	2006-2014-
7. ADB 2	91.3	Kn Tum, Gia Lai, **Phu Yen**, Dak Lak, Dak Nong, Lam Dong	*41,858 ha (***6,850 ha**)	2007-2014

Source: Management Board of Forestry Projects

Note: Underlined figures indicate the reforestation targets/ accomplishment for protection forest. The rest are the targets for production forests. Figures with "*" are targets.
PAM: Projects funded by World Food Programme
SFDP: Social Forestry Development Project (funded by Germany)
MRDP: Mountain Rural Development Programme (funded by Swedish)
KfW: KfW Afforestation Project (funded by Germany's Bank for Reconstruction)
PACSA: Project for Afforestation in Coastal Sandy Area
ADB1: Forestry Sector Project
WB1: Forest Protection and Rural Development Project
WB2: Coastal Wetland Protection and Development Project
JBIC: Rural Infrastructure Development and Living Standard Improvement Project III (Sector Project Loan III) /Afforestation Sector
WB3: Forestry Sector Development Project in 4 provinces
ADB3: Forests for Livelihood Improvement in the Central Highlands Sector Project

Among others, JBIC Project named "Rural Infrastructure Development and Living Standard Improvement Project III (Sector Project Loan III) /Afforestation Sector" (or so-called "SPL-3 Afforestation Project") is closely related to the proposed project. In fact, the project is a succeeding project of SPL-3 Afforestation Project and follows the same concept of the project, which is to restore and protect protection forests in the central coastal provinces.

Aside from SPL-3 Afforestation Project, KfW7, ADB2, and WB3 have a commonality in which the projects target the local communities residing the project areas. However, there is also a big difference between the proposed project and them. The former project (the proposed project) aims to rehabilitate and protect only protection forests, while the latter put there focus on production forests.

2.4.1.2 Lessons Learned from the Similar Forestry Projects

The past experiences, namely, lessons learned and good practices, gained by the above-mentioned projects were fully reviewed and taken into account in the formulation of the proposed project. Some of the lessons learned from SPL-3 Afforestation Project (JBIC), Forestry Sector Project (ADB), Son La-Lai Chau Rural Development Project (EU), Afforestation Program (or so-called "KfW1-3 projects) (KfW), and Forest and Rural Development Project (WB) are highlighted in **Table J-2-1** and **Table 2-2**.

2.4.2 Possible Linkages with Other Projects

As described above, since the target area of the proposed project is not the same with those of other ODA-funded forestry project, direct interaction with other projects is not expected to take place during the implementation of the project, especially on a field level. However, there should be coordination or information exchanges with and among the projects as all the projects including the proposed project employ the community participation as a key approach. In addition, the proposed project may link with any ODA-funded projects focusing on livelihood improvement or living standard improvement on a field level. By linking with such projects, the proposed project can maximize its resources with the aim of the project purpose.

Furthermore, the following government-initiated projects will be the crucial projects that the proposed project will need to link with to positively synergize each other and maximize the effects and outcomes of the project activities.

- 135 Program (or Socio-economic Development Program for Communes faced with Extreme Difficulties in Ethnic Minority and Mountainous Areas) and its succeeding program

- 661 Program (or Five Hundred Hectare Reforestation Program) and its succeeding program

2.5 Project Justification

As described above, the proposed project is judged as crucial and, therefore, its implementation is also considered justifiable. The following are the summaries of the project justification.

a. The project will improve economic situation of rural households in mountainous areas and, therefore, contribute to the achievement of the goals of Socio-economic Development Plan.

b. The project will increase the forest cover and improve the quality of forests in protection forest and contribute to the achievement of the goals and objectives of Forest Development Strategies.

c. The project will improve and strengthen the functions of watershed and coastal protection forests, which will contribute to stabilizing water flow in the downstream, improving the quality of water in rivers as well as springs, reducing the occurrence of flash floods and land slides, minimizing the incidence of forest fires, stabilizing sands and protecting social infrastructure and houses from blown sand.

d. The project will contribute to the mitigation to climate changes and also fulfilment of the requirements set by NTP under UNFCCC.

e. The project will contribute to the stabilization of supply of wood/timber to the domestic market though the volume of timber/wood from the project area is limited.

3. Project Design, Resources and Outputs

3.1 Analysis, Selection and Determination of the Project Areas

3.1.1 Basic Concepts for Selection and Determination of the Project Areas

Prior to the selection of the project areas in the target provinces, the following basic principles and minimum requirements were set for the selection of the target sites.

Basic principles in site selection

a. The project area should be currently categorized as protection forest and will never be converted into industrial/agricultural development area/zone in the future.

b. The project area should be contiguous and large enough to ensure the functions of watershed or wind/sand shielding protection forest when a canopy of forest is established.

c. The project area should not be beyond the capacity of the forest owner (e.g., PFMBs) and local communities who would develop and manage the project area during the project period.

d. The project area is strategically located to produce significant functions as protection forest.

e. There should villages/communities that reside adjacent to the project areas and can take part in the project activities, such as afforestation/reforestation, assisted natural regeneration, and protection of natural forest in protection forest.

f. The total sum of the project areas in one province should be determined on the basis of the capacities of potential contractors for forestry development, infrastructure development, and capacity development components in the respective provinces.

Minimum requirements for site selection

- The proposed site should have a sizable area of protection forest in a contiguous form.
- A forest owner of the proposed site should be capable of developing and managing the proposed site.
- The proposed site should be suitable for afforestation/reforestation in terms of natural conditions, such as rainfall pattern, temperature, and soil conditions.
- The proposed site should not be the project sites for other similar projects.
- There is no social and/or political conflict taking place over land use of the proposed site.
- No industrial development activity is planned in the proposed site or no land use conversion is anticipated in the proposed site.
- No resettlement/land acquisition is required along with the introduction of the project.

3.1.2 Initial Identification of the Proposed Project Areas

After given the explanation/guidance about the basic principles and minimum requirements listed above in the beginning of the survey, DARDs of the target provinces selected the proposed sites in line with the same principles and made a long-list of the proposed sites. The proposed target sites proposed by DARDs are presented in **Table J-3-1**, and summarized below.

Initial Target Areas proposed by DARDs of the 12 Provinces

Province	Target areas for improvement/development of <1			Districts	Communes
	Watershed PF	Coastal PF	SPL-3 sites	related	involved
1. Than Hoa	32,700	800	0	10	50
2. Nghe An	71,650	0	0	10	57
3. Ha Tinh	19,608	678	0	5	64
4. Quang Binh	3,500	2,100	0	5	33
5. Quang Tri	9,800	0	4,485	6	23
6. T.T. Hue	14,100	700	4,135	5	16
7. Quang Nam	13,170	0	1,550	6	21
8. Quang Ngai	12,430	0	4,787	4	20
9. Binh Dinh	19,069	0	0	5	11
10. Phu Yen	16,370	0	4,221	3	4
11. Ninh Thuan	13,504	50	0	4	8
12. Binh Thuan	7,800	2,700	0	3	8
Total	233,701	7,028	19,178	66	315

Note: <1 The target areas are the total of the targets for the respective forest development/improvement activities, such as afforestation, protection of natural forest, and ANR.
Sources: DARDs of the 12 provinces

The targets proposed by DARDs were likely beyond the capacity of the target provinces; the targets and scopes of the 12 provinces needed reviewing and adjusting in consideration of the capacity levels of the contractors and local communities in the target provinces.

3.1.3 Determination of Evaluation Criteria for Screening the Project Areas

To prioritize and adjust the target areas proposed by DARDs in line with the basic principles described in **Sub-section 3.1.1**.in this Annex, the following criteria were developed and used. .

Criteria for Evaluation of the Target Project Sites

Criteria	Indicator
1. Type of forest owner (Capacity of forest owner)	The area under management of PFMB is more prioritized than the management of CPC/villages. In general, PFMB is more capable than CPC/villages in terms of forest management.
2. Geographical contiguity	The area geographically contiguous on a medium scale (more than 100ha) would be prioritized.
3. Area for reforestation under one forest owner	The total sum of the project areas for reforestation should not be more than 1,500 ha for one forest owner. The experiences of SPL-3 and 661 program suggested that 500 ha/annum or 1,500 ha for three years would be the maximum target for afforestation.
4. Importance of protection forest	The protection forest that has an important facility (e.g., dam, reservoir) to protect either in the downstream basin for watershed protection forest or in the inland area for coastal protection forest. The area categorized as the most critical watershed is naturally prioritized.
5. Location of the project area	The area located in the strategic point for improving the functions of protection forest should be prioritized.
6. Accessibility to the project area	The area accessible from local communities should be prioritized. The easier they can access to the site, the more they can frequently management.
7. Poverty ratio of communes involved	The higher poverty ratio in the commune is, the higher priority the commune is given.

Sources: JICA Preparatory Survey (2009)

3.1.4 Examination and Evaluation of the Initially Identified Areas

Table 3-2 shows the results of the evaluation of the target areas. Its summary is highlighted below.

Results of Evaluation of the Target Sites

Province	Results of Evaluation
1. Thanh Hoa	The proposed sites dispersed and isolated from the contiguous areas and those currently managed by CPCs or any local organizations (e.g., youth group) should be reconsidered. The sites with less than 100 ha should also be reconsidered.
2. Nghe An	The proposed sites dispersed and isolated from the contiguous areas and those with less than 100 ha should also be reconsidered.
3. Ha Tinh	The proposed sites currently managed by CPCs or any local organizations (e.g., youth group) and those with less than 100 ha should also be reconsidered.
4. Quang Binh	The proposed sites dispersed and isolated from the contiguous areas and those with less than 100 ha should also be reconsidered.
5. Quang Tri	The proposed target sites can be proposed for the project.
6. T.T. Hue	The proposed target sites can be proposed for the project.
7. Quang Nam	The proposed target sites located in small islands in the reservoir should be reconsidered.
8. Quang Ngai	The proposed target sites can be proposed for the project.
9. Binh Dinh	The proposed target sites located away from local communities should be reconsidered and the target with more than 1,500 ha should be reduced.
10. Phu Yen	The proposed target sites located away from local communities should be reconsidered and the target with more than 1,500 ha should be reduced.
11. Ninh Thuan	The proposed target sites located away from local communities should be reconsidered and the site evaluated as low priority area should be canceled.
12. Binh Thuan	The proposed target sites located away from local communities should be reconsidered.

As shown in **Table 3-1** and table below**,** a total of 23,090ha, 3,300 ha and 89,920 ha were selected for afforestation/reforestation, improvement of existing plantations, and ANR/protection of natural forest in watershed protection forests, respectively. Likewise, 1,550 ha, 800 ha, and 1,600 ha in coastal protection forests were selected for the same sub-components. Furthermre, a total of 15,670 ha of plantations/forests developed by the SPL-3/Afforestation Project were also selected for improvement.

Results of the Provision Selection of the Project Areas

Province	Watershed PF			Coastal PF			Improve.	No. of
	Afforestion	Improve. of existing plantations	Protection/ ANR	Afforest. / Reforest.	Improve. of existing plantations	Protection/ ANR	of SPL-3 forest	Communes concerned
1. Thanh Hoa	1,270	1,400	7,400	0	0	0	0	12
2. Nghe An	2,300	900	4,100	0	0	0	0	39
3. Ha Tinh	1,960	1,000	8,510	0	0	0	0	18
4. Quang Binh	1,600	0	3,800	400	800	0	0	15
5. Quang Tri	2,900	0	6,750	0	0	0	3,610	17
6. T.T. Hue	3,000	0	10,500	0	0	0	4,100	8
7. Quang Nam	970	0	10,200	0	0	0	1,550	19
8. Quang Ngai	3,500	0	6,500	0	0	0	3,790	9
9. Binh Dinh	2,480	0	8,410	0	0	0	0	10
10. Phu Yen	1,500	0	5,250	0	0	0	2,620	4
11. Ninh Thuan	1,610	0	10,600	50	0	0	0	7
12. Binh Thuan	0	0	7,800	1,100	0	1,600	0	9
Total	23,090	3,300	89,920	1,550	800	1,600	15,670	167

Sources: JICA Survey Team

3.2 Location and Site

3.2.1 Communes where the Project Areas are located

A location map of the selected project areas in the 12 provinces is presented in **Figure J-1-1**. A total of 167 communes in 54 districts and 1 township in the provinces would relate to the project areas. **Table 3-3** shows a list of communes and the following table gives its summary.

Number of District, Communes and the Project Area

Province	No. of Districts & Township	No. of Communes	Project Area (ha)
1. Thanh Hoa	6	12	10,170
2. Nghe An	6	39	7,300
3. Ha Tinh	5	18	11,400
4. Quang Binh	3	15	6,600
5. Quang Tri	7	17	13,260 (3,610)
6. T.T. Hue	3	8	17,600 (4,100)
7. Quang Nam	6	19	12,720 (1,550)
8. Quang Ngai	4	9	13,790 (3,790)
9. Binh Dinh	5	10	10,800
10. Phu Yen	3	4	9,370 (2,620)
11. Ninh Thuan	4	7	12,260
12. Binh Thuan	3	9	10,500
Total	**54 district & 1 township**	**167**	**135,930**

Source: JICA Survey Team

3.2.2 Forest Owners

The target project areas are currently managed by PFMBs in the 12 provinces. A total of 57 PFMBs in 54 districts and one township are responsible for the target protection forests as tabulated below. In Nhu Xuan district of Than Hoa province and Duy Xuen district of Quang Nam province, new PFMBs will be established for management of the target protection forests.

The target project areas are currently managed by PFMBs in the 12 provinces. A total of 57 PFMBs in 54 districts and one township are responsible for the target protection forests as tabulated below. In Nhu Xuan district of Than Hoa province and Duy Xuen district of Quang Nam province, new PFMBs will be established for management of the target protection forests.

Districts where the Project Areas are located and Related Forest Owners (or PFMB)

Province	District (PFMB)	
1. Thanh Hoa	Thường Xuân (Sông Đằn), Như Xuân (Sông Chàng), Như Thành (Như Xuân)	Thạch Thành (Thạch Thành), Tĩnh Gia (Tĩnh Gia), Hà Trung (Hà Trung)
2. Nghe An	Tương Dương (Tương Dương), Nam Đàn (Nam Đàn), Nghi Lộc (Nghi Lộc),	Yên Thành (Yên Thành), Tân Kỳ (Tân Kỳ), Quỳnh Lưu (Quỳnh Lưu)
3. Ha Tinh	Nghi Xuân (Hồng Lĩnh), Can Lộc (Hồng Lĩnh), Cẩm Xuyên (Cẩm Xuyên, Thạch Hà),	Thạch Hà (Thạch Hà), Hương Sơn (Ngân Phố)
4. Quang Binh	Quảng Trạch (Quảng Trạch), Quảng Ninh (Ba Rền, Long Đại, Ven Biển Nam)	Lệ Thủy (Ven Biển Nam)
5. Quang Tri	Hướng Hóa (Hướng Hóa – Đakrông), Đakrông (Hướng Hóa – Đakrông), Vĩnh Linh (Bến Hải), Gio Linh (Bến Hải)	Hải Lăng (Thạch Hãn), Trieu Phong (Thạch Hãn), Quảng Trị township (Thạch Hãn),
6. T.T. Hue	Hương Trà (Sông Hương, Sông Bồ), Hương Thủy (Sông Hương, Hương Thủy)	Phong Điền (Sông Bồ)
7. Quang Nam	Đông Giang (Sông Kôn, A Vương), Phuoc Sơn (Đak Mi), Bắc Trà My (Sông Tranh),	Phú Ninh (Phú Ninh), Núi Thành (Phú Ninh), Duy Xuyên (New PFMB to be established)
8. Quang Ngai	Ba Tơ (East Ba Tơ / West Ba Tơ), Sơn Hà (Thạch Nham),	Sơn Tây (Sơn Tây) Tây Trà (Tây Trà)
9. Binh Dinh	Hoài Nhơn (Hoài Nhơn), Hoài An (Hoài Ân), Phú Mỹ (Phú Mỹ)	Vĩnh Thạnh (Vĩnh Thạnh), Tây Sơn (Tây Sơn)
10. Phu Yen	Đồng Xuân (Đông Xuân), Sông Hinh (Sông Hinh)	Sông Hòa (Sông Hòa)
11. Ninh Thuan	Bác Ai (Sông Trâu), Ninh Hải (Sông Trâu)	Ninh Sơn (Krongpha) Ninh Phước (Tân Giang, Ninh Phước)
12. Binh Thuan	Tuy Phong (Tuy Phong, Lòng Sôn - Đá Bạc), Bắc Bình (Lê Hồng Phong, Cà Giấy)	Hàm Thuận Bắc (Đông Giang, Sông Quao, Hàm Thuận Đami, Hồng Phú)
Total	54 districts, 1 township, 57 PFMBs, One PFMB under the preparation of establishment in Quảng Nam province	

3.2.3 Natural Conditions of the Project Areas

3.2.3.1 Rainfalls

Since the project areas spread over the target provinces, it is judged that the rainfall data at the provincial level can represent those relating to the project areas located in the respective provinces. The monthly mean rainfalls in the target provinces are shown below.

Monthly Rain Fall at Meteorological Station in the Target Provinces (mm/month)

Province	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1. Thanh Hoa #	3	21	25	68	196	205	189	313	221	332	12	9	1,595
2. Nghe An	90	23	57	65	141	107	110	205	300	694	119	40	1,952
3. Ha Tinh	101	47	52	77	173	44	29	154	373	1,109	140	176	2,476
4. Quang Binh	53	18	36	14	165	45	12	66	698	682	353	97	2,240
5. Quang Tri	38	49	15	33	142	28	56	41	423	999	394	174	2,392
6. T.T. Hue	118	85	80	74	195	24	26	63	479	1,524	608	510	3,786
7. Quang Nam #	7	225	207	35	150	18	47	225	301	891	1,196	153	3,455
8. Quang Ngai #	197	1	102	48	132	48	41	244	107	797	1,328	78	3,123
9. Binh Dinh	258	26	35	23	80	23	27	76	425	520	851	251	2,596
10. Phu Yen	48	7	82	46	162	14	13	130	101	678	1,428	29	2,789
11. Ninh Thuan	n.a.												
12. Binh Thuan	0	0	0	4	266	164	170	231	201	114	176	2	1,328
Average	83	46	63	44	164	65	65	159	330	758	605	138	2,521

Source: DARDs of twelve provinces, #: Data in 2007. Other data is for 2008.

3.2.3.2 Present Land Use

The present land use/forest classification in the 61 target communes are summarized in the following table.

Present Land Use and Forest Classification in Protection Forests in the Target Communes

Unit: ha

Province	Natural Forest	Plantation	Bare land (Ia)	Bare land (Ib)	Bare land (Ic & others)	Total
1. Thanh Hoa	14,638.3	2,817.2	610.0	234.0	1,891.8	20,191.3
2. Nghe An	18,523.9	4,449.9	2,193.1	2,177.9	1,029.7	28,374.5
3. Ha Tinh	2,996.0	9,332.0	922.0	3,731.0	1,581.0	18,562.0
4. Quang Binh	28,382.3	8,427.0	389.0	1,360.0	6,627.0	45,185.3
5. Quang Tri	57,475.0	16,656.0	11,961.0	5,244.0	4,458.0	95,794.0
6. T.T. Hue	7,642.7	2,266.8	*	*	*	9,909.5
7. Quang Nam	44,906.6	8,606.8	0	7,334.0	29,459.2	90,306.6
8. Quang Ngai	37,519.0	6,251.3	1,474.0	4,895.0	8,463.0	58,602.3
9. Binh Dinh	27,753.7	1,238.7	2,917.5	4,728.6	3,627.4	40,265.9
10. Phu Yen	24,871.7	3,935.8	7,185.7	1,813.4	4,495.4	42,302.0
11. Ninh Thuan	22,898.8	1,703.1	2,225.2	7,978.3	15,189.1	49,994.5
12. Binh Thuan	61,979.0	628.0	1,485.0	3,499.0	9,574.0	77,165.0
Total	**349,587.0**	**66,312.6**	**31,362.5**	**42,995.2**	**86,395.6**	**576,652.9**

Source: JICA Survey Team (2, The figures show total area in the target communes.

* In the current land use planning, the bare land belongs to the "unused land". They will be included in the protection forest in the next update of the land use planning in 2010.

3.2.4 Socio-economic Conditions of the Project Areas

3.2.4.1 Population and Households

The total population of the 167 communes in the 12 provinces accounts for 811,210 in 180,363 households.

Demography of the target communes

Province	No. of District	No. of Commune	Total Population	No. of HHs
Thanh Hoa	6	12	56,170	14,340
Nghe An	6	39	244,571	55,821
Ha Tinh	5	18	46,260	11,701
Quang Binh	3	15	71,417	16,334
Quang Tri	7	17	55,551	12,573
T.T. Hue	3	8	36,301	7,824
Quang Nam	6	19	98,800	22,988
Quang Ngai	4	9	26,162	6,356
Binh Dinh	5	10	57,255	16,051
Phu Yen	3	4	10,829	2,417
Ninh Thuan	4	7	47,843	9,244
BinhThuan	3	9	60,051	12,714
Target area total	**54 district & 1 township**	**167**	**811,210**	**188,363**

Source: JICA Survey Team

The ethnic composition of the target communes seems to be diverse. The results of the household interview survey conducted by JICA Preparatory Survey Team in July 2009 suggest that Kinh ethnicity, the dominant in the target communes, may share about two-third (67.0%) of the total population in the target communes. The remaining one-third of the population is comprised of the ethnic minority groups. The ethnic groups found in the selected target communes include Bru-Van keu in Quang Binh, Cham in Phu Yen, Ninh Thuan and Binh Thuan, Rac lay in Ninh Thuan, and others. Each ethnic group has their own unique social structure, language and culture. The number of households with the estimated population in the target communes and the estimated composition of the ethnic groups confirmed in the household survey are presented in **Table J-3-4 and Table J-3-5**, respectively.

Ethnic composition of the Households in the target communes

Province	% of Kinh HHs out of total no. of HH	% of other ethnic groups out of total no. of HH
Thanh Hoa	34.3 %	65.7 %
Nghe An	90.8 %	9.2 %
Ha Tinh	100.0 %	0.0 %
Quang Binh	82.4 %	17.6 %
Quang Tri	n.a.	n.a.
T.T. Hue	99.1 %	0.9%
Quang Nam	88.3 %	11.7 %
Quang Ngai	6.5 %*	93.5 %*
Binh Dinh	94.2 %	5.8 %
Phu Yen	25.6 %	74.4 %
Ninn Thuan	46.9 %	53.1 %
Binh Thuan	80.3 %*	19.7 %*
Target area total	67.0%**	3.0%**

Note: n.a.: Data were not available.
* Quang Ngai: The proportion of ethnic groups has been calculated based on the ethnic population data of the target communes.
**The figure is calculated based on the proportion of households and population of ethnic groups.
Source: JICA Survey Team

3.2.4.2 Labor

On average, 74.8% of the total number of households in the target communes engages in agriculture, forestry and fisheries activities. Quang Ngai, Phu Yen and Quang Tri have the very high proportion of the households engaged in the sector, while Ninh Thuan has high proportion (58%) of the households engaged in service sector compared to other areas.

Summary of economic activities carried out by the households in the target communes

Provinces	Households engaged in productive activities	Proportion of households (%)			
		Agriculture	Forestry	Fisheries	Others
Thanh Hoa	-	-	-	-	-
Nghe An	-	-	-	-	-
Ha Tinh	-	-	-	-	-
Quang Binh	16,334	84.0	4.4	6.5	0.0
Quang Tri	15,818	86.6	0.0	0.0	13.4
T.T. Hue	21,315	55.3	7.1	4.7	32.8
Quang Nam	19,492	85.1	4.5	7.6	2.8
Quang Ngai	12,630	97.4	0.0	0.0	2.6
Binh Dinh	16,693	92.9	1.4	3.7	0.0
Phu Yen	2,407	97.9	0.2	1.9	0.0
Ninh Thuan	998	8.2	12.5	58.9	0.0
Binh Thuan	5,591	65.5	13.7	18.9	0.0
Total	111,278	74.8	4.9	11.4	5.7

Source: JICA Survey Team

3.2.4.3 Poverty Situation

Out of 113,689 households in 128 communes (excluding Ha Tinh and T.T.Hue), 34,556 households, or 25.8 %, are reported to be bellow the poverty line. Among the target communes, Quang Ngai (64.5%) and Phu Yen (46.1%) indicated the highest proportion of the households bellow poverty line in the target province. On the other hand, the lowest proportion of the household bellow poverty line was 15.9 % of Binh Dinh.

Households bellow poverty line in the target communes

Provinces	Number of households bellow poverty line	
	No.	%
Thanh Hoa	3,743	29.0 %
Nghe An	4,635	17.0 %
Ha Tinh	n.a.	n.a.
Quang Binh	3,328	22.1 %
Quang Trii	3,512	27.9 %
T.T. Hue	n.a.	n.a.
Quang Nam	5,407	27.2 %
Quang Ngai	7,827	64.5 %
Binh Dinh	2,861	15.9 %
Phu Yen	1,114	46.1 %
Ninh Thuan	1,564	19.2 %
Binh Thuan	1,105	18.3 %
Target area total	34,556	25.8 %

Note: * Figure for the districts where the target communes are located.
n.a.: Data were not available.
Source: JICA Survey Team

The informants of the sample household survey indicated that 67.7% of the sample households depend on agriculture, forestry, and fishery to generate income with the average per capita income of VND 4.2 million/year. The main causes of poverty identified by the survey were: i) lack of investment capital; ii) lack of appropriate technologies and technical knowledge for production; and iii) lack of arable land. Among the sampled communes, Binh Dien and Duong Hoa in T. T. Hue indicated the lowest poverty rate of 8.7% and 8.0% respectively. The results of the survey indicated that about 60% of the total household income derives from the trade and services sector in Binh Dien.

Average Income and income sources of the households, and average poverty rate of the sample commune

Province	Commune	Average income/ capita (million VND)	Proportion of income sources (%)				Poverty rate of the commune (%)
			Agriculture, Forestry, Fishery	Trading and services	Handi-crafts	Others	
Nghe An	Tam Thái	4.0	51.5	11.1	0.0	34.2	20.0
Nghe An	Đồng Văn	2.7	60.0	7.0	0.0	33.0	45.0
Quang Binh	Q. Thạch	3.0	86.0	-	-	0.1	67.2
Quang Binh	Hải Ninh	4.9	23.3	1.0	-	75.7	13.5
T. T. Hue	Bình Điền	8.6	27.9	60.1	7.4	4.6	8.7
T. T. Hue	Dương Hòa	5.5	80.0	5.0	5.0	10.0	8.0
Quang Ngai	Sơn Kỳ	2.5	85.0	-	-	0.2	43.0
Quang Ngai	Ba Giang	2.4	93.0	-	-	7.0	60.3
Phu Yen	Sông Hinh	4.5	90.0	5.0	0.0	5.0	34.5
Phu Yen	Phước Tân	1.4	84.2	-	-	15.8	41.7
Binh Thuan	Phong Phú	9.0	70.8	24.3	-	4.9	23.4
Binh Thuan	Hòa Thắng	1.8	60.0	-	-	30.0	25.0
Total average		4.2	67.6	16.2	2.5	18.4	32.5

JICA Survey Team

3.2.4.4 Public Services

The state expenditure on the social services in 12 target provinces accounts for 29.9% on average. The highest expenditure was observed in Binh Dinh (39.7%) while the lowest was marked by the Ninh Thuan of 25.7%.

Percentage (%) of expenditure on social services in the target provinces (2007)

Unit: VND Million for Expenditures

Province	Local budget expenditure	Expenditure on social service	% of total expenditure
Thanh Hoa	7,927.0	2,096.0	26.4%
Nghe An	7,764.4	2,158.6	27.8%
Ha Tinh	2,872.9	820.6	28.6%
Quang Binh	2,404.6	604.1	25.1%
Quang Tri	2,055.8	557.7	27.1%
T.T. Hue	1,950.7	665.5	34.1%
Quang Nam	4,010.1	1,424.0	35.5%
Quang Ngai	2,415.4	-	-
Binh Dinh	2,859.2	1,135.3	39.7%
Phu Yen	2,292.8	588.9	25.7%
Ninh Thuan	1,789.3	416.7	23.3%
Binh Thuan	2,243.1	792.5	35.3%
Project Target Province Total	3,382.1	1,023.6	29.9%

Source: Statistical Publishing House (2009). Socio-Economic Statistical Data of 63 provinces and cities.

The access to electricity, health unit, and schools has been reviewed bellow. Among the social services, the proportion of households having access to the electricity was 86.3% on average. Communes in Quang Binh, T.T. Hue, Quang Nam, Ninh Thuan and Binh Thuan reported over 90% of electricity coverage. On the other hand, Phu Yen indicated the lowest coverage among the target communes (52.8%).

On average, 66.7% of the households in the target areas have access to clean water. The target communes in Phu Yen indicated the least access to the clean water (39.9%), while 92% of the households in Binh Thuan has access, which was the highest.

Percentage (%) of HH having access to electricity and clean water in the target communes

Provinces	Electricity (%)	Clean water (%)
Thanh Hoa	100	n.a.
Nghe An	99	n.a.
Ha Tinh	100	n.a.
Quang Binh	98	65.3
Quang Tri	n.a.	n.a.
T.T. Hue	98	n.a.
Quang Nam	92	58.8
Quang Ngai	71	70.2
Binh Dinh	97	75.3
Phu Yen	39	39.9
Ninh Thuan	99	65.0
Binh Thuan	58	92.6
Project Target Province Total	79	66.7

n.a.: Data are not available.
Source: JICA Survey Team

In terms of health care, there are 69 health centres in the target communes in eight provinces. On average, one health care unit is allocated in each commune. The average distance from the households to the nearest health care unit varies from 2.3 km to 8.5 km with the average of 5.5 km. The sample commune survey also indicated the similar results. The average distance between the households to the nearest health care unit was 1.1 km with maximum of 6 km in Hoa Thang Commune of Binh Thuan province.

One to two primary schools were available in the target communes. The average distance to the primary schools from the households was 1.6 km on average. On the other hand, secondary schools were found less in number. This suggests the difficulties in accessing the secondary school as the primary enrolment and completion rates rise. To achieve the improved secondary enrolment as the government plans in SEDP (2006-2010), it is necessary to increase the number of available secondary schools in the locality.

Accessibility to the health care units and general education facilities in the target communes

Province	Health Centre		Primary school		Secondary school
	No (unit)	Distance (km)	No (unit)	Distance (km)	No (unit)
Thanh Hoa	n.a.	n.a.	n.a.	n.a.	n.a.
Nghe An	n.a.	n.a.	n.a.	n.a.	n.a.
Ha Tinh	n.a.	n.a.	n.a.	n.a.	n.a.
Quang Binh	9	5.5	8	1.0	3.0
Quang Tri	n.a.	n.a.	n.a.	n.a.	n.a.
T.T. Hue	16		28	1.0	2.0
Quang Nam	16	2.3	23	5.0	18.0
Quang Ngai	16	n.a.	16	n.a.	n.a.
Binh Dinh	4	n.a.	n.a.	n.a.	n.a.
Phu Yen	4	8.5	10		6.0
Ninh Thuan	5	6.5	13	3.5	4.0
Binh Thuan	3	6.8	6	1.0	3.0
Total/ average	69	5.5	104	1.6	36.0

Note: n.a.: No data were available in making this report.
Source: JICA Survey Team

3.2.4.5 Rural Infrastructure

Although rural roads are the key infrastructure for livelihoods of local communities in the target communes, they are in poor conditions in general and need to be repaired and/or improved. According to the results of the sample house hold survey, local communities have faced difficulties in transporting their farm and forest produce to the nearest market due to unpaved road condition. Discussions with DPCs and CPCs in the field survey also revealed that about 60 % of the existing roads connecting to the target communes are still in unpaved form and 32 % pf the unpaved road need urgently improving.

Ratio of Paved Rural Road in Project Area

Region	North Central Coast						South Central Coast				South East	
Province	Thanh Hoa	Nghe An	Ha Tinh	Quang Binh	Quang Tri	T.T. Hue	Quang Nam	Quang Ngai	Binh Dinh	Phu Yen	Ninh Thuan	Binh Thuan
Ratio of Pavement (%)	55%*	n.a.	39%*	50%*	n.a.	n.a.	n.a.	n.a.	6%	24%	42%	17%

Note : * Average of all of Districts in the Province
Source: JICA Survey Team

Nearly half of the potential irrigable lands in the target communes are cultivated under rain-fed condition (or only in the rainy season without irrigation) due to a lack of irrigation. Since agriculture is the primary livelihood means of the target communes, the needs to develop irrigation and/or water resource utilization facilities with dam/head works and canal systems must be quite high.

Availability of Irrigation Facilities in Potential Irrigable Land

Region	**North Central Coast**						**South Central Coast**				**South East**	
Province	Thanh Hoa	Nghe An	Ha Tinh	Quang Binh	Quang Tri	T.T. Hue	Quang Nam	Quang Ngai	Binh Dinh	Phu Yen	Ninh Thuan	Binh Thuan
Availability of Irrigation Facilities	67%*	41%*	78%*	50%*	n.a.	28%	90%	n.a.	49%	42%	37%	64%

Note : * Average of all of Districts in the Province
Source: JICA Survey Team

3.2.5 Issues on Forest Management in the Project Areas

Although there are no clear data/documents that show the causes and current trend of forest degradation in the project areas, the following are considered major threats that the project areas have faced of forest degradation based on the interviews to the PFMBs and DARDs concerned.

a. Encroachment for farming by nearby communities

b. Illegal cutting for timber and firewood collection

c. Forest fire

d. Shifting cultivation (only in the area where ethnic minorities reside)

Human pressures made by local communities in nearby communes or those from the neighbouring districts/provinces are still major causes of forest degradation in the project areas. This would suggest that the involvement of communities in the project along with awareness enhancement and livelihood improvement is requisite to the achievement of sustainable management of protection forests in the project areas.

3.2.5.1 Issues on Forest Management / Protection

Although there are no clear data/documents that show the causes and current trend of forest degradation in the project areas, the following are considered major threats that the project areas have faced regarding forest degradation based on the interviews with the PFMBs and DARDs concerned.

a. Encroachment for farming by nearby communities

b. Illegal timber and firewood collection

c. Forest fire

d. Shifting cultivation (only in the area where ethnic minorities reside)

Human pressures made not only by local communities but also by those of nearby communes and neighboring districts/provinces are still major causes of forest degradation in the project areas. This would suggest that the involvement of local communities in the project along with awareness enhancement and improvement of their livelihood is requisite to materialize sustainable management of protection forests in the project areas.

(1) Limited application of long-term contract with local communities for protection, management and utilization of protection forests

Vietnam Forestry Development Strategy (2006-2020) gives priority for contracting out long-term protection, management and utilization of protection forests to local communities and households as a way for materializing the strategy. The strategy paper also states a financial policy that contract-based protection of protection forests shall be strengthened by promoting getting direct benefits from forest resources including agro-forestry and NTFP and other income sources such as payment for environmental services. It is an important paradigm shift from the current contract mechanism which uses money from the state budget.

Despite of pronouncement of the change in management mechanism of protection forests, no action has been taken at the field level. Many protection forests in the country are still under the direct management of PFMBs. Staff of DARDs of the target provinces still stick to the idea that the state shall pay money to communities contracted for protection and management of protection forests. The situation is attributable to:

a. Lack of orientation and guidance on the new management mechanism of protection forests;

b. Business as usual attitude of many staff of DARDs and PFMBs; and

c. Limited guidelines/regulations and investment for promoting long-term contract of protection forests

(2) Continuous exploitation of forest resources in protection forests

As described in Section 1.3.3 of this chapter, the average poverty ratio of the communes concerned in 2008 is as high as 30%. Poor households in the project areas rely on forest resources for their livelihood to a certain extent and cause degradation of protection forests. Forest degradation is conspicuous particularly where majority of households are of ethnic minorities. As forest degradation is closely related to insufficient livelihood opportunities of local communities, a holistic approach including livelihood improvement support is indispensable to materialize sustainable forest management and protection in the project areas.

The major reasons for the shortage of income in the project areas are considered as follows.

a. Limited opportunity in income generation or employment

b. Limited farm land per household

c. Low productivity/yield of crops due to insufficient water supply, low quality of seeds, and limited application of farm inputs

d. Limited market access due to poor road condition

(3) Capacity of forest owners (Protection Forest Management boards)

Protection forests in the project areas are currently under the direct management of state-owned management boards under DARDs or DPCs in the target provinces. As described in Section 6.2 of PART II, a total of 57 PFMBs are managing the project areas. Moreover, almost all the management boards are facing difficulties in managing their protection forests due to the following reasons:

a. The number of staff working in PFMB is insufficient to manage and safeguard protection forests under its jurisdiction.

b. Facilities and equipment owned by PFMB are also insufficient and many are either outdated or out of order. Such conditions have made the works of PFMB inefficient.

c. Due to the lack of staff, PFMBs have contracted out the forest development/improvement activities (e.g., afforestation, ANR and protection of natural forests) to local communities/households. However, in general PFMBs have not been given sufficient budget for forest protection and management activities, except those involved in national programs (e.g., 327 program and the Five Million Hectare Reforestation Program: 5MHRP) and foreign-funded projects (e.g., SPL-III/Afforestation Component). It would therefore be difficult for many PFMBs to fully manage protection forests under their jurisdictions, especially when the said projects end.

d. So far, none of the management boards has concluded a long-term agreement with local communities on protection and management of protection forest.

e. The prospects that many management boards have as to how to manage and protect their protection forests in the future still seem uncertain.

3.2.5.2 Potential Issues on Community - Based Forestry Development Project

The concept of community-based management is still new in Vietnam, although some donor-funded projects, such as KfW (KfW 7: Afforestation Project), WB (Forest Protection and Rural Development Project), and JICA (SPL-III/Afforestation Component), have introduced similar concepts as described in Chapter 4 of Part II.

The activities of these projects revealed the effectiveness of the “bottom-up approach” or “community participation in forest management”. These also exposed the following critical issues, as listed below.

a. Forest management/protection should be linked with rural development to make the intervention more effective. However, it would be difficult for the forestry sub-division of DARD to take such an integrated approach unless multi-disciplinary coordination is institutionalized at the beginning of the project.

b. Participatory planning is an effective tool to enhance a sense of ownership among the communities and help them to comprehend their rights and obligations in the project. However, a certain capacity is required to carry out participatory planning in a proper manner. Training on participatory planning should be organized for provincial and district stakeholders at the beginning of the project.

c. Implementation of the community-based approach requires a certain level of decentralization of approval authority. In reality, securing approval from the higher authorities has caused delays in project implementation in many cases. Guidance on project implementation should be provided to CPMU/PPMUs and local government authorities at the beginning of the project.

3.3 Technology and Equipment

3.3.1 Choice of Technology and Equipment

3.3.1.1 Basic Approaches taken for Project Implementation

(1) Facilitation of community participation in the project

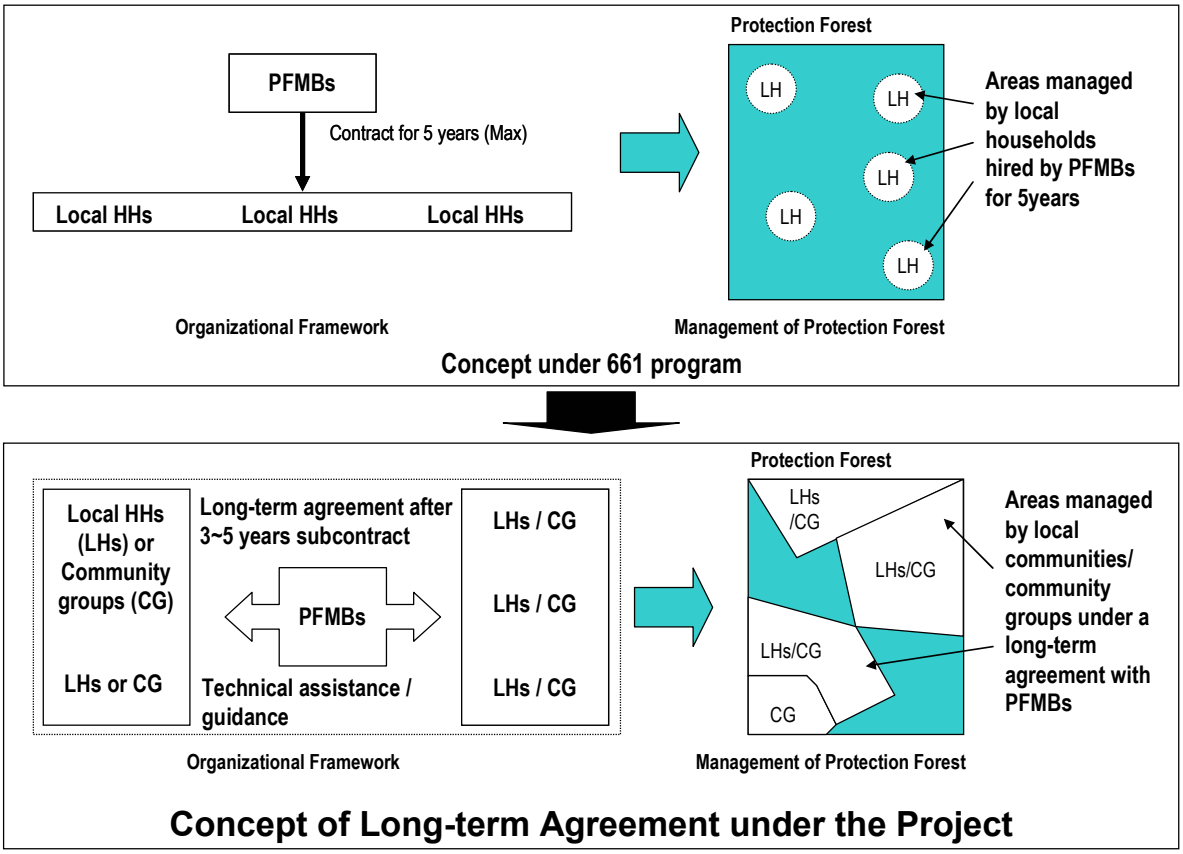
The Project will involve local communities residing in and around the target protection forests as actual implementers of the forest development and improvement activities in the fields and as co-managers of forest resources in the long run. Considering the current human resources of Protection Forest Management Boards (PFMBs), where one forest guard is allocated for every 1,000 ha protection forest, the survey team suggests that community involvement is indispensable for its effective management of protection forest. In fact, community involvement is now a common approach taken by similar forestry projects, such as SPL-3 Afforestation Project, World Bank 2 Project, and FLITCH (ADB 2 Project). It is expected that the involvement of local communities not only effectively utilize local available resources for forest management but also contribute to the improvement of socio-economic conditions of poor communities mainly residing in mountainous areas. Furthermore, the project aims to introduce e a forest management scheme where PFMB and local communities conclude long-term agreements/contracts on protection and management of protection forests without cash payment after the completion of the forest development components of the Project. This can be considered as a scheme to achieve sustainable forest management of protection forest. More details of the long-term agreement/contract are given in the following sub-section.

(2) Promoting long-term agreements/contracts on protection, management and utilization of protection forests between communities and PFMB with appropriate benefit sharing mechanism.

The Project will promote materializing long-term agreements/contracts between communities (groups of local people) and PFMB, after completion of forest development component, on protection, management and utilization of protection forests without cash payment from the state budget. This is clearly stated in the Forestry Development Strategy as a prioritized policy solution for sustainable forest and forest land management of protection forests. The Project will assist in organizing local communities/people for the long-term collective forest management simply because people often acts collectively under village leaders in Vietnam and managing groups is much easier and practical for PFMB than managing individuals.

Although local communities or organized community groups will be hired as sub-contractors for the forest development and protection works in the project as what the existing government forestry programs (e.g., 661 program) have arranged, they will be encouraged to enter the long-term

agreement/contact upon the termination of the subcontract for the forest development and protection works as much as possible. Under the long-term agreement/contract, majority of PFMB's management tasks is to be handed over to local communities or organized groups. With a proper benefit sharing mechanism, local communities could receive benefits from forest resources of their respective protection forests (or the project areas). Hence, they would protect and manage the assigned protection forests on a sustainable manner. The following chart shows how PFMBs and local communities will manage the project areas under the long-term agreements/contracts.



Concept of Long-term Agreements/Contract on Protection and Management of Protection Forests

Benefit sharing mechanism will encourage local communities to enter into a long-term agreement/contract on protection, management, utilization of protection forest, since it legally supports them in securing their rights to harvest forest resources in the project area. Hence, due consideration should be put on the formulation of regulations on benefit sharing mechanisms customized for each respective locality of the target provinces.

(3) Integrated development including livelihood development and support

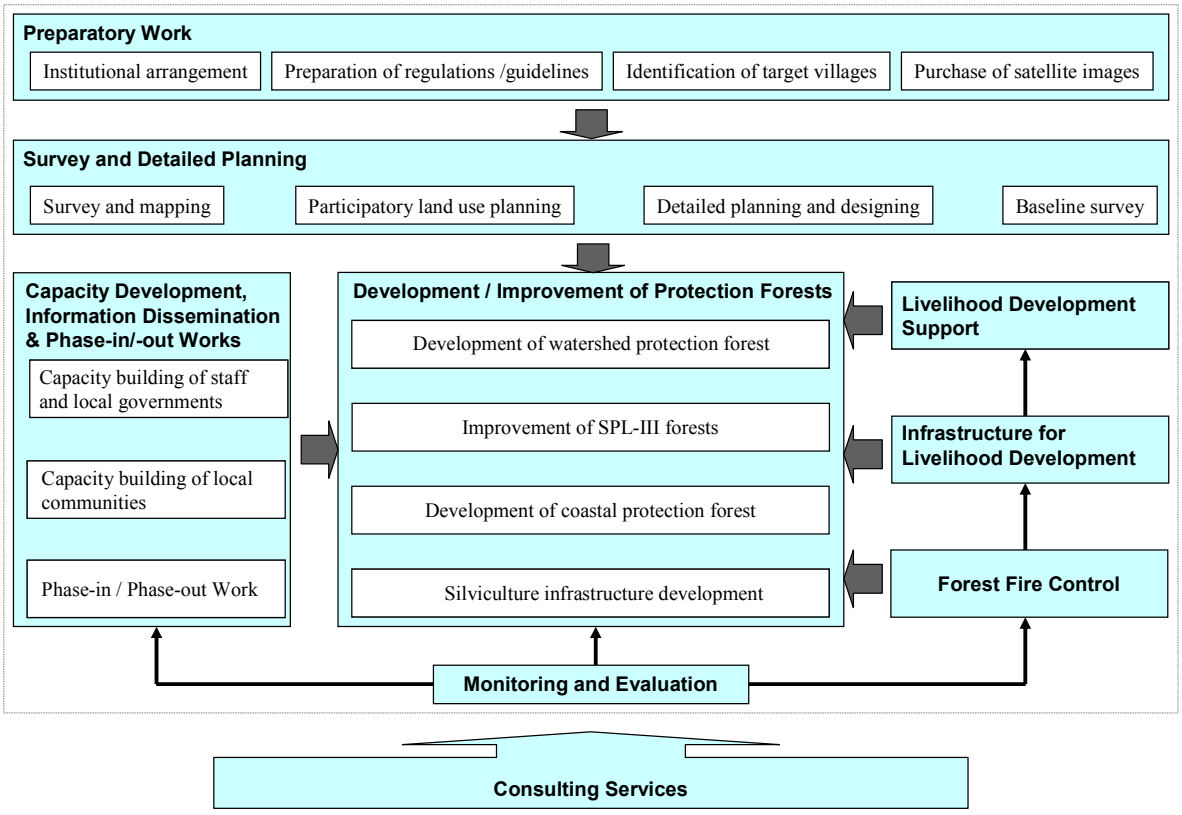
The project will emphasize not only the forest development and management component but also those related to livelihood development and improvement of local communities who will take part in the project. Over-exploitation of firewood and use of forest land for cropping are among the major causes of degradation in protection forest. Hence, it is quite important to minimize the forest dependency of local communities by either improving agricultural productivity or introducing alternative livelihood options. In addition, the integrated development approach can also expect to facilitate the participation of local communities in the project by creating a conducive environment for participation in forest management and enhancing a sense of project ownership among the communities.

(4) Capacity Building of the government staff and local communities

Capacity building will be adequately funded and a number of related activities for the project staff and local communities will be programmed in the project. This component is a crucial intervention that would directly affect the progress and outputs of the project as well as its sustainability. Through a series of technical and managerial training courses, the project staff is expected to be equipped with technical and managerial skills and knowledge necessary for implementation and management of the project at respective levels. Hence, capacity development should cover all the stakeholders involved at every level of the project organizational structure and provide several types of training, such as classroom-type training, overseas training, exposure visits and on-the-job training. This shall be executed in consideration of topics/techniques handled and the level of capacity of recipients targeted in the respective training courses.

3.3.1.2 Overview of the Project Components

The proposed project is composed of nine (9) components, namely, i) preparatory works; ii) survey and detailed planning; iii) capacity development, information dissemination and phase-in/phase-out works; iv) development/improvement of protection forests; v) livelihood development support; vi) Infrastructure for livelihood development, vii) forest fire control; viii) monitoring and evaluation; and ix) technical cooperation/consulting services. As shown in the following drawing, the project components will interrelate and interact with each other so as to generate the multiplier effects.



Overview of Project Components

(2) Technologies and Equipment introduced or employed in the Project

The following table shows the technologies and equipment to be used for implementation of the project components and

Work Quantity of the Project Components

Component	Techniques used	Equipments needed	Availability
Preparatory work	None	Office and transportation facilities will be procured for operation of CPMU and PPMUs	All the equipments can be procured in the country.
Survey and detailed planning	Satellite image analysis GIS Forest inventory Participatory planning	High resolution satellite images GIS Software	Satellite images and GIS software can be procured in the country. Some organizations in the country, such as FIPI, have long experience in analyzing satellite images for forest mapping. Many other donor-funded projects have adopted participatory planning methods.
Capacity development, information dissemination, and phase-in / phase-out works	Knowledge on topics Community facilitation skill Community organization	None	The staff of NAFEC and PAFECs are equipped with community organization skills and other technical skills required.
Development/improvement of protection forests	Mix planting of indigenous and fast growing species in bare land and sandy area Silvicultural techniques for assisting natural regeneration Construction forestry road and building watch towers and forest guard stations	Farm and silvicultural tools Bulldozer	PFMBs have many experiences in undertaking similar activities before,
Livelihood improvement support	Techniques/Skills on livelihood options introduced, such as new species, bee keeping, irrigated faming, etc.	Farm tools	PAFECs have already applied the similar support to many local communities.
Infrastructure for livelihood assistance	Concrete paved road Concrete lining of canal Construction of concrete check dam Construction of small scale water supply system	Bulldozer and other heavy equipments	All the proposed facilities are small scale and can be implemented by local contractors.
Forest fire control	Forest fire fighting drill	Forest fire extinction equipment	Forest protection agency has long experience in similar activities.
Monitoring & evaluation	Socio-economic survey Forest inventory survey	None	NAFEC and FIPI have long experience in the same activities.

3.3.2 Basic Design of Technical Solution

This section gives the basic ideas and designs of the project components. Detailed activities planned in the respective project components are described in Section 3.4.

(1) 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
Preparatory work	- to establish organizational structures at both central and provincial levels and deploy / hire personnel necessary for project implementation and management - to prepare the project implementation guidelines / regulations for CPMU and PPMUs - to prepare base maps that would be used for the survey and mapping using the satellite images - to procure equipment and vehicles for CPMU and PPMUs - to prepare detailed benefit sharing regulations in the target provinces - to prepare technical handbooks for PFMBs and local communities
Survey and detailed planning	- to acquire high resolution satellite images covering the proposed project areas - to prepare the updated forest classification maps covering the proposed project areas based on the latest and accurate information - to prepare future land use / forest development plans with participation of local communities who would participate in the forest development and management activities - to prepare detailed plans of forest development/improvement components
Capacity development, information dissemination and phase-in/-out work	- to make CPMU, MBFP, PPMUs, DARDs, and PFMBs understand the project concept, guidelines/regulations and procedures for project implementation - to capacitate CPMU, MBFP, PPMUs, DARDs to implement and manage the project in a proper and effective manner - to enable PFMBs to implement the project activities and protect the respective protection forests in their jurisdictions in a proper and sustainable manner - to enable PFMBs, DPCs, and extension workers to provide technical assistance to local communities - to make local communities in the target communes/villages aware of the project (outlines, concepts, activities, expected benefits and obligations of the communities) - to initially organize local communities who show willingness to participate in the project into groups for management of protection forest - to enable the local communities to manage their assigned protection forests in a proper and sustainable manner - to have discussions among PFMBs, local communities, and DARDs on structure and mechanisms of forest management in the post-project period - to enable PFMBs, local communities, and DARDs to identify and understand the necessary action to be taken for strengthening the local communities and making them prepare for non-project mode
Development/improvement of protection forests	- to rehabilitate and improve the degraded protection forests to enhance/improve the functions of either watershed or coastal protection forest - to manage and protect existing natural forests in a sustainable manner to maintain the functions of either watershed or coastal protection forest - to improve the plantations developed by SPL-3 and other government programs in critical watershed areas to enhance the functions of watershed protection forests - to improve and develop silviculture infrastructure
Livelihood improvement support	- to develop the capacity of local communities to introduce new farming and forestry technologies including NTFP processing - to create the conducive environment where local communities can take part in the project - to assist the local communities / group members in improving and stabilizing their livelihoods by introduction of income generating activities and micro-enterprises
Forest fire control	- to capacitate DARDs, PFMBs, and local communities to prevent and control forest fires by provision of fire extinction equipment and training on forest fire control
Monitoring and evaluation	- to grasp physical / financial progress and issues/problems that would affect the smooth and effective project implementation - to provide adequate and timely information for proper project management - to evaluate the impacts of the project
Technical cooperation / Consulting services	- to assist CPMU and PPMUs in the implementation and management of the project in an effective and proper manner.

(2) Major Activities and Work Quantity of the Project Components

The following table gives the basic ideas of the proposed work quantities for the respective project components are summarized below.

Work Quantity of the Project Components

Component	Major works
Preparatory work	- Establishment of one CPMU at the central level and 12 PPMUs at the provincial level - Deployment and employment of the project staff - Preparation and establishment of regulations and guidelines for implementation of the project - Development of forms/formats for regular monitoring - Development of draft TORs for the contractors to be hired for implementation of the project components - Procurement of equipment for CPMU and PPMUs including a total of 26 nos. of 4x4 vehicles and 62 nos. of motorcycles.
Survey and detailed planning	- About 120,260 ha of forest inventory and mapping (new sites only) - Preparation of land use plan of about 120,260 ha with 167 communes (new sites only) - Baseline surveys in 167 communes (new sites only) - Preparation of detailed designs for forest development and improvement component
Capacity development, information dissemination, and phase-in / phase-out works	- Capacity development of i) 12 CPMU staff members, ii) 149 PPMU staff members in the 12 provinces, iii) 570 PFMB staff members (@10 staff/PFMBs) in 57 PFMBs, and iv) district and commune extension workers in the 12 provinces - Capacity development of local communities/households in improving/preserving protection forests in 167 communes (new sites) and 35 communes (SPL-III sites) - Organization of participating households into community groups in 167 communes(new sites) and 35 communes (SPL-III sites) - Periodical coaching and guidance to local communities and organized community groups to protect and manage the assigned protection forests in a proper manner in 167 communes(new sites) and 35 communes (SPL-III sites) - Assistance in the conclusion of the long-term agreements/contracts on protection and management of protection forests in 167 communes(new sites) and 35 communes (SPL-III sites)
Development/improvement of protection forests	<u>Watershed Protection Forest</u> - Afforestation: 23,090 ha - Improvement of existing plantation: 3,300 ha - Assisted natural regeneration (ANR) with enrichment: 4,700 ha - Assisted natural regeneration (ANR): 21,250 ha - Forest protection: 63,970 ha <u>Coastal Protection Forest</u> - Afforestation:1,550 ha - Improvement of existing plantation: 800 ha - Enrichment planting: 1,600 ha <u>Improvement of SPL-III forests</u> - Forest protection: 4,450 ha - Enrichment planting: 1,000 ha - Vegetation clearing & thinning: 10,220 ha <u>Silviculture Infrastructure Development</u> - Forestry roads: 387 km (watershed) and 16 km (coastal) - Firebreak line: 412 km (watershed) and 28 km (coastal) - Fire watch tower: 62 units (watershed) and 2 units (coastal) - Forest protection station: 60 units (watershed) and 4 units (coastal) - Information board: 67 units (watershed) and 3 units (coastal) - Nursery: 22 units (watershed) and 1 unit (coastal)
Livelihood improvement assistance	- Livelihood development needs assessment in 167communes - Introduction and development of demonstration plots/livelihood development models in 167 communes(new sites) and 35 communes (SPL-III sites) - Technical training of the participating households on livelihood development and fund management in 167 communes(new sites) and 35 communes (SPL-III sites) - Periodical coaching to local communities by the contractors in 167 communes(new sites) and 35 communes (SPL-III sites) - Inter-province cross field visit for the participating households in 167 communes(new sites) and 35 communes (SPL-III sites)

Component	Major works
Infrastructure for livelihood assistance	- Survey and detailed design of proposed infrastructure - Construction of small-scale infrastructure; the following are tentative targets: - Rural road: 170 km (watershed) and 16 km (coastal) - Irrigation : 558 ha (check dam, irrigation canal & culvert in watershed) - Water supply system: 6 units (watershed) and 2 units (coastal)
Forest fire control	- Provision of equipment for forest fire control to 57 PFMBs (new sites) - Forest fire control training in 12 DARDs, 57 PFMB, 54 DPCs, and one township
Monitoring and evaluation	- Progress monitoring: Monthly, Bi-annual and Annual monitoring - Evaluation: Initial, Mid-term and Terminal evaluations
Technical cooperation / Consulting services	- International consultant: 147 man-months - National consultant: 253 man-months

3.4 Generation of Output/Production

3.4.1 Overview: Determination of Outputs of the Project

Through the implementation of the project/project components, the following outputs are expected to be generated.

Major Outputs to be Generated by the Project

Component	Target Groups / Sites	Major Outputs
Preparatory work	- Staff of MARD for CPMU - Staff of DARDs of the concerned provinces for PPMUs - Local communities in 162 communes	- Project Implementation Guidelines/ Regulations - Monitoring formats - Formant of forest management plan - Regulations on benefit sharing mechanisms applicable to the respective target provinces - Forest Development and Protection Funds established at the target provinces
Survey and detailed planning	- 120,260 ha of new sites in protection forests in the 12 provinces	- Updated land use and forest classification maps covering 120,260 ha of new sites - Land use plans of about 120,260 ha - Data bases of socio-economic conditions of selected communes in the 12 provinces - Detailed designs of the forest development and management activities in 120,260 ha of protection forest
Capacity development, information dissemination, and phase-in / phase-out works	- Staff of MARD for CPMU - Staff of 12 DARDs of the concerned provinces for PPMUs - Staff of 57 PFMBs - Staff of 12 DECs and commune extension workers in 167 communes - Local communities in 167 communes	- Trained project staff of i) one CPMU, ii) 12 PPMUs, iii) 57 PFMBs, and iv) DECs and commune extension workers in the 12 province - Self-reliant community groups in 167 communes (new sites) and 35 communes (SPL-III sites) - Trained local communities/households in 167 communes (new sites) and 35 communes (SPL-III sites)
Development/improvement of protection forests	- 120,260 ha of the new sites and 15,670 ha of the SPL-3 sites in the 12 provinces - Local communities in 167 communes	<u>Watershed Protection Forest</u> - Afforested/Reforested areas: 23,090 ha - Improved plantations: 3,300 ha - Regenerated forests:: 25,950 ha - Protected natural forest: 63,970 ha <u>Coastal Protection Forest</u> - Afforested/Reforested areas: 1,550 ha - Improved plantations: 800 ha

Component	Target Groups / Sites	Major Outputs
		- Regenerated forests:: 1,600 ha Improvement of SPL-3 forests - Forest protection: 4,450 ha - Enrichment planting: 1,000 ha - Vegetation clearing & thinning: 10,220 ha Silviculture Infrastructure Development - Forestry roads: 387 km (watershed) and 16 km (coastal) - Firebreak line: 412 km (watershed) and 28 km (coastal) - Fire watch tower: 62 units (watershed) and 2 units (coastal) - Forest protection station: 60 units (watershed) and 4 units (coastal) - Information board: 67 units (watershed) and 3 units (coastal) - Nursery: 22 units (watershed) and 1 unit (coastal)
Livelihood improvement	- Local communities in 167 communes in the new sites and 35 communes in the SPL-III sites	- Identified livelihood options suitable for 167 communes in the new sites and 35 sites in the SPL-3 sites - Established demonstration plots / livelihood development models in 167 communes in the new sites and 35 sites in the SPL-3 sites - Trial implementation of demonstrated models in 167 communes in the new sites and 35 sites in the SPL-3 sites - Trained local households in 167 communes in the new sites and 35 sites in the SPL-3 sites
Small scale infrastructure	- 167 communes	- Constructed small scale infrastructure (The following are tentative targets.) - Rural road: 186 km - Irrigation : 558 ha (check dam, irrigation canal & culvert) - Water supply system: 8 units
Forest fire control	- Staff of 12 PPMUs, 57 PFMBs, 54 DPCs and 167 CPC - Representatives from 167 communes	- Trained PPMU,PFMB, DPC, and CPC staffs and local communities in the 12 provinces - Less incidence of forest fire
Monitoring and evaluation	- 120,260 ha of the new sites and 15,670 ha of the SPL-3 sites in the 12 provinces - Local communities in 167 communes	- Midterm and Terminal Evaluation Reports

3.4.2 Description of Project Components (Process of outcome generation, Activities to be carried out, and Inputs needed based on the current conditions of the project areas and the capacities of the stakeholders)

This sub-section describes the project components, such as implementation procedures of the components (process of generating outputs in the components), activities undertaken, responsible bodies for implementation, and necessary input for implementation.

3.4.2.1 Preparatory works

(1) Organizational set-ups

The compositions of the steering committees and project management units are tentatively proposed as shown below. However, the members of the steering committees at the central and provincial levels will be specified and determined in the beginning of the project.

Staff/Member Composition of the PMUs and Steering Committees

Organizations	Composition of the organization
CSC	- Chairperson: VM of MARD or DG of DoF - Secretariat: MBFP - Members: DoF, DoFP, ICD, DoFi, etc.
CPMU	- 1 Director - 1 Deputy Director - 1 Planning officer - 3 Accountants - 3 Technical staffs - 1 Administration staff - 2 Driver
PSC	- Chairperson: VC of PPC - Secretariat: DARD - Members: DONRE, DPI, DoF, DoPF, DPCs concerned
PPMU	- 1 Director - 1 Deputy Director - 1 Planning officer - 5 Accountants - 2 Technical staffs - 1 Administration staff - 1 Driver

The CPMU and PPMUs will secure their staffs by either secondment from MARD, DARDs, and other government departments or new recruitment on a contractual basis. In both cases, the terms of reference, which specify requirements on personnel capabilities, scope of responsibilities, and authorities to be given shall be developed and publicized by CPMU and PPMUs. Recruiting their members from outside sources, CPMU and PPMUs shall base the selection on the qualification and expertise of the persons as compared to those required for the vacant posts and comply with the current laws and international agreements between the GoV and JICA.

(2) Procurement of equipment and vehicles

To implement and mange the Project effectively and efficiently, the following equipment and vehicles will be purchased for CPMU and PPMUs.

Equipment/vehicle	Unit	CPMU	PPMU
4x4 vehicles	No.	2	1
4x4 pick-up	No.		1
Motorbike	No.		5~6
Boat with engine	No.		2 #
Desktop PC with software *	No.	6	4
Laptop PC with software *	No.	2	1
Laser printer (A4/A3) *	No.	1	1
Inkjet printer (A4/A3) *	No.	1	1
GIS Software (MapInfo) *	No.		1
Photocopy machine	No.	1	1
UPS (1000VA)	No.	6	4
A0 plotter	No.		1
Digital handycum	No.	1	1
GPS	No.		5
Digital camera	No.	2	2
Binocular	No.		2
Projector	No.	1	1

*: The same quantity of equipment will be purchased at 6th year for replacement or update.
#: Only for Quang Tri, T.T. Hue and Phu Yen provinces.

(3) Development of guidelines and regulations

In order to provide a standardized framework for project implementation and management which would serve as a reference document for decision-making by MBFP, CPMU, DARDs, and PPMUs, the related guidelines/regulations will be finalized by the project consultants in collaboration with CPMU. The implementation guidelines are aimed at prescribing project implementation rules, regulations and procedures in terms of administrative, financial and accounting, project management, monitoring and evaluation, and technical aspects. The implementation of the project components shall take into account the existing regulations and procedures of the central as well as provincial governments. The guidelines will cover, but not limited to, the following topics. It will also includes standardized formats for progress monitoring and reporting and forest management plan.

i) Project management

ii) Monitoring and evaluation

iii) Billing and fund management

iv) Capacity development and information dissemination

v) Preparation for forest development

vi) Forest development

vii) Silvicultural infrastructure development

viii) Small scale infrastructure development

ix) Community organization and livelihood improvement assistance

x) Forest fire control

xi) Benefit sharing

CPMU will draft the project implementation guidelines with the assistance of the project consultant. The draft guidelines will be discussed in the CSC and also presented to the PSCs and PPMUs for

finalization. After being ratified by CSC, the implementation guidelines will be issued and notified by MARD as a ministerial circular prior to the implementation of the field activities.

(4) Screening of the villages related to the project

Although this preparatory survey identified 167 communes in the 12 provinces as the target communes, PPMUs need to re-examine these communes and identify villages that can participate in the forest development and management activities. At first, PPMUs will screen all villages in the target communes and identify the target villages in consultation with DPCs and PFMBs concerned. Subsequently, the PPMUs will prepare a master list of the target villages with information on the number of households, population, ethnicity, and poverty level. The PPMUs will organize consultation meetings at the identified villages to disseminate the information of the project to local communities with the assistance of the contractors hired by the PPMUs. This shall be based on the capacity development and information dissemination component as described in Section 3.4.2.3.

(5) Preparation of detailed benefit sharing regulations at the provincial level

Decision No. 109/2008/QD-BNN issued by MARD on November 11, 2008 defines the regulations on benefit sharing mechanism to be applied to timber harvests from the SPL-3 Afforestation Project sites. The survey team judges that such regulations can also be applied to the project in principle considering its similarity in concept and target areas. It is, however, proposed that the regulation should be re-examined to determine applicability to the specific conditions of the project areas as well as the framework of the project. After finalization of the benefit sharing regulations for the Project, PPMUs, in consultation with DARDs and PPCs concerned, will develop the customized/detailed benefit sharing regulation suitable for the respective provinces, considering the plantation designs introduced, price of timber products, and site conditions of the project areas. The benefit sharing regulations at the provincial level should clearly define the rules on management of the state's share of benefits, especially on how to collect shares from forest owners and local communities who manage forests under a contract and how to manage and use funds deposited at the government. This is intended that PPCs can use the funds in an effective and transparent manner. Before finalizing the benefit sharing regulations at the provincial level, PPMUs and DARDs will consult the local communities in the target villages about the draft regulations. After incorporating the local communities' opinions into the regulations, their familiarization of the regulations will be initiated.

The Project will also encourage PPCs and DARDs concerned to establish the forest protection and development fund at provincial level, in accordance with Decree No. 05/2008/ND-CP dated January 14, 2008 which instructs establishment of the fund in order to promote and ensure the forest development and protection in the country. Since the shares of benefit collected from forest owners and forest resource users shall be pooled in the said funds in the respective provinces, the benefit sharing regulations at provincial level shall be in compliance with the regulation of the forest protection and development fund in terms of fund utilization.

Operationalization of the benefit sharing regulations and establishment of the forest protection and development fund are urgently needed in the five provinces where SPL-3 Afforestation component had been implemented as the fast-growing species introduced by SPL-3 will soon be ready for harvest.

Vietnam, like other countries, does not have enough experiences in sharing benefits from forest among the state and forest owners/managers. Hence it is likely that the benefit sharing regulations will need modification and improvement particularly on the sharing procedures. CPMU and the Project Consultant shall provide required assistance to the provinces accordingly.

3.4.2.2 Survey and Detailed Planning

(1) Forest inventory and mapping

Forest inventory and mapping aims to produce the present land use/forest classification maps and high resolution base maps covering the target areas in the 12 provinces. This will involve analysis of the purchased satellite images/photos and ground verification. More specifically, forest inventory and mapping will comprise of the following activities.

a. Acquisition of satellite images/photos

High resolution satellite images/photos covering the target areas in the 12 provinces will be purchased to develop accurate land use and forest classification maps. The said base maps can be used for participatory planning and detailed design of forest development and improvement sub-components. The trial production of a land use map conducted under the JICA Preparatory Survey revealed that the following satellite images could be used for the intended purpose.

Possible Sources of Satellite Images

Satellite product	Resolution	Area coverage per scene	Supplier
CARTOSAT-1 (Panchromatic) merged with IRS P6 MX<1	2.5 m	900 km^2	Indian Data Supplies (NRSA) and SPOT Image

Note: IRS P6 is one of the Indian Remote Sensing Satellite Imagery Products produced by National Remote Sensing Center in India

b. Satellite image analysis and ground truth verification

Satellite images will be analyzed to evaluate the present land use and vegetation/forest coverage in the target areas. A ground truth survey in the selected areas is also to be carried out to complement the satellite image analysis.

c. Preparation of land use map on a scale of 1/10,000

The land use maps covering the target areas will be prepared on a scale of 1/10,000. The land use and forest classification system currently used by MARD should be employed in the land use mapping. The maps will be used as the baseline data for future monitoring and evaluation.

d. Preparation of high resolution base maps on a scale of 1/10,000

The high resolution base maps with a scale of 1/10,000 will be prepared by overlaying the satellite images with the existing GIS data, which consist of information such as contour lines, roads, demographic and land use boundaries, rivers, etc. Such maps will be used for participatory planning and mapping with local communities who would take part in the forest development and improvement activities.

These activities will be contracted out to the Forest Inventory and Planning Institute (FIPI) or contractors capable of and with experiences of analyzing satellite images for land use mapping.

(2) Site selection and demarcation

Site selection for the forest development / improvement sub-components will be carried out in a participatory manner. PFMBs with local facilitators hired by PFMBs will organize meetings/workshops with local communities who are willingness to participate in the project. After explaining the forest development/improvement activities applicable to the respective land use/forest

coverage conditions, the contractors together with local communities will delineate the boundaries of the target areas of the respective forest development/improvement activities, which include afforestation, ANR with enrichment, ANR without enrichment, protection of natural forest, and improvement of existing plantations, on the photo-like base maps.

Field surveys for boundary demarcation and setting stone pillars will be done by PFMBs with local communities. The location of each pillar set will be geo-coded by using GPS so that the data can be converted into GIS and reflected to the base maps.

In the meetings/workshops PFMBs with local facilitator will have a discussion with the local communities to determine tentatively the tree species introduced in afforestation, improvement of existing plantation and enrichment planting of ANR. PFMBs will show local communities a list of tree species recommended for the target site based on MARD Minister Decision No.16/2005/QD/BNN dated on 15/03/2005 and the communities will select the species that they want to plant in their localities from the list. The tree species will be finally determined during the detailed designing along with examination of the suitability of the species in the proposed sites

(3) Detailed planning and designing

Organizations that have experience in designing, such as the Design Centre of DARD, will be hired as contractors for the detailed design of the forest development /improvement sub-components. The contractors will prepare the designs of the sub-components based on the results of the preceding work as well as the existing secondary data related to the target areas. The detailed design shall be compiled as per PFMB, in principle. The following are the suggested scope of the detailed design.

i) Location map

ii) General information (location, area, slope, elevation, soil type, and other natural conditions) of the target areas

iii) Lists of parcels with accompanying information (e.g., parcel ID, areas, location, present land/forest classification type, criteria of watershed, proposed designs) per sub-contract package to local communities

(The lists should be developed per forest development / improvement sub-component, such as i) afforestation, ii) ANR, iii) ANR with enrichment, and iv) Protection, in the contract package.)

iv) Standard designs to be adopted for afforestation and ANR with enrichment

v) Unit costs for each forest development/improvement sub-component

vi) Costs of the respective contract packages of local communities and total cost for all the activities proposed in PFMB

(4) Baseline survey

With the aim of grasping the socio-economic conditions of local communities of the target villages and their dependency on forest resources, a household interview survey will be carried out by a contractor hired by the CPMU prior to the commencement of physical development works in the field. A set of questionnaire forms covering the following topics will be prepared and used for interviews to commune leaders as well as local households.

Topics Interviewed in the Baseline Survey

Interviewee	Topics interviewed
Village leader	• General information: Population, ethnicity, rural labour force • Production: Agriculture (land area, main crops, livestock population, farming systems and practices, etc), forestry, fisheries, and handicrafts if there is. • Infrastructure: Road system and transportation, irrigation, electricity, market, etc. • Social services: education, healthcare, dirking water and sanitation, etc. • Development and poverty alleviation projects or programmes implemented or being implemented in the commune. • Mass-organizations operated in the commune (farmer union, women union…). • Difficulties faced by the commune and possible support activities recommended.
Households	• General background of the household: family size, number of main and supported labourers, ethnicity, etc. • Annual income level and main sources of income • Agricultural production • Forestry resources • Average annual/monthly expenditures • Healthcare status and education • Understanding of JBIC project by the household. • Support/ assistance needed to be expressed by the household • Development needs (Recommendations/proposals for possible intervention to support local people)

The CPMU and PPMUs will select five (5) villages each per province for the socio-economic baseline survey. Out of five per province, three shall be selected among the target villages identified in the preparatory works and the rest from other villages with similar socio-economic conditions but without project intervention. Selection of sample households in the sample villages shall be conducted as follow:

a. In sample villages with project intervention, a total of 50 households shall be sampled randamly. 25 sample households shall be those willing to participate in the project and another 25 households who will not participate in the project.

b. In sample villages without project intervention, a total of 25 households shall be sampled randomly.

In the beginning of the survey at the sample villages, the contractor shall interview local leaders to collect general information and request them to select the interviewees in accordance with the above-mentioned guidelines. After selection of sample households with the help of the village leaders, the contractor shall interview the sampled households in each village.

3.4.2.3 Capacity Development, Information Dissemination and Phase-in/-out Works

This component comprises three activities, namely i) capacity development of the government staff, ii) capacity development of local communities, and iii) phase-in and phase-out works to ensure the long-term agreement on forest protection and management. The first activity is designed to enhance the capacity of stakeholders from central to district levels for implementing project activities. The second activity aims to enhance local people's awareness of the project and develop their capacities in managing and protecting the assigned project areas in a collective manner. The third activity focuses on the provision of guidance and assistance to PPMUs, PFMBs, and groups organized by local people to enable them to enter into contracts/agreements on long-term forest management and protection. In parallel with the above-mentioned activities, livelihood improvement support will be provided to local communities in the target villages for improving their livelihoods as described in Section 3.4.2.6.

CPMU and PPMUs will contract out all the works belonging to this component and that of the livelihood improvement support component (Section 3.4.2.6) to contractors. The activities of the contractors will be supervised by CPMUs and PPMUs with the assistance of the project consultant.

(1) Capacity development of the government staff

The capacity development of the government staff is composed of the following four sub-components:

i) Capacity development at the central level;

ii) Capacity development at the provincial level;

iii) Study tour; and

iv) Review meetings.

(a) Capacity development at the central level

Orientation, training and guidance sessions organized by the contractor hired by CMPU are to orient the project staff and other government staff associated with the project and to enhance their capacities necessary for project implementation. The following table gives the outlines of the activities.

Outline of Capacity Development Activities at the Central Level

Orientation / Training	Participants	Topics to be discussed	Location (Venue)	Duration	No. of participants	Executor	Timing
Project orientation	CPMU, MBFP & MARD	- Project concepts - Components & activities - Implementation schedule	Hanoi	2 days/ session x 1 session	30 persons/ session	NAFEC	2011
	PPMUs and DARD		Nghe An, Quang Nam, Phu Yen	2 days/ session x 1 session x 3 batches	60 persons/ session for 4 provinces (or 1 batch)	NAFEC	2011-12
Training guidance to PAFECs	PAFECs	- Outlines of the works - Project concepts - Components & activities - Implementation schedule - Techniques/skills required in detailed design and implementation stage - Activities planned in phase-out/in stage	Nghe An, Quang Nam, Phu Yen	3 days/ session x 6 sessions x 3 batches	60 persons/ session for 4 provinces (or 1 batch)	NAFEC	2011-12
Training on project management	CPMU, MBFP, and MARD	- Project management - Financial management / billing	Hanoi	2 days/ session x 1 session	20 persons/ session	NAFEC	2011
	PPMUs and DARD	- Project regulations	Nghe An, Quang Nam, Phu Yen	2 days/ session x 1 session x 3 batches	60 persons/ session for 4 provinces (or 1 batch)	NAFEC	2011-12

Orientation / Training	Participants	Topics to be discussed	Location (Venue)	Duration	No. of participants	Executor	Timing
Guidance on benefit sharing mechanism and forest development and protection fund	CPMU, MBFP, and MARD	- Benefit sharing mechanism (concepts, relevant guidelines, action to be taken, etc.)	Hanoi	2 days/ session x 1 session	20 persons/ session	NAFEC	2012
	PPMUs and DARD	- Forest development and protection fund (concepts, relevant guidelines, action to be taken, etc.)	Nghe An, Quang Nam, Phu Yen	2 days/ session x 1 session x 3 batches	60 persons/ session for 4 provinces (or 1 batch)	NAFEC	2012
Guidance on monitoring and evaluation (M&E)	CPMU, MBFP, and MARD	- M&E (concepts, objectives, relevant guidelines, indicators, methodologies, schedule) - Report making	Hanoi	2 days/ session x 1 session	20 persons/ session	NAFEC	2014
Monitoring meeting with PAFECs	PAFECs	- Progress of the work - Issues and difficulties - Good practices	Nghe An, Quang Nam, Phu Yen	1 day/ session x 12 sessions x 3 batches for 4 years	60 persons/ session for 4 provinces (or 1 batch)	NAFEC	2013-16

NAFEC is the most probable organization that can engage in the above-mentioned works as the contractor. CPMU together with the project consultant will give necessary guidance to the contractor (or NAFEC) prior to and during the works so as to maintain the quality of the works.

In addition to the capacity development of the project staff (the staff of CPMU and PPMUs), technical guidance to PAFECs in the 12 provinces will be conducted to capacitate PAFECs, which will be the executing bodies of the capacity development activities at the provincial level, to provide the necessary guidance to the relevant stakeholders, such as DPCs, PFMBs, CPCs, and local communities in a proper manner. NAFEC will also organize a monitoring meeting with PAFECs every six months so as to monitor the performance of PAFECs and discuss any issues and difficulties in the implementation of the capacity development activities at the provincial level.

(b) Capacity Development at the Provincial Level

The capacity development activities at the provincial level will target the relevant government offices from the provincial to commune levels as listed below.

- Relevant departments in DARD
- Protection Forest Management Boards (PFMBs)
- District People's Committees (DPCs) and District Extension Centers (DECs)
- Commune People's Committee (DPCs) and Commune extension workers

PAFEC is the sole organization to carry out the capacity development activities at the provincial level, since there seem to be no private institution capable of implementing the same activities. The main task of PAFEC is to provide orientation and training for the stakeholders. The following table shows the outlines of training sessions given to DARD, PPMUs, DPCs, DECs, and commune extension workers.

Outlines of Capacity Development Activities for PPC, DARD, PPMU, DPCs, and Extension Workers

Orientation / Training	Participants	Topics to be discussed	Location (Venue)	Duration	No. of participants	Executor	Timing
Project orientation	PPC, DARD, DPCs	- Project concepts - Components & activities - Implementation schedule	Provincial capital	2 days/ session x 1 session	30 persons/ session	PAFEC	2012
	PFMBs, DECs, CPCs		District capitals	2 days/ session x 1 session	60 persons/ session	PAFEC	2012
Training of PPMU	PPMU	<u>Detailed Design Stage</u> - Area identification - Participatory land use planning - GIS - Work planning	Provincial capital	3 days/ session x 1 session	60 persons/ session	PAFEC	2012
		<u>Implementation Stage</u> - Contract management - Livelihood development - Fire control - M&E	Provincial capital	3 days/ session x 7 sessions for 7 years	60 persons/ session	PAFEC	2012-18
Training of DECs and extension workers	DECs, Commune extension workers	- Group organization - Work planning - Assessment of livelihood options - Marketing assessment	District capitals	3 days/ session x 1 session	20 persons/ session	PAFEC	2012
		- M&E - Agrofreostry - Farming techniques - Livelihood development - NTFP production	District capitals	3 days/ session x 6 sessions for 3 years	20 persons/ session	PAFEC	2012-14

In addition to the capacity development of the provincial and district staff, the staff of PFMBs associated with the project areas will be given a series of training courses under this component so that they could manage the assigned protection forests in a proper and sustainable manner. Since the JICA Survey was not able to make an in-depth survey to identify the capacity gaps of PFMBs due to time constraints, a training needs assessment will be carried out by the contractors prior to the implementation of training courses. Based on the results of the training needs assessment, a training program will be prepared at each province. The following table gives the outlines of the activities related to the capacity development of PFMBs.

Outlines of Capacity Development Activities for PFMBs

Orientation / Training	Participants	Topics discussed <1	Location (Venue)	Duration	No. of participants	Executor	Timing
Training needs assessment	PFMBs	- Questionnaire survey	-	3 months	-	PAFEC	2012
Training of PFMBs	PFMBs	Detailed Design Stage - Area identification - Forestry inventory - Participatory land use planning - Site demarcation (including use of GPS) - GIS operation - Long-term agreement	Provincial capital	3 days/ session x 1 session	30 participants	PAFEC	2012
		Implementation Stage - Silvicultural techniques - Technology transfer - Livelihood development - Forest protection rules - Forest fire control - NTFP production - Data management - Monitoring - Planning - Reporting	Provincial capital	3 days/ session x 12 sessions for 6 years	30 participants	PAFEC	2112-17

Note: Topics of training courses are tentative ideas based on the quick interviews to DARDs and PFMBs.

(c) Study Tours

The study tours will be organized to expand the horizon of the staff of MARD and DARDs. The main aim of the study tour is to deepen their understanding of community participation in forest management in Japan. As described in Chapter 1 in Part III report, the forest management initiated by the government is still the prevailing practice in managing protection forests in the field and the concept of the long-term agreement/contract with local communities or co-management of protection forest is still new to many of the staff of MARD and DARDs. Cases of forest management by forest users' groups in Japan will be good examples for them to have an idea on forest management in collaboration with local communities. The study tours will also be effective in learning how to keep the forest users' groups active and make the organizations self-reliant. Specifically, the participants in the study tours are expected to learn:

- Forest management by local communities;
- Forest management practices;
- Management of forest users' groups; and
- Income generating activities by the groups.

(d) Review Meetings

The project review meetings will be organized every six months at both central and provincial levels. CPMU and the relevant departments of MARD will be the participants in the meeting at the central level, while PPMU, DARD and PFMBs will participate in the meeting at the provincial level. In the meeting, the participants will discuss the activities conducted in the last six months with accomplishments made, any issues and concerns in the project implementation, lessons learned, and activities planned in the next six months. Such periodical reviews would help MARD and DARDs monitor the progress of the project in a timely manner. At the same time, the review meeting can also

be good opportunity for CPMU and PPMUs to solve any cross sectoral issues in managing the project. The outlines of the review meetings are summarized below.

Outline of Review Meetings

Meeting	Participants	Topics to be discussed	Location (Venue)	Duration	No. of participants	Executor	Timing
Review meetings at the central level	CPMU, relevant departments of MARD, etc.	- Activities done - Accomplishments - Issues & concerns	Hanoi	2 days/ session x 2 sessions/ year x 9 years	10 persons/ session	CPMU	2011-19
Review meetings at the provincial level	CPMU, relevant departments of DARD, PFMBs	- Lessons learned - Activities planned in the next phase	Provincial capital	2 days/ session x 2 sessions/ year x 9 years	60 persons/ session	PPMU	2011-19

(2) Capacity Development of Local Communities/Households

The capacity development of local communities is another crucial sub-component that would influence the sustainability of the project. The sub-component aims to enhance the awareness of the project among local communities who may take part in the project and develop their capacities and skills necessary for undertaking the project activities. Most of the activities related to the capacity development of local communities/households will be contracted out to the contractors in the provinces. As mentioned in the former section, PAFECs in the provinces are expected to be the most capable organizations to carry out the activities.

(a) Information Dissemination to local communities/households

The information dissemination intends to i) familiarize the local communities/households with the project (purpose, concepts, project activities, expected benefits, and responsibilities of local communities) and relevant policies and guidelines concerning management of protection forests and ii) improve the local communities' understanding on the value of the protection forest and their role in forest management. The orientation meetings will be organized for both new sites and SPL-3 sites in the beginning of the project at the commune/village level.

Topics to be handled in the Information Dissemination Activities

Topics	Sub-topics	Timing	No. of participants	Venue	Duration	Executor
Outlines of the project and benefit sharing	• Overview of the project, project concepts and outlines • Concept of the long-term agreement • Outline of the benefit sharing mechanism • Group organization for long-term agreement on forest management	Phase-in Stage (2012)	30 persons / commune	Commune	1 day/ commune x 1 session	PAFEC
Value of protection forest	• Awareness creation on value of protection forest • Roles of stakeholders and local communities in management of protection forests	Phase-in Stage (2012)	30 persons / commune	Commune	1 day/ commune x 1 session	PAFEC

As mentioned above, the contractors will encourage local households/communities to organize a small community group for management of protection forests. In particular, those who reside in the same village or hamlet may have potential to be organized into a group since they have shared a sense

of solidarity and many of them are related to each other. In principle, the group will be organized at either village or hamlet level[12]. The contractors will request local communities/households in the session to discuss among themselves whether or not they could organize themselves into a small group by the time when they have guidance on forest management. The concerned PFMBs will assist local communities in discussing such an issue after the meeting.

(b) Publication

For information dissemination, different types of publications are to be developed to reach out to the different levels of people. Especially, in developing the materials for the local communities, the contents and presentations of the materials are to be carefully designed through a field trial. When being developed for illiterates, the materials should contain sufficient images or drawings for them to easily grasp the imparted messages. CPMU and PPMUs will be responsible for development of the following materials with the assistance of the project consultant and/or the contractors. The project consultant will review and finalize the materials drafted by CPMU and PPMUs.

Proposed Materials to be Produced for Information Dissemination

Nature of the material <1	Type of material	Responsible organization	Assisting organization	Target groups
Project brief (overall)	Print (leaflet)	CPMU	Project consultant	General
Project brief (sub-project)	Print (leaflet)	PPMUs	Contractors (PAFECs) and Project consultant	General
Annual newsletter (overall)	Print (leaflet)	CPMU	Project consultant	General
Annual newsletter (sub-project)	Print (leaflet)	PPMUs	Contractors (PAFECs) and Project consultant	General
Environmental education booklet	Booklet (10pages)	PPMUs	Contractors (PAFECs) and Project consultant	Youth/ future generations
Awareness creation	Poster DVD/ VCD	PPMUs	Contractors (PAFECs) and Project consultant	Local communities / households

Note: <1 Technical guidebooks or leaflets will not be developed as publication but prepared in the course of technical training on the respective subjects.

The materials finalized will be distributed to the target groups through PPCs, DPCs/CPCs and PFMBs in the target provinces.

(c) Guidance and Training on Forest Management

The guidance and training activities aims to strengthen the capacity of local communities/households in pursing self-sustaining forest protection and management. Currently, the management of protection forest is under the direct responsibility of the government while the role of the local communities is considered to be passive. In many cases, they are less likely to act unless they are paid or instructed by the government. Hence, the following activities will be carried out at the commune/village level.

i) Guidance on forest management and long-term agreement

ii) Technical training on afforestation and silvicultural practices

iii) Periodical coaching to local households/community groups

[12] Although there are several existing organizations in rural areas, such as youth unions, women's union, and agricultural cooperatives, these organizations will not be used for grouping community members since they have their own missions and the size of these organizations is far larger than that of hamlet/village.

Guidance by the Contractors

In the guidance on forest management and long-term agreement, the following topics will be discussed and handled by the contractors hired for the capacity development of local communities in the provinces.

Outline of Guidance on Forest Management and Long-term Agreement

Topics	Participants	Location (Venue)	Duration	No. of participants	Executor	Timing
Long-term agreement and benefit sharing	Local communities, Commune or village leaders, PFMBs	Commune	1 day/ session x 1 session	30 persons/ session	PAFEC	2012~13
Group organization for forest management and long-term agreement	Local communities, Commune or village leaders, PFMBs	Commune	1 day/ session x 1 session	30 persons/ session	PAFEC	2012~13
Preparation of a work plan for sub-contract	Local communities, Commune or village leaders, PFMBs	Commune	1 day/ session x 1 session	30 persons/ session	PAFEC	2012~13
Development of rules on forest protection and management	Local communities, Commune or village leaders, PFMBs	Commune	1 day/ session x 2 sessions	30 persons/ session	PAFEC	2013~15
Outline of a forest management plan	Local communities, Commune or village leaders, PFMBs	Commune	1 day/ session x 2 sessions	30 persons/ session	PAFEC	2015~17
Trial preparation of a forest management plan	Local communities, Commune or village leaders, PFMBs	Commune	1 day/ session x 1 session	30 persons/ session	PAFEC	2016~18

Note: The contractors shall also prepare technical guides for the respective topics and use them in the sessions.

Local communities/households who are willing to organize a community group will be assisted in the group formation. In the session, the communities/households with the assistance of the contractors will make a member list, select group leaders (leader and sub-leaders), determine the roles and responsibilities of the leaders and other members, and define the vision and mission of the group. The community group will be the responsible body for forest development and management activities in the assigned protection forests, which used to be used by community members of the same village or hamlet. The community group will also be a venue for training on livelihood development and a counterpart of the long-term agreement/contract on forest protection and management in the end.

Technical Training by the PFMBs

On the other hand, PFMBs will organize a series of technical training sessions for local communities. The technical training sessions given by PFMBs should include, but not limited to, the following topics:

- Land preparation;
- Identification of planting points with sticking;
- Hole digging and filling soils;
- Planting;
- Tending seedlings (spot weeding and clearing); and
- Replanting.

In the sessions, PFMBs shall give both types of training, lecture-type with a text book and hands-on training in the field.

Periodical Coaching by the Contractors

In order to support local households and/or community groups who intend to enter into the long-term agreement/contract in managing the assigned protection forests, the contractors will organize meetings with local communities biannually at the PFMB level. The contractors will confirm the progress of the work and discuss with local communities together with PFMBs any issues and concerns on forest management as well as management of community group. The scope of the periodical meeting by the contractors is outlined below.

Topics	Participants	Location (Venue)	Duration	No. of participants	Executor	Timing
Progress of works Accomplishments Issues and concerns on forest management Issues and concerns on management of group Activities planned in the next six months	Local communities, Commue/Village leaders, PFMBs	PFMB	1 day/ session x 1 session/ year (for 5.5 year for SPL-3 sites and 7 years for new sites)	30 persons/ session	PAFEC	2013~19

In addition to the monitoring by the contractors, PFMBs in coordination with DECs as well as commune extension workers will have meetings with local communities at times. Any issues and concerns that the communities face in the course of the sub-contracted activities will be discussed in the meetings and PFMBs and DECs/commune extension workers will give necessary guidance and advice to local communities.

(3) Phase-in / phase-out works

The project areas, whenever and wherever feasible, should be ideally managed by local communities upon the termination of the forest development/improvement sub-contract. Since the long-term agreement/contract on forest management or co-management of protection forest will be the first attempt in the target provinces, sufficient guidance and assistance should be given to PPMUs, PFMBs, and local communities in addition to the guidance on forest management described in the former sub-section to enable them to conclude the long-term agreement/contract on protection and management of the assigned protection forests. The following assistance works will be carried out by the project consultant and the contractors for the capacity development at the provincial level.

Activities Planned for Phase-In / Phase-Out Works

Activities	Purposes	Executors
Facilitation of hand-over of forest ownerships from PPMUs to PFMBs	To assist PPMUs in handing over the ownerships of the project area to PFMBs concerned	CPMU and Project Consultant
Guidance to PPMUs, PFMBs, and PAFECs	To deepen the understanding of PPMUs, PFMBs, and PAFECs on the procedures for the long-term agreement, outlines of benefit sharing mechanism, and preparation of a forest management plan	CPMU and Project Consultant
Guidance to local communities/ community groups	To remind local communities of the procedures for the long-term agreement and enable them to prepare a forest management plan using the given format.	PPMUs and Contractors

(a) Facilitation of hand-over of forest ownerships by PPMUs to PFMBs

Prior to the conclusion of the long-term agreement/contract with local communities/community groups, the ownership of the assigned protection forest shall be handed over by PPMUs to the

concerned PFMBs. Once the sub-contracts with local communities under the project is completed, PPMUs will be encouraged by CPMU to immediately hand over the ownership of the assigned protection forest to the concerned PFMBs so that the latter can make the long-term agreement on management of the assigned area with local communities. Toward this end, the project consultant will assist the concerned PPCs in issuing a letter of transfer of the corresponding areas upon the completion of the sub-contracts. The letter issued by PPCs shall specify the locations (district, commune, compartment and series numbers) and the name of new owner of the area.

(b) Guidance to PPMUs, PFMBs, and PAFECs

The orientation workshops organized in the beginning of the project will handle the topics related to the long-term agreement/contract, such as the contents of the agreement, benefit sharing mechanism, and forest management plan, but PPMUs, PFMBs, and PAFECs, which will be responsible for supporting local communities in concluding the long-term agreement/contract, may need to refresh and enhance their understandings on those topics, especially the procedures for the long-term agreement on co-management of protection forest, prior to the provision of guidance to local communities in the field. The following guidance sessions will be undertaken by CPMU and the project consultant.

Guidance to PPMUs, PFMBs, and PAFECs

Target	Topics to be discussed	Venue	No. of participants	Duration	Executor	Timing
New sites (12 provinces)	- Long-term contract and its procedures - Benefit sharing mechanism - Forest protection and development fund - Forest management plan (its purpose and use of a planning format given by the consultant)	Nghe An, Quang Nam, Phu Yen	60 persons / session for 4 provinces	2 days/ session x 3 sessions x 3 batches for 12 provinces	CPMU and Project consultant	2017-18
SPL-3 sites (5 provinces)	ditto	Hue	60 persons / session for 5 provinces	2 days/ session x 2 sessions for 5 provinces	CPMU and Project consultant	2016-17

A forest management plan will be one of the contract documents to be prepared for the long-term agreement/contract between PFMBs and local communities. It might not be easy for PPMUs, PFMBs and local communities to prepare the said plan, since there has been no such a plan prepared so far. In order for PPMUs, and the contractors to effectively guide local communities in preparing the plan, the project consultant will develop a format of the forest management plan when it finalizes the implementation guidelines and explain how to use it in the guidance session.

(c) Guidance to local communities

After having had the guidance sessions organized by CPMU, PPMUs with the assistance of the contractors will organize guidance sessions at the commune/village level to assist local communities/community groups in preparing themselves to enter the long-term agreement. Since local communities will be given a series of guidance from 2013-2016, which will include the same topics, the aim of the sessions are to refresh what they learn in the former sessions and remind them of the critical points/issues on the long-term agreement. The outlines of the guidance to local communities are summarized below.

Guidance to Local Communities

Target	Topics to be discussed	Venue	No. of participants	Duration	Executor	Timing
New sites and SPL-3 sites	- Long-term contract and its procedures - Benefit sharing mechanism - Forest management plan (its purpose and how to prepare the plan using the given format)	Commune / Village center	30 persons / session	1 day/ session x No. of communes	PPMUs and the contractors	2015-18

3.4.2.4 Development and Improvement of Protection Forests

As described in the former section, the project area is broadly grouped into three types of protection forests, namely, i) watershed protection forest, ii) SPL-3 Afforestation Project sites, and iii) coastal protection forest. Since each protection forest has different crucial functions to be protected and restored for environmental protection as well as socio-economic development point of views, this component aims to rehabilitate, improve, and protect three protection forests as described below.

(1) Present forest classification and recommended interventions to protection forest

The forest lands (i.e., special use forest, protection forest and production forest) governed by the government are categorized into the following four groups in accordance with the technical regulations officially defined by MARD.

Types of Vegetation in Viet Nam

Category	Characteristics
Group 1	**Vegetation which does not form forest. Grass or bush is dominant. Forest coverage is less than 30 %.**
Ia (Grass land)	Bush vegetation. Local shrubs, grass and wild banana are dominant.
Ib (bush, small trees)	Bush vegetation with some growing timber trees and bamboos
Ic (woodlot)	Woodlot dominated by small timber tress around one meter height with density more than 1,000 trees/ha.
Group II	**Recovering forest with small diameter pioneer trees**
II a	Recovering forest after hill cultivation
II b	Recovering forest after over harvesting
Group III	**Impacted forest by the human activity**
III a	Forest impacted and completely changed by over harvesting
III b	Forest impacted by the selective cutting
Group IV	**Original forest or mature secondary forest**
IVa	Original forest
IVb	Secondary recovering forest

Source: Technical regulation on design of forest management on August 1st 1984. MARD

Group I is given to the areas where there is no or less forest, while Group IV indicates the areas that have untouched natural forest or matured secondary forest. Groups II and III are the forests that have been damaged or affected by human activities and are being in the process of regeneration.

On the other hand, MARD Decision No.134/04/04/1991 titled "Temporary Regulations on Establishment of Watershed Protection Forest," states that the protection forests should be classified into three (3) types, i.e., i) very critical protection forest, ii) critical protection forest, and iii) less critical protection forest, based on its importance in watershed management. In general, those classified as "very critical protection forest" are located in the head of critical watersheds or in the river and lake banks which are at high risk of erosion. They must be strictly protected or urgently rehabilitated in case forest degradation has progressed.

With an aim to manage "very critical protection forest" properly, the decision also provide the technical options/guidance to rehabilitate the vegetation, such as i) afforestation (new planting), ii) assisted natural regeneration (ANR) with/without enrichment planting, and iii) forest protection. Afforestation is to be applied to the vegetation type of "Ia" and part of "Ib" to establish the forest vegetation on bare lands currently covered with grass or scattered scrubs. ANR without enrichment planting is aimed at recovering the vegetation cover from Ic to IIIb, while ANR with enrichment planting is applied to Ib and Ic which require additional planting of indigenous trees. MARD Decision No. 134 instructed DARDs to adopt such technical options in rehabilitation and management of forest areas. The following table shows the technical options to be applied to the present vegetation types to rehabilitate and maintain the "very critical protection forests."

Types of vegetation and technical options corresponding to the vegetation

Vegetation types	Afforestation	Forest Protection	ANR with enrichment planting	ANR w/out enrichment planting
Type Group 1: Vegetation which does not form the forest				
Ia (Grass land)	○			
Ib (Bush, Small trees)	△		○	
Ic (Wood lot)			△	○
Type Group II: Recovering forest				
II a				○
II b				○
Type Group III: Impacted forest				
III a				○
III b				○
Type Group IV: Original forest or mature secondary forest				
IVa		○		
IVb		○		

Source: Decision No. 134 (04/04/91)
Note: ○ : apply. △ : partly apply

(2) Development and improvement of watershed protection forest

As stipulated in MARD Decision No. 1171 dated on 30/12/1986, the watershed protection forest holds the multiple functions namely: i) control soil erosion on hill and mountain slopes, ii) reduce sedimentation in riverbeds, and iii) stabilize the water flow of the rivers throughout a year. Although it is difficult to evaluate those effects exactly, it is well known that the forest vegetation could contribute to minimizing the environmental degradation and the risk of natural disasters in its downstream basin. The main aims of the sub-component of "Development and Improvement of Watershed Protection Forest" are to rehabilitate the degraded protection forests and to protect natural forests to maintain/enhance the functions of watershed protection forests.

The physical targets of the sub-component were identified as shown below by applying the guidelines described in the former sub-section.

Physical Targets of Development and Improvement of Watershed Protection Forest

Unit: ha

Province	Afforestation	Improvement of existing plantation	Forest Protection	ANR with enrichment planting	ANR w/out enrichment planting
1. Thanh Hoa	1,270	1,400	6,600	-	900
2. Nghe An	2,300	900	4,100	-	-
3. Ha Tinh	1,960	1,000	8,510	-	-
4. Quang Binh	1,600	-	3,000	-	800
5. Quang Tri	2,900	-	4,000	300	2,450
6. Thua Thien Hue	3,000	-	8,000	500	2,000
7. Quang Nam	970	-	7,000	2,100	1,100
8. Quang Ngai	3,500	-	3,200	600	2,700
9. Binh Dinh	2,480	-	3,710	-	4,700
10. Phu Yen	1,500	-	4,350	-	900
11. Ninh Thuan	1,610	-	7,900	1,200	1,500
12. Binh Thuan	-	-	3,600	-	4,200
Total	23,090	3,300	63,970	4,700	21,250

Source: JICA Survey Team, September 2009

(a) Afforestation

Afforestation aims to establish the forest cover on bare lands dominated with grass (Ia) and scattering scrubs (Ib). The standard design of afforestation, which is in line with MARD Decision No. 516/2002 and No. 4361/2002, is outlined below.

Standard Design of Afforestation in Watershed Protection Forest

Item	Design
1. Present vegetation type	Ia (grassland) and partly Ib (bush or scatted small trees)
2. Density of planting	1,550~1,600 trees/ha
3. Tree species planted	- Mix planting of main (Indigenous) species and subordinate (fast growing) species - Main (Indigenous) species: *Dipterocarpus alatus, Hopea odorata,*etc. - Subordinate (fast grwoing) species: *Acacia mangium, A. auriculiformis, A.hybrid.*etc. - Ratio of main species and subordinate species is 1:1 or 1:2
4. Tending & protection	Spot weeding and clearing are continued for three (3) years after planting
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target tree density at maturity	Multi-layered main species (400 ~ 600 trees/ha) formulates the closed canopy layer in 20- 25 year. (Ia or Ib → II)
7. Remarks	Subordinate species are planted with the main species to form the canopy cover in the early stage to give favorable conditions for the growth of main species. Subordinate species should be gradually harvested by thinning from 7th year.

Source: MARD Decision No. 516/2002, No. 4361/2002, JICA Survey Team.

According to the standard design, the main tree species will formulate high closed canopy in 20-25 years after planting. The subordinate tree species are gradually removed by thinning and cutting from seventh to 20th year, which brings continuous income to the forest owners. The target density of the main tree species is from 400 to 600 trees/ha in the matured stage. The contract for afforestation sub-component includes replanting/replacement of dead seedlings with new ones at the onset of rainy season in the second year considering the natural mortality after planting. The same silvicultural practice should be adopted for other

sub-components with planting of seedlings, such as improvement of existing plantation and ANR with enrichment planting.

(b) Improvement of Existing Plantations

In addition to afforestation in bare lands, there is also a need to improve existing plantations in Thanh Hoa, Nghe An, Ha Tinh and T.T. Hue. These provinces have vast areas of mono-plantation of Pine (*Pinus merkusii*) trees established by the government in the late 1970's. After three decades have passed, the Pinus trees have grown well but have been severely damaged by wildfires and insects attacks. They have been vulnerable to such external factors due to its flammability and poor species diversity. Hence, the existing mono-pinus tree plantations need to be converted to multi-layered mix plantation by planting additional indigenous trees, so that the plantations could be resistant to insect attacks and wildfires. The table next shows the standard design of this operation.

Standard Design of Improvement of Plantation in Protection Forest

Item	Design
1. Present vegetation type	Plantation of *Acacia spp*. or *Pinus merkusii* (Assumption: 1,000 trees/ha)
2. Density of planting	400 ~ 600 trees/ha
3. Tree species planted	Indigenous tree species are planted between the Pine trees. Tree species: *Aquilarina crassna* (Do tram), *Erythrophloeum fordii* (Lim xanh), *Lithocarpus fissus* (Cong trang), *Kadelea candel* (Trang),
4. Tending & protection	Tending is continued for three (3) years after planting
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target tree density at maturity	Mixed forest of *Acacia spp./Pinus merkusii* and indigenous trees. 400~600 trees/ha of multi-layered forest (Ic → II)
7.Remarks	Acacia (subordinate species) should be harvested by thinning.

Source: JICA Survey Team

(c) Protection of natural forest

In the watersheds, natural forests are always exposed to the risks of natural disasters and the illegal activities such as cutting, firing, etc. In the circumstances, the main aim of this sub-component is to protect natural forests in the critical watershed protection forests from such risks and dangers. This option will also be applied to Pinus plantations, which are prone to the same kind of risks, in the northern central provinces, namely Thanh Hoa, Nghe An and Ha Tinh. The standard works for protection of natural forest are summarized below.

Standard Works for Protection of Natural Forest

Item	Design
1. Present vegetation type	IVa or IVb (original or matured secondary natural forest) Pinus plantation
2. Activities	Patrolling and reporting. Maintenance of the sign board for forest protection
3. Target tree density at maturity	Natural forest maintained in good conditions
4. Remarks	The contracted group members are allowed to harvest the forest products following the MARD regulations.

Source: JICA Survey Team

(d) Assisted Natural Regeneration (ANR)

are classified as Ib, Ic, II and III. ANR with/without enrichment planting is to be applied to these types of vegetation with the aim of facilitating natural regeneration of indigenous trees. Hence, the

goal of this option is to upgrade the severely damaged forest to partly degraded or secondary forest at the end of the project by tending the areas with or without planting.

ANR with enrichment planting will target the areas classified as Ib and Ic where there are not sufficient number of standing trees to establish a close forest canopy, while ANR without enrichment will be mainly adopted for recovering the areas classified as Ic, IIa, IIb, IIIa, and IIIb, which have a certain level of existing standing trees in the area.

The standard designs of the sub-component are outlined below.

Standard Design of ANR with Enrichment Planting

Item	Design
1. Present vegetation type	Ib (bush, scattered small trees), partly Ic (woodlot)
2. Density of planting	400 trees/ha
3. Tree species planted	Indigenous tree species: *Dipterocapus alatas, Hopea odorata*. etc.
4. Tending & protection	Spot weeding and climber cutting are continued for two (2) years after the additional planting followed by two years protection.
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target tree density at maturity	Mixed multi-layered forest of indigenous trees. (Ib, Ic → II) 600 trees/ha of multi-layered forest composed with indigenous trees (400 trees/ha planted additionally, 200 trees/ha naturally regenerating).
7. Remarks	Clearing and thinning should be done properly to control the density of stands.

Source: JICA Survey Team

Standard Design of ANR without Enrichment Planting

Item	Design
1. Present vegetation type	Ic (woodlot), IIa, IIb, IIIa, and IIIb
2. Tending & protection	Assistance for natural regeneration of indigenous trees for three years followed by two years protection
3. Target tree density at maturity	Mixed multi-layered forest of indigenous tree (Ic, II, III → II, IV)
4.Remarks	Clearing and thinning should be done properly to control the density of stands.

Source: JICA Survey Team

(3) Development and improvement of coastal protection forest

Some of the target provinces have the critical coastal protection forests along the coastal lines. Like in the case of those in watershed, they have crucial functions to prevent sand in coastal area from moving inland and to protect houses, roads, and farms in coastal areas from sand and strong wind as sand- and wind-shield forests. Among the 12 provinces two (2) provinces, namely, Quang Binh and Binh Thuan provinces, propose to afforest sandy open lands and rehabilitate the degraded plantations in coastal protection forest as shown below

Physical Targets of the Improvement of Coastal Protection Forest

Unit: ha

Province	Afforestation	Improvement of existing plantation	Forest Protection	Enrichment planting
1. Thanh Hoa	-	-	-	-
2. Nghe An	-	-	-	-
3. Ha Tinh	-	-	-	-
4. Quang Binh	400	800	-	-
5. Quang Tri	-	-	-	-
6. Thua Thien Hue	-	-	-	-
7. Quang Nam	-	-	-	-
8. Quang Ngai	-	-	-	-
9. Binh Dinh	-	-	-	-
10. Phu Yen	-	-	-	-
11. Ninh Thuan	50	-	-	-
12. Binh Thuan	1,100	-	-	1,600
Total of 12 provinces	1,550	800	-	1,600

Source: JICA Survey Team

(a) Afforestation in sandy area

In this option, the project will plant localized drought tolerant tree species, such as Casuarina and Neem (*Azadirachta indica*), in open sandy area to establish the sand- / wind-shielding forest. The density of trees in the initial stage will be as high as 2,500~5,000 seedlings/ha, and it will be reduced to 1,500~2,000 seedlings in the end of the project. The standard design of afforestation in sandy area is outlined below.

Standard Design of Afforestation in the Coastal Protection Forest

Item	Design
1. Present vegetation type	Ia (grassland or bare land)
2. Density of planting	2,500 ~ 5,000 trees/ha (Mostly 2,500 ~ 3,000 tree/ha)
3. Tree species planted	Tree species: *Casuarina equisetifolia, Neem (Azadirachta indica)*
4. Tending & protection	Tending is continued for three (3) years after planting
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target tree density at maturity	1,500 ~ 2,000 trees/ha of *Casuarina* stands with close canopy layer (Ia,Ib → II)
7.Remarks	No thinning should be done. Number of trees decreases naturally.

Source: JICA Survey Team

(b) Improvement of existing plantation

This option is applied to the existing Casuarina plantations where sand has been stabilized. The option aims at the enrichment of the plantation by introducing other tree species. Due to the harsh and dry conditions, species tolerant of drought and poor soil conditions should be introduced in this option rather than indigenous species. According to the past experiences made by the provinces, *Acacia auriculiformis* and Neem have showed good performance even under such poor conditions. The following table gives the standard design of the sub-component.

Standard Design of Improvement of Existing Plantation

Item	Design
1. Present Vegetation type	Casuarina plantation
2. Density of planting	485 trees/ha, Assumption: 1,000 trees/ha of Casuarina.
3. Tree species planted	Tree species: *Acicia spp.* (mainly *Acaacia auriculiformis*) Neem (*Azadirachta indica*)
4. Tending & protection	Continue spot weeding, clearing for three (3) years after planting of Acacia
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target tree density at maturity	1,500 trees/ha of *Casuarina* and *Acacia* plantation Some of Acacia is assumed to re-generate naturally. (Ic → II)
7.Remarks	No thinning should be done. Density is controlled naturally.

Source: JICA Survey Team

(c) Enrichment planting

This option will be applied to degraded natural forests in the coastal area. Although indigenous tree species are ideal, acacia spp. and Neem are more suitable in sandy areas considering their applicability and suitability to such areas. Major activities to be carried out in this option are almost similar with what would be done in ANR with enrichment planting in watershed protection forest.

Standard Design of Enrichment Planting

Item	Design
1. Present Vegetation type	Ib (bush, small trees)
2 Density of planting	500 trees/ha
3. Tree species planted	Acacia spp. and Neem
4. Tending & protection	Assistance for natural regeneration is continued for two (2) years after enrichment planting, followed by the two (2) years protection
5. Replanting	10 % of the total seedlings planted in the first year will be replanted in the second year.
6. Target tree density at maturity	600 trees/ha of multi-layered mixed forest composed with various indigenous trees (Ib, Ic → II)
7. Remarks	No thinning should be done.

Source: JICA Survey Team

(4) Improvement of SPL-3 afforestation project sites

DARDs that implemented SPL-3 Afforestation Project proposed that the project assist them in improving the existing plantations established by SPL-3 Afforestation Project. A number of plantations were established under the project, but many of them are presently in poor conditions due to less maintenance after the end of sub-contracts with local communities. Though they are located in the very critical watershed, DARDs had no choice other than to leave them non-maintained due to financial constraints. The following table shows the physical targets of the sub-component.

Physical Target of Improvement of SPL3 Afforestation Project Sites

Unit: ha

Province	Forest Protection	Enrichment planting	Vegetation clearing & thinning
1. Thanh Hoa	-	-	-
2. Nghe An	-	-	-
3. Ha Tinh	-	-	-
4. Quang Binh	-	-	-
5. Quang Tri	1,610	400	1,600
6. Thua Thien Hue	700	-	3,400
7. Quang Nam	120	-	1,430
8. Quang Ngai	-	-	3,790
9. Binh Dinh	-	-	-
10. Phu Yen	2,020	600	-
11. Ninh Thuan	-	-	-
12. Binh Thuan	-	-	-
Total of 12 provinces	4,450	1,000	10,220

Source: JICA Survey Team

(a) Forest protection

Forest protection will target the existing established forests developed by SPL-3 but facing threats of forest degradation, such as wild fires, free grazing, and illegal cutting/farming. The activities to be done in this option are the same with what would be carried out in the same option in Development and Improvement of Watershed Protection Forest. The duration of the work is designed to be three years.

Standard Design of Forest Protection of SPL3 Plantations

Item	Design
1. Present Vegetation type	Plantation composed of; Main (protection) species and subordinate (economic) species such as *Acacia spp*. (Ic, II)
2. Activities	Patrolling and reporting. Maintenance of the sign board for forest protection
3. Target tree density at maturity	Multi-layered mixed plantation composed of main and subordinate species. 400 ~ 600 trees/ha in 20-25 years. (Ic, II → II)
4. Remarks	The contracted local communities will be allowed to harvest the forest products in accordance with the MARD regulations.

Source: JICA Survey Team

(b) Enrichment planting in natural forests in the SPL-3 sites

Enrichment planting of indigenous tree species will be applied to degraded natural forests in the target area of SPL3. Although the major tree species such as Dipterocarpus and Hopea are recommended, the species planted should be carefully examined and identified based on the natural conditions in the localities.

Standard Design of Enrichment Planting in the SPL3 Natural Forest

Items	Design
1. Present Vegetation type	Ib (bush, small trees), Ic (woodlot) Assumption: 1,000 trees/ha of small local trees
2. Density of planting	380 trees/ha
3. Tree species planted	Indigenous tree species: *Dipterocapus alatas, Hopea odorata*, etc.
4. Tending & protection	Protection is continued for three year after enrichment planting in the first year.
5. Target tree density at maturity	600 trees/ha of multi-layered forest composed with several indigenous tree species. (Ib,Ic → II)
6. Remarks	Thinning to control the density should be done properly.

Source: JICA Survey Team

(c) Vegetation clearing and thinning

In some of the plantations developed by SPL3 Afforestation Project, Acacia trees planted become too dense and intricate since they have grown well and so fast with less maintenance condition. Overgrowth of subordinate species has suppressed the main species and adversely affected the growth of the main trees. Subordinate species in the plantations should be cleared and thinned to help the main trees recover their growth and develop tree canopies. The design of this option and major activities to be undertaken is summarized as follows.

Standard Design of Vegetation Clearing and Thinning of SPL3 Plantations

Items	Design
1. Present Vegetation type	Plantation which has a closed canopy Main (protection) species and subordinate (economic) species such as *Acacia spp*.
2. Species of thinning	*Acacia spp.* (sub-ordinate species in the plantation)
3.Tending & Protection	Protection is continued until fourth (4^{th}) year. Assistance for natural generation should not be done.
4. Target tree density at maturity	400~600 trees/ha of multi-layered forest composed with several indigenous tree species in 20~25 years.
5.Remarks	Thinning should be done properly from seventh (7^{th}) year

Source: JICA Survey Team

(5) Construction of silviculture infrastructure

To facilitate the implementation of the forestry-related sub-components and make the management of the project areas easy, there is a need to construct and develop the silviculture infrastructure facilities associated with the project areas. The following targets were determined after a careful review of the proposals submitted by DARDs of the 12 provinces.

Physical Target of Silviculture Infrastructure Development in Watershed Protection Forest

Province	Forestry road (km)	Fire break line (km)	Fire watch tower (no.)	Forest protection station (no.)	Information board (no.)	Nursery (no.)
1. Thanh Hoa	19.0	6.0	6	5	7	-
2. Nghe An	50.0	-	3	5	6	3
3. Ha Tinh	34.0	30.0	6	5	6	2
4. Quang Binh	20.0	24.0	5	5	5	2
5. Quang Tri	40.0	140.0	4	3	9	-
6. Thua Thien Hue	23.0	38.0	8	6	19	-
7. Quang Nam	44.0	20.0	8	9	-	6
8. Quang Ngai	40.0	40.0	9	4	4	4
9. Binh Dinh	40.0	50.0	9	5	11	4
10. Phu Yen	30.0	30.0	-	3	-	-
11. Ninh Thuan	20.0	34.0	4	4	-	1
12. Binh Thuan	27.0	-	-	6	-	-
Total of 12 provinces	387.0	412.0	62	60	67	22

Source: JICA Survey Team

Physical Target of Silviculture Infrastructure Development in Coastal Protection Forest

Province	Forestry road (km)	Fire break line (km)	Fire watch tower (no.)	Forest protection station (no.)	Information board (no.)	Nursery (no.)
1. Thanh Hoa	-	-	-	-	-	-
2. Nghe An	-	-	-	-	-	-
3. Ha Tinh	-	-	-	-	-	-
4. Quang Binh	5.0	6.0	2	2	3	1
5. Quang Tri	-	-	-	-	-	-
6. Thua Thien Hue	-	-	-	-	-	-
7. Quang Nam	-	-	-	-	-	-
8. Quang Ngai	-	-	-	-	-	-
9. Binh Dinh	-	-	-	-	-	-
10. Phu Yen	-	-	-	-	-	-
11. Ninh Thuan	-	-	-	-	-	-
12. Binh Thuan	11.0	22.0	-	2	-	-
Total of 12 provinces	16.0	28.0	2	4	3	1

Source: JICA Survey Team

(a) Forestry road

Generally the project areas are located in the remote upstream of watersheds where there are only footpaths available. Forestry road needs to be constructed to connect the project areas with the main roads so that PFMBs could transport local communities and materials needed for the forest development components, such as seedlings and fertilizer, to the project areas. The standard design of forestry road is five meter in width without pavement. Where it is needed, a 3-meters wide causeway with gabion will be constructed. Maintenance work should be done by PFMBs two to three yeas after construction to maintain its function.

(b) Fire breakline

Plantations and natural forests in the project areas are always exposed to the high risk of wild fire. In particular, the young plantations (less than five years) are vulnerable to the damage of fire and fire damage has often caused the extensive mortality of young trees. To prevent and minimize such

damage, fire breakline should be constructed around and within the plantations. Fire breakline proposed in the project is a band of bare land of 10 to 15 meter in width. It should be maintained or cleared every year for maintenance.

(c) Fire watch tower

The main purpose of the construction of fire watch tower is to detect fire breakout in the early stage so that fire extinction activities can be conducted to suppress wild 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 meters high and made of iron frame.

(d) Forest protection station

Forest protection station will be used for a site office-cum-rest house for the staff of PFMB and the place for meetings with local communities. It should be build at the strategic locations adjacent to or within the project areas. One storey building with two (2) bed rooms and one (1) meeting room is the standard design for the station.

(e) Information board

Information board will be set up around the project site to notify the pubic that the area is protected by PFMB and local communities as protection forest. The board to be installed will be three to four (3~4) meters wide and three (3) meters high with one (1) meter for foundation. The regulations or rule defined by PFMB and the communities for protection of the project area will be displayed in the board.

(f) Nursery

Afforestation of more than 20,000 ha will require a large quantity of seedlings at a time. There should be a sufficient number of nurseries for provision of a number of seedlings enough to achieve the target. Nurseries should also be constructed at strategic points where seedlings produced can be transported to the project areas without any damage during transportation. The project is in need of two types of nursery, i) small scale remote nursery near the project area and ii) large scale station nursery at PFMB office. The standard capacities of the nurseries are about 300,000 seedlings per annum for the former and about 1,000,000 seedlings per annum for the latter.

The sub-components including aforestation, improvement of existing plantation and enrichment planting will require the seedlings to plant in the target sites. However some provinces have no plan to construct any nurseries, since they already have their own nurseries or plan to purchase necessary seedlings from the existing nurseries owned by other PFMBs, Forest Company, Agricultural Cooperative or private enterprises in the provinces. The provinces that have limited supply in its jurisdiction propose to construct the nurseries in the plan.

(6) Implementers of the component

The sub-components/activities under the Component of Development and Improvement of Protection Forest will be contracted out to PFMBs concerned with the project areas. PFMB is the sole organization responsible for protection and management of the critical and very critical protection forests in the country.[13] Hence, it is reasonable that PFMBs would be the implementers of the

[13] Prime Minister Decision No. 08/2001/QD-TTg (Dated on 11/01/2001) authorizes the Protection Forest Management Boards (PFMBs) to manage, protect and develop the protection forest. Decree No. 23/2006/ND-CP on March 03, 2006 also states that PFMBs should have the responsibility for management and protection of important protection forests.

Development and Improvement of Protection Forests. In fact, the effectiveness of PFMBs as implementers/contractors of the sub-projects was already proved by the SPL-3 Afforstation Project. As described in Chapter 5 of Part II of this report, there seems to be no organization more competent than PFMBs at provincial level. As the main implementer of the component, PFMB will sublet the forest development / improvement sub-components/activities, such as afforestation, ANR with and without enrichment, and protection of natural forests, to local communities/community groups organized by local communities. On the other hand, the sub-component of silviculture development may be subcontracted to a/ competent private construction firm/s or may be implemented by PFMB itself.

During the implementation, PFMBs are obliged to:

- develop capacities of the local communities for development and management of protection forests;
- provide technical assistance and guidance to the local communities;
- enhance the awareness about collaborative forest management among members of the local communities;
- supervise and monitor the activities and works of the local communities in the field;
- validate the accomplishments made by the local communities periodically;
- arrange and make the progress payments to the local communities based on the accomplishments made;
- report the progress to PPMUs in writing in a timely manner; and
- coordinate and cooperate with PPMUs and DARDs whenever necessary.

The Survey Team judges that a certain amount of cost should be secured for the management activities listed above. In the 661 program, six (6) percent of the direct cost was allocated to the management cost for the contractor. But the experience of SPL-3 revealed that it was not enough to cover all the required expenses for the afforestation works in the watershed area where the working conditions are generally severer than the flat/plain area, where the production forests are generally located. Hence, the Government issued the revised regulation on the management cost which indicated that it should be 8 % of the direct cost (the Prime Minister decision No.100/2007/QD-TTg). Even though, it is not likely enough to cover all the expenditures required for afforestation in and management of watershed and coastal protection forest lands.

In the proposed plan, PFMBs will be not only a main implementer of the contracted works in the field but also a key stakeholder in the planning workshop, training and seminars for the local community. The management cost should be used for the organization of meetings, information dissemination, technical training and any ad hoc discussions with local communities, which likely cost more than 8% of the direct cost. Nevertheless, there is no official evidence or document that shows the actual expenses associated with such activities, this plan the said percentage (8%) as the management cost for the contractor of the forestry-related sub-component.

(7) Phased implementation

The sum of the physical targets for this component is more than 120,000 ha of protection forest. Naturally, it would be difficult for PFMBs to develop all the project areas at once, though the project areas spread over the 12 provinces. In particular, due consideration should be given to the capacity of local communities since many of them have no experience in forest development and improvement activities. In order to ensure the quality of plantations and sustainability of the project, the works of the component should be split into reasonable sizes which local communities/community groups can

handle in a year. Along the line given above, the Survey Team recommends dividing the proposed works into two to three batches according to the following guidelines ~~:~~ considering the volume of work, time frame of the whole project, and past experiences in the SPL-3 Afforestation Project and 661 reforestation project.

Proposed Workload Allocation for the Component

Sub-components/Activities	SPL-3 Provinces <1			New Provinces <2		
	1st yr	2nd yr	3rd yr	1st yr	2nd yr	3rd yr
Reforestation, Improvement existing plantation, ANR with enrichment	30%	40%	30%	20%	40%	40%
ANR without enrichment and protection of natural forest	50%	50%	0%	50%	50%	0%

Note: <1 Quang Tri, T.T.Hue, Quang Nam, Quang Ngai and Phu Yen are the provinces targeted by SPL-3, while the rest are newly selected for this project.

3.4.2.5 Livelihood Improvement Assistance

(1) Basic Concepts of the Component

As described in the previous sections, the project considers livelihood improvement of local communities as an integral part of the process for achieving sustainable management and preservation of protection forests. Livelihood improvement activities are designed to contribute to: 1) creating an enabling environment for community participation in forest management activities, 2) minimizing human pressure on the forest resources by providing them with alternative means of livelihoods, and 3) encouraging local communities to manage protection forests in a sustainable manner, as discussed below.

a. Creating an enabling environment for community participation in forest management

Sustainable management of protection forests will require coordinated action among the local communities. One of the influential factors that affect active participation of the local communities would be the poverty level. When the local household economy is at a substantial/survival level, they are likely to perceive spending their time in forest management as their cost or loss of opportunity for the earnings. Meanwhile the economically better off household may be less likely to have such perception. Thus, the project intends to introduce alternative means of livelihoods with the improvement/provision of livelihood infrastructures so that the poor households can afford to take part in the forest management activities.

b. Minimizing human pressure on forest resources

Exploitation of forest resources, such as materials for charcoal and firewood, and farming in protection forests are considered as part of the causes of forest degradation. In particular, households residing near forests have depended on forest resources and used forest areas for their livelihoods. Forest degradation is expected to progress unless alternative sources of income and livelihoods are provided to local communities. Therefore, introduction of alternative livelihood options is crucial for minimizing the human pressure on protection forests.

Meanwhile, introduction of an alternative rural energy, such as introduction of improved stove or biogas, is another option to minimize the human pressure on the forests. Since it will also contribute to improving living conditions of local communities by reducing the time spent for firewood collection and avoiding family members, especially women, from exposure to smoke, such an intervention should also be examined as one of the livelihood improvement options.

c. Encouraging local communities to manage protection forest in a sustainable manner

It is also expected that local communities would change their practices from exploitation to sustainable use and protection of forests when they realize forest resources in protection forests

are their assets and can generate profits for them for the long term. It is therefore advisable to introduce livelihood options based on forest resources (timber or non-timber products) available in protection forests, so that local communities can easily have incentive to protect and wisely use such resources as well as the associated protection forest. In a

The focus of the component will be put on the enhancement of the capacity of local communities so that they could operate the income generating/livelihood development activities in a self-sustaining manner. Hence, the component will:

a. identify the livelihood development options suitable in the respective localities in a participatory manner;

b develop demonstration plots where local communities can see the effectiveness of techniques and skills introduced;

c. organize a series of training and guidance on techniques and knowledge associated with the selected livelihood development options and management of a group fund;

d. deepen their understanding of the current marketability of the major forest resources available in the assigned protection forests; and

e. assist local communities in operating and managing livelihood development options including fund management.

The contractors will be hired for the implementation of the activities. The same contractors that work for the Capacity Development and Information Dissemination Component can also work for this component simultaneously. That is, PAFEC in each province will be the most potential organization to be contracted out. State universities and vocational schools likely have potentials in some provinces. Hence, the activities planned in this component could be carried out together with those planned for the capacity development of local communities when the activities share the same participants and can be organized around the same time.

(2) Assessment of the livelihood needs of the local communities

As the livelihood improvement component must consider the specificity of the local settings and socio-economic conditions of local communities, it is appropriate to identify the livelihood options based on the local needs and develop a/ detailed plan/s of the selected option/s in a participatory manner. Therefore, a needs assessment of the livelihood activities and detailed survey will be carried out to develop detailed plans suitable in the respective localities.

(a) Needs assessment

The general needs assessment and scoping of the livelihood activities shall be carried out. This aims to establish consensus among the villagers on the priorities of the livelihood activities to be implemented through the project and to identify target villages/areas for the identified activities. The following workshops will be organized at the village/commune level.

Outline of the Workshops for Needs Assessment and Scoping

Type of workshop	Duration	Objects	Participants	No of participants	Venue	Timing
Need assessment and scoping	1day/ session	To identify the priorities of the livelihood development needs To establish consensus among the villages	• Commune leaders • Households who participate in the project • Group leaders of community groups • Commune extension workers • DEC • PFMB	70	Commune	2012~13
	1day/ session	To select the livelihood options and target villages suitable for the respective selected livelihood development options				

(b) Detailed survey

Based on the outcome of the workshops, a detailed survey will be carried out at selected villages. This aims to identify the potential products and assess the feasibility of each option, by the contractors who have sufficient experience in income generating and NTFP development activities. Local resource assessment, market research and business plan or cost benefit analysis should be conducted during the detailed design stage at each village or any of the potential sites. The project consultant will also support the contractors in the whole process of detailed designing.

Detailed Survey for Income Generation Activities

Type of workshop	Duration	Objectives	Participnants	No of participants	Venue	Timing
Detailed survey for income generation activities	5 days/ session	To identify the potential products and marketing outlets To examine the feasibility of the livelihood options To organize a one-day trip to the nearby markets market with local communities to check the market trend of major forest products To prepare a business plan of the options	• Commune leaders • Households who participate in the project • Group leaders of community groups • Commune extension workers • DEC • PFMB	50	Commune	2013~14

As seen in the above table, the participants in the workshops will include the local leaders and other community members, so that local needs can be fully taken into account in the planning.

(3) Development of Demonstration Plots and Livelihood Development Models

The contractors will develop demonstration plots or development models for the identified livelihood options at the commune/village level. The demonstration plots will be the venue for local communities to practice the techniques/skills associated with the identified livelihood options. At the same time, the plots and development models will be the role models for the communities to see the results of the livelihood activities.

Although further examination is necessary for identifying suitable livelihood options, potential livelihood activities may include; 1) establishment of the production forest; 2) NTFP value addition training; 3) bamboo and rattan products processing training; 4) bee keeping; and 5) mushroom cultivation, to name a few. Furthermore, in order to reduce human pressure from firewood collection on protection forests, introduction of biogas may be promoted through model households at

selected locations. The table below shows the scope of the potential livelihood activities, which may be considered for implementation.

Possible Livelihood Improvement Activities and Scope

Activities	Scope of demonstration activities
New plantation models* Acacia Sugar palm	 2,500 plants/ha, 5 ha/ commune 500plants/ha, 5 ha/ commune
Mushroom cultivation	1 ton of straw/household, 30 households/ commune
Beekeeping	120 hives /site for 20 farmers, 5 locations / commune
Biogas plant	10 m3.unit/household, 20 households/ commune

Source*: SPL-3 (2007/ approved 2008)
Source **: National Agriculture and Fishery Extension Centre, Hanoi (Collected in Aug 2009 for reference).

Two types of livelihood options will be introduced in each village or commune by the contractors. from 2014 to 2016. Final selection of the livelihood options should be fully based on the results of the needs assessment and detailed survey.

(4) Organization of Series of Technical Training on Livelihood Development

(a) Technical Training at the Demonstration Plots/Models

Simultaneously with the development of demonstration plots and livelihood development models, a series of technical training courses will be organized. The demonstration plots will be used as the venues for training. The contents of technical training will vary with different types of livelihood options.

Outline of Technical Training on Livelihood Development at the Demonstration Plots

Objectives	Topics to be covered <1	Participants	Duration	No of participants	Venue	Timing
To enhance the capacity of local communities to operate the options	- Outlines of the options - Preparation of the options - Operation and maintenance of the options	• Commune leaders • Households who participate in the project • Group leaders of community groups • Commune extension workers • DEC • PFMB	1 day/ session x 5 sessions	50	Commune / village	2014~16
To save the payments and pool a group fund	- Necessity and usefulness of a group fund - Sources of a group fund (saving of payments and pooling of a fund) - Rules on use and management of a group fund - Book keeping - Monitoring of fund management					

Note: Detailed activities will vary with different types of the options.

In addition to technical training on the operations of the livelihood options, the contractors shall guide local communities to pool a group fund saving the payments made under the sub-contract for forest development and protection activities. The principle aim of the pooled fund is to improve their livelihoods by securing a fund for i) emergency purposes and ii) investment in income generating activities run by a community group. When local communities agree on the establishment of a group fund, the above-listed guidance will be given to them so that they could be aware of what they need to do to develop and manage a group fund. After having a series of guidance, local communities

will carry out the following activities under the supervision of commune extension workers and PFMBs with the periodical monitoring by the field coordinators of the contractors.

a. to develop a village or group rule on sustainable use and management of the fund

b. to keep a account book for the group fund

c. to monitor the account book and use of the fund

d. to report and share the results of monitoring among the members

The field coordinators hired by the contractors will monitor if the local communities/community groups can manage the group fund and keep the account book in a proper manner. In case they find any malpractice or negligence in operations, they will arrange a meeting with the commune leaders together with commune extension workers as well as PFMBs.

(b) Technical Training at the District Level

The contractors will also introduce new/imporved techniques and skills that would be useful for local communities to improve their economic activities, such as farming, NTFPs harvesting and production, animal husbandry, fish culture, and any other small scale cottage industrial activities. Such training courses will be organized at the district level every six months as outlined below.

Outline of Technical Training at the District Level

Objectives	Possible topics	Participants	Duration	No of participants	Venue	Timing
To introduce new and improved techniques and skills for improvement of the economic activities of local communities	- Farming practices - New variety of crops - Orchard/Industrial trees - Animal husbandry - New breeds - Fish culture - Food processing - Post-harvesting - Cottage industrial options - Market information of timber and wood chips in the district as well as province <1	• Commune leaders • Households who participate in the project • Group leaders of community groups • Commune extension workers • DEC • PFMB	1 day/ session x 2 times/year x 4.5 years	50	District	2014~18

Note: <1 PFMBs and DARD will share the necessary market information (e.g., major buyers, trend in prices, type of products traded, conditions or any privilege) of timber and wood chips with the contractors.

(c) Periodical Coaching by Field Coordinators

It is expected that local communities would need some trials and errors until they can acquire the techniques/skills necessary for implementing the livelihood options introduced in the demonstration plots/models and managing the group fund in a proper manner. It is therefore important to continuously support local communities in their operations even after the end of the training courses mentioned above. Thus, the contractors will hire competent human resources locally available in the respective communes as field coordinators to periodically monitor and support their livelihood-related activities. The field coordinators together with commune extension workers will organize meetings with local communities every three months to monitor their performance and solve any issues and difficulties that the communities face in the operations. The following table gives the outline of the periodical coaching by the field coordinators.

Outline of Periodical Coaching to Local Communities by Field Cooredinator

Objectives	Topics to be disucssed	Participants	Duration	No of participants	Venue	Timing
To assist communities in operating the options and managing the group fund in a proper manner	- Progress - Accomplishments - Status of the fund - Any outstanding - Any difficulties/problems - Action to be taken - Responsible bodies for action	• Households who participate in the project • Group leaders of community groups • Commune extension workers • Filed coordinators	1 day/ session x 4 times/year x 5.5 year	20	Commune /Village	2014~19

(5) Organization of Periodical Meetings

(a) Meetings between the Contractors and Field Coordinators

The contractors shall also arrange periodical meetings with the field coordinators to monitor their performance and give them technical advice in solving the issues that they find in the field. The meetings shall be organized at the provincial level every quarter. The expenses necessary for the meetings will be covered by the management fee under the contract with the contractors.

(b) Field Monitoring by the Contractors

The contractors shall visit the target communes/villages every six months and have a monitoring meeting with local communities to directly give technical advice and assistance not only in the operations of the livelihood development options but also in the management of any other livelihood-related activities, such as management of group fund, conflict management in a community group, any other issues on their activities. The meetings will be organized at the commune/village level bi-annually as summarized below.

Outline of Bi-annual Field Monitoring by the Contractor

Objectives	Potential issues to be addressed	Participants	Duration	No of participants	Venue	Timing
To assist local communities in managing the livelihood options and other related activitirs	- Problems and difficulties in the implementation of the livelihood options - Fund management - Any issues and concerns that affect their livelihood activities - Any conflicts among communities or members of community group	• Commune leaders • Households who participate in the project • Group leaders of community groups • Commune extension workers • DECs • Filed coordinators • PFMBs • Contractors	1 day/ session x 2 times/year x 5.5 year	30	Commune /Village	2014~19

(6) Inter-Province Cross Field Visit

Inter-province cross field visits will be organized by the contractors to give local communities opportunities to observe similar livelihood activities run by similar types of people. The main aims of the cross field visit are to encourage local communities involved in the livelihood options to improve the operations and management of the options by showing a role model for them. At the same time, they can also learn good practices as well as some lessons learned from the discussion with communities in communes/villages that they visit.

The field visits will be undertaken in 2015 for local communities associated with SPL-3 sites and from 2016 to 2018 for those concerned with the new sites.

3.4.2.6 Small Scale Infrastructure Development for Livelihood Improvement

(1) Selection of priority sub-projects

More than 200 sub-projects for rural infrastructure improvement and construction were originally proposed by the 12 target provinces as the interventions necessary for the improvement of livelihoods of the target communes. These include rural roads, bridges, irrigation systems, and water supply systems in the 140 communes in 53 districts. Having evaluated them in terms of location, objectives, work components, and possible impacts to local communities' livelihoods, the survey team together with DARDs of the target provinces tentatively short-listed priority sub-projects in each province. In the prioritization of the said sub-projects, the cost-effectiveness and size of investment were also considered. Consequently, sub-projects requiring large or excessive investment were not included in the short-listing process.

Summary Long List to Short List in Rural Infrastructure Construction and Improvement

Province	Long List <1 for Improvement and/or Construction					Short List <2 for Improvement and/or Construction			
	Road (km)	Bridge (no.)	Irrigation (ha)	Water Supply (no.)		Road (km)	Bridge (no.)	Irrigation (ha)	Water Supply (no.)
Thanh Hoa	21	-	105	-	→	16.6	-	85	-
Nghe An	20	-	45	-	→	18.0	-	45	-
Ha Tinh	11	-	120	-	→	9.0	-	90	-
Quang Binh	25	-	-	-	→	20.0	-	-	-
Quang Tri	15	-	-	-	→	15.0	-	-	-
Hue	18	-	13	3	→	12.0	-	13	4
Quang Nam	68	-	205	-	→	22.0	-	15	-
Quang Ngai	10	-	-	-	→	10.0	-	-	-
Binh Dinh	140	8	2,422	-	→	22.5	-	-	-
Phu Yen	32	-	300	3	→	18.0	-	150	-
Ninh Thuan	49	-	1,400	2	→	9.0	-	160	2
Binh Thuan	48	-	502	3	→	13.5	-	-	2
Total	457	8	5,112	11	→	186.0	0	558	8

Sources: <1 DARDs of the 12 provinces (2009)
<2 JICA Preparatory Survey (2009)

(2) Major features of the short-listed infrastructure construction and improvement sub-projects

The conditions of social and economic basic infrastructures, such as roads, irrigation facilities, and water supply systems, in rural and mountainous parts in the provinces are poor as well as insufficient compared to that of infrastructures in urban and township area. In fact, it was confirmed through the evaluation process mentioned above that all the target communes were likely in need of the improvement/new construction of such infrastructures to improve their livelihoods. Hence, the rationale for the short-listed sub-projects is considered high.

Although the short-listed sub-projects spread over the 12 provinces, the general features of the respective types of infrastructure are considerably similar. For instance, the proposed rural road improvement typically aims at the improvement of existing rural roads with 4 m width on average, by paving the surface with concrete. Meanwhile, construction of a new concrete check dam or concrete lining of main canals will be the major activity of the proposed irrigation scheme. Therefore, the size of the irrigated area covered by one scheme (or sub-project) is as small as 15 ha on average. All the eight water supply systems short-listed below aim to secure safe and stable supply of water for local communities in the target villages. The proposed systems include the construction of intake structure and installation of water pipeline system with public water taps at strategic points. Hence, the installation of such water supply systems would substantially contribute in saving time and cost which local communities used to spend for fetching safe drinking water. The following table

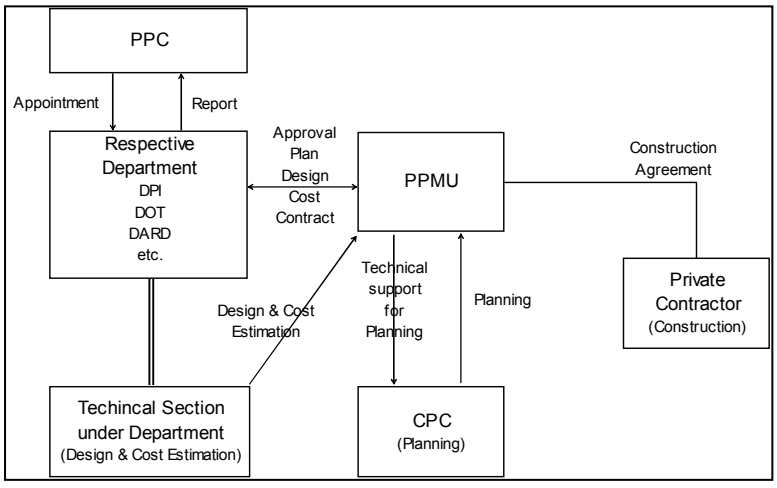
specifies the outlines of the construction works related to the respective infrastructure sub-projects' construction and improvement.

Major Components of Work for Short Listed Infrastructure Improvement and Construction

Sub-project	Typical Component of Work
Rural Road Improvement	(1) Stripping of top soils using mechanical grader and removal of soils at defective sections (2) Replacement of road bed material with macadam and then compaction of the surface (3) Preparation of the existing road and placement of 3.0 m width and 0.18 m thick concrete pavement on top of the existing road (4) Construction of necessary side drains to drain rain water and/or inundated water caused by possible flooding (5) Construction of new culverts and installation of retaining walls at proper locations if necessary
Irrigation Improvement and Development	(1) Construction of concrete check dam at the mountain streams with scouring sluice and wooden stop log (2) Installation of galvanized steel pipes as intake for the irrigation water with necessary screen and wooden gate (3) Construction of closed head race canal with steel pipe at paddy fields at the bases of low-lying valleys (4) Installation of diversion box at the edge of canals to divert irrigation water to several open canals leading to the paddy fields. (5) Construction of rectangular open canals with concrete lining for irrigation (6) Construction of necessary related canal structures such as drops and turnout culverts at the irrigation canal (7) Drainage arrangement, if necessary
Domestic Water Supply	(1) Construction of concrete check dam on a mountain stream with scouring sluice and wooden stop log (2) Installation of galvanized steel pipe as intake for water, with screen and wooden gate (3) Construction of head race and galvanized steel pipe for the village (4) Construction of sand trap in head race pipe with blow-off valve (5) Construction of water treatment concrete tank at the end of the head race pipe (6) Construction of PVC water supply pipe to the public tap base (7) Construction and installation of regulating box with valve (8) Construction of public tap base

(3) Typical designs of the short-listed infrastructure facilities

Typical designs of the short-listed infrastructure facilities are presented in the report prepared by the JICA Preparatory Survey in November 2009. The volume of works and quantity of materials were estimated based on the typical designs of the proposed facilities.



(4) Implementation procedures for small scale infrastructure development

The construction and improvement of rural infrastructure has been implemented in accordance with the "Law on Construction No. 16-2003-QH11", "Decree No.12/2009/ ND-CP for the management of investment projects on the construction works", "Decree No.99/2007/ND-CP of June 13,2007 for the management of construction work investment expenditure" and "Law on Tendering" and its relevant decrees. As shown in the figure above, several departments are involved in the approval of infrastructure development at the provincial level. It is therefore recommended that the relevant departments in the provinces should be empowered to make decisions and grant approvals to reduce the time of the approval process.

Planning

Although the construction and improvement of rural infrastructure are tentatively selected and proposed by the provinces in this survey, the development needs of small-scale infrastructures should be reviewed and re-examined in a participatory manner at the beginning of the project. To do so, the forest users as well as other community members in the target villages with CPCs and PFMBs concerned should have a meeting facilitated by PPMU or the outsourced contractors.. Infrastructure development options to be identified should be ideally linked to the income generating activities introduced by the project in respective villages. PPMU or the outsourced contractors will prepare plans for infrastructure development of the respective target villages based on the results of the development needs assessment.

Detailed Design

The PPMUs or the outsourced contractors will conduct the detailed design along with the estimation of cost for the proposed plans. Since those short-listed in the survey are small and apparently under the jurisdiction of DARD, its technical design section is considered the appropriate outsourcing organization for PPMU for the detailed design and cost estimation of small-scale infrastructure of the target villages.

Tender

The tentatively short-listed infrastructure development projects are rather small-scale and their estimated costs range from VND 600 to 15,000 million in general. The procedures for tendering will be determined based on the nature and scale of the development project in compliance with Decree No. 61/2005/QH11, "Law on Tendering" and "Construction Law." Although the limited tendering procedure and open tender procedure are commonly adopted, direct appointment can also be considered for projects costing less than VND 1,000 million. Empowerment of the provincial departments concerned with the approval of tendering is also recommended to avoid any delay in the project implementation. In past projects, there were many cases where the project was delayed due to the late approval by PPC.

Construction

In general, the works required for construction of the short-listed infrastructures are mainly earth and concrete works, and will not require special equipment, machineries, and highly skilled laborers. It is therefore considered that the construction work can be undertaken by local contractors in the target provinces. In addition, employment of the local contractors may be effective in the operation and maintenance (O&M) of the infrastructure during the post project period. The duration for the construction of shortlisted infrastructures will range from two to six months depending on the availability of machineries and equipment required for construction.

(5) Operation and maintenance plan

In SPL3 Project, the operation and maintenance of the infrastructures after the Project phase were handed over to the CPC and the local communities. Before being handed over the responsibility of O & M, the CPC and the community joined the final inspection for the operations and a series of discussions to arrange the minutes of handing over. The minutes describe the responsibility of the CPC to renovate the facilities properly which needs to allocate the CPC fund and apply some technical solutions while the communities (villagers who use the facility on a daily basis) are responsible to maintain the conditions of facilities to be used safely and smoothly such as removing litters from the canals and clearing the intake of water in small irrigation systems. At the handing over in SPL3, the minutes were signed by the PPMU, the contractors, the representatives of CPC and the community leaders. During the survey in the SPL3 target provinces, the Study Team confirmed O&M by the CPC and the community groups are practiced as agreed in the minutes without problems.

The O&M in this Project follows the policy of SPL3 Project and the lessons leant from its experiences. The responsibility of O&M of the rural infrastructures will be handed over to local governments concerned as well as the benefiting local communities. In particular, local communities will perform a vital role in the O&M of irrigation facilities and water supply systems. The CPCs concerned together with PPMUs shall identify the beneficiaries of the proposed facilities and encourage them to organize a beneficiaries' group for each facility in the detailed planning stage for future maintenance works. As shown below, the ownerships of the facilities should belong to CPCs concerned. Therefore, the CPCs should have the overall responsibility for O&M of the facilities. However, the daily O&M will be carried out by local communities who will benefit from the facilities.

Ownership and O&M Responsibility of Short Listed Infrastructure

Type of Infrastructure	Ownership	Operation	Overall maintenance	Daily maintenance
Rural Road	CPC	CPC	CPC	CPC
Irrigation Facilities	CPC	Community group	CPC	Community group
Water Supply System	CPC	Community group	CPC	Community group

Adequate training on O&M of the facilities along with awareness-raising shall be provided to local communities before completion of the construction works. This is to ensure that the facilities can be operated and maintained in a proper and sustainable manner.

In general in the rural area of Viet Nam, small scale infrastructures constructed in the communes are maintained by the CPC together with allocating their budgets to rehabilitate and repair them. And the CPC understand that it is their jurisdiction to direct the local community to operate and maintain the rural infrastructure properly. It is therefore quite appropriate to hand over their O & M to the CPC and the community after the Project completion.

3.4.2.7 Forest Fire Control (FFC)

Wild/forest fire is a major threat prevailing throughout the target provinces. Hence, the main objective of the component is to prevent forest degradation caused by forest wild fires through i) the provision of FFC equipment and ii) training on forest fire control/extinction for PFMBs and members of the local communities. The outlines of the component are highlighted below.

(1) Procurement and provision of FFC equipments

FFC equipment listed below will be procured and provided to PFMBs concerned. The equipment will also be used as training materials in FFC drills, which will be carried out as part of the training on FFC as discussed in the succeeding sub-section. The following table shows the equipment to be provided to one PFMB for FFC purposes and the corresponding estimated quantities of the equipment provided. PFMBs shall use and maintain the equipment in a proper manner and report the status of the said equipment to PPMUs concerned every year based on an inventory made as part of the year end report.

List of Equipment for Forest Fire Control

Equipment	Quantity
1. Vegetation knife	1
2. Wind blower	1
3. Chainsaw	1
4. Swatter	13
5. Clearing knife	7
6. Portable water container	1
7. Speaker	1
8. Fire protection clothes, shoes and helmet	10
9. Hand fire extinguisher	4
10. Tent (for PPMU)	1

Source: JICA Survey Team

(2) Training on forest fire control

In addition to the provision of FFC equipment, the component aims to develop the capacity of the government staff at provincial and district levels, staff of PFMBs, leaders of communes, and members of local communities/community groups to control and prevent forest fires. To this end, PPMUs will outsource the training activities to local resources, such as the Forest Protection Agency. The contractor will organize the FFC training at two levels, i.e., provincial and district levels. The training course at provincial level will target the staff of forestry related departments under the DARD. Meanwhile, FFC organized at the districts concerned aim to develop the capacity of the staff of DPCs, commune/village leaders, and local communities/community groups who participate in the project. Both training courses will be organized in the third to fourth year of the project (2012-2014). The training will comprise of lectures and field drills. The outlines of the training courses are summarized below.

Training Course of Forest Fire Control

Level of training	Program of training
1. Province level 2 days' training with 40 participants	**Day 1: Lectures by the FFC experts on the topics such as;** 1) General on forest fire 2) Measures of forest fire prevention 3) Strategy and tactics of forest fire control - Organizing of forest fire control team - Techniques of forest fire control - Safety measures of forest fire control - Use of the forest fire control equipments 4) Law and decrees of FFC 5) Formulation of forest fire control plan at communal and district levels **Day 2: Field drills of forest fire extinguishing and discussion among the participant**
2. District level 3 days' training with 60 participants	**Day 1: Lectures by the FFC experts on the topics such as;** 1) General on forest fire 2) Measures of forest fire prevention 3) Contents of community based forest fire management 4) Law and decrees of FFC **Day 2: Group works and practice by the participants** 1) Formulation of village FFC plan 2) Instruction and practice to use machineries, equipments and tools for forest fire extinguishing **Day 3: Field drills of forest fire extinguishing and discussion among the participants**

Source: JICA Survey Team, September 2009

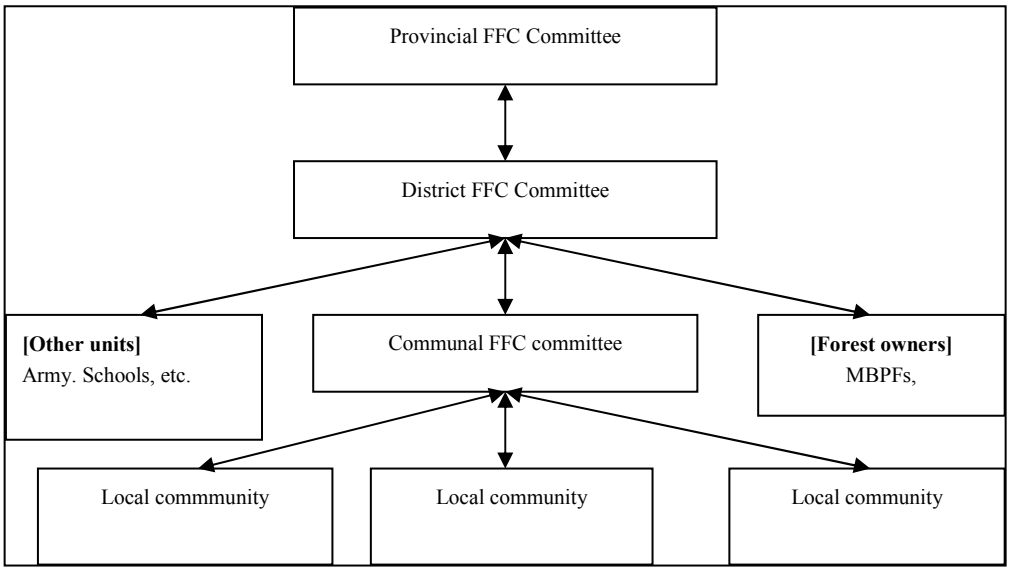
Each province will have one training course for 40 provincial staff, and three to six training courses for 60 stakeholders at district and commune levels. As summarized below, more than 3,700 participants are estimated to attend the training course.

Physical Target of Forest Fire Control Training

Province	Province level at 40 persons/course		District level at 60 persons/course	
	No. of training	No. of participants	No. of training	No. of participants
1. Thanh Hoa	1	40	5	300
2. Nghe An	1	40	6	360
3. Ha Tinh	1	40	5	300
4. Quang Binh	1	40	3	180
5. Quang Tri	1	40	6	360
6. Thua Thien Hue	1	40	5	300
7. Quang Nam	1	40	6	360
8. Quang Ngai	1	40	4	240
9. Binh Dinh	1	40	5	300
10. Phu Yen	1	40	3	180
11. Ninh Thuan	1	40	3	180
12. Binh Thuan	1	40	3	180
Total	12	480	54	3,240

Source: JICA Survey Team, September 2009

In the training courses for provincial staff, the participants will also discuss the organization set-up for FFC in the provinces. In the SPL-3 Afforestation Project, the five provinces (i.e., Quang Tri, T.T.Hue, Quang Nam, Quang Ngai and Phu Yen) established the FFC committees as illustrated below. The establishment of the same organizational set-up will be discussed and examined by the participants from the rest of the target provinces.



Forest Fire Prevention and Control Committees in the Province

3.4.2.8 Monitoring and Evaluation

(1) Objectives of monitoring and evaluation

The main objectives of M&E are i) to systematically manage the project implementation and project resources effectively and efficiently, ii) to assess the project impact adequately, and iii) to ensure the sustainability of the project. Monitoring is relevant to project management, while evaluation is aimed at the assessment of the project impact as well as sustainability. Consequently, the former is to be carried out by a project implementer as one of the project management activities, while the latter is to be done on a periodic or ad hoc basis by an external source.

(2) Relevant existing government regulations

The following decrees and decisions were reviewed to make the M&E component of the project consistent with the existing government regulations.

- Decision No. 555/2007/ND-BKH on May 30, 2007 on issuance of the results of Result-Based Monitoring and Evaluation Framework for Implementation of the 5-year Social-Economic Development Plan 2006-2010[14]
- Decree No. 131/2006/ND-CP on November 9, 2006 on the issuance of the Regulations on Management and Utilization of Official Development Assistance[15]
- MPI Circular No. 4/2007/TT-BKH on July 30, 2007 on the issuance of the Regulations for M&E of the ODA projects
- MARD Circular No. 49/2009/TT-BNNPTNT on July 21, 2009 on Guidance on Management and Utility of Foreign Assistance Loan under MARD

(3) Outlines of the M&E activities defined by the regulations

In compliance with the above-listed guidelines, M&E activities for ODA-funded projects shall be as follows:

[14] For example the state managerial objective in SEDP 2006-2010 includes 21 output indicators and 12 impact indicators.

[15] Article 33, 34 and 35 prescribe the regulations on the monitoring and evaluation of ODA projects.

M&E Activities and Objectives defined by the Government Regulations

Items	Monitoring	Evaluation
Activities <1	- Periodic monitoring and reporting by preparation and submission of i) monthly progress report, ii) quarterly progress report, iii) yearly progress report, and iv) completion report - Periodic monitoring of accomplishment levels of the key monitoring indicators through collection of data related to the indicators.	- Initial Evaluation - Mid-term Evaluation - Terminal Evaluation - Ad-hoc Evaluation (if necessary)
Requirement / Objectives <1	a. To ensure the regular updating of information on the performance and management of the programs and projects with accuracy and adequacy. b. To ensure the timely identification of difficulties, problems and accidents that influence the progress, quality and cost of the programs and projects. c. To ensure timely recommendations to overcome the difficulties and accidents as well as to solve the problems so that the programs and projects are implemented consistently with the planned goals and objectives.	a. To compare the outcomes achieved at the evaluation point of time against the program or project implementation plan. b. To identify the difficulties and problems that have already happened or are possible to happen in process of program or project implementation. c. To assess the status of implementing the managerial principles and procedures of the program or project. d. To initiate measures for accelerating programs and projects to move toward the planned objectives, in line with the regulations on the progress, scope, quantity, quality, and cost in conformity with the managerial principles and procedures. e. To make recommendations for adjustment of certain contents in the program or project document and/or in the program or project implementation plan, if necessary f. To draw the experiences and lessons learned for the next stages of the evaluated programs and projects and/or for other programs and projects.
Reporting requirement<2	a. Monthly report b. Quarterly report c. Yearly report d. Project completion report	Evaluation reports of the respective evaluation activities

Source: <1 MPI Circular No. 4/ 2007/TT-BKH
<2 Decision 803/2007/QD-BKH

(4) Regular monitoring of the project

PPMUs of the target provinces will monitor the progress and performance of the sub-projects periodically and prepare the following monitoring reports for submission to PPCs (the project owner) and to CPMU in Hanoi.

a. Monthly Progress Report
b. Quarterly Progress Report
c. Yearly Progress Report
d. Project Completion Report

The comprehensive reports that can track physical accomplishments of works and financial performance are important for smooth monitoring. In similar government projects, data on progress of works, contracts management, procurement, disbursement etc. were scattered in different reports and the experience of the SPL-3 indicates that it would be troublesome to absorb the information for management. It is also important to come up with a simple format for monitoring reports based on the available data. In accordance with the government regulations, the monitoring report shall include, but not limited to, the following information:

a. Physical and financial accomplishments
   - Disbursement report of ODA funds
   - Report on special account

- Bidding results

b. Progress of key monitoring indicators
c. Progress/Results of procurement
d. Any Issues and Concerns on Project Implementation
e. Recommendations

The key monitoring indicators (i.e., operations and effect indicators discussed in Chapter 6) shall be outlined in the project implementation guidelines/regulations, which will be finalized in the preparatory works. It is also necessary to develop a simplified and predetermined format for regular monitoring so as to make the progress monitoring efficient and effective.

The proposed flow of information and reporting in a regular progress monitoring is illustrated in **Figure J-3-1**.

(5) Evaluation of the project

The project will conduct the following evaluation activities throughout the project life in line with Circular 4/2007/TT-BKH.

(a) 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 project areas and target groups ("before project conditions"), and to assess if the project design is still relevant and at the same time the project framework is in line with the government strategies/policies. Consequently, the initial evaluation will collect and analyze the following information:

- Status of CPMU and PPMUs (current resources assigned and allocated to CPMU and PPMUs, and level of staff)
- Socio-economic situation of the target villages
- Present land use/forest cover conditions of the target areas
- Any emerging issues, suggested solutions, and proposed changes

The results of the initial evaluation are intended to update the overall implementation plan of the project and to provide inputs for the detailed implementation plan during the first year. The initial evaluation will be carried out by CPMU and PPMUs with assistance from the project consultant. The results of the baseline survey, which will be carried out in the preparatory work, will be used for the initial evaluation.

(b) Mid-term evaluation

The mid-term evaluation will take place in the middle of the project life, which is at the fifth year of the project. The main aims of the mid-term evaluation are to: i) verify the coherence, consistency and degree of achievement of the project activities in comparison with the original plan; ii) discuss the lessons learned; and iii) propose recommendations and adjustments to the project, if necessary. The proposed works to be carried out in the mid-term evaluation is outlined below.

Items	Outlines
1. Progress of the project	a. Review of the progress of the project as compared to the plan b. Review of accomplishments made by the project
2. Field validation	a. Field validation of physical accomplishments under the forest development component - Afforestation and ANR with enrichment: 350-400 ha - ANR/Protection: 200 ha b. Items to be surveyed - Afforestation and ANR with enrichment: i) Year of planting, ii) No. of trees planted and survival rate of trees planted, iii) Height of trees and diameter of tree trunk, iv) Quality of planted trees, and v) Growing stock of trees - ANR/Protection: i) Year of contract, ii)Vegetation cover, iii) Height of trees and diameter of tree trunk, and iv) Growing stock of trees
3. General social impact	a. Number of village and households involved in the project b. Number of forest users' groups organized c. Any changes in forest management practices / forest resource uses d. Number of beneficiaries involved in the project e. Livelihood improvement activities introduced
4. Evaluation of economic impact on local households	a. Interview survey of sample households b. Items to be covered are: i) cash income generated by the project, ii) any income-generating activities introduced on their own initiatives
5. Evaluation of the performance of the project	Based on the data and information collected
6. Lessons learned though the project implementation	Based on the data and information collected
7. Recommendations on project design	Based on the data and information collected

The above-mentioned works shall be contracted out by CPMU to an external organization/independent evaluator.

(c) Terminal evaluation

The terminal evaluation will be done one year before the date of project completion. The purposes of the terminal evaluation are to: i) to evaluate the design of the project, process of implementation, management performance, achievements of goals and objectives, and the 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 shall be outsourced to independent evaluators. Since the terminal evaluation will require in-depth surveys on physical accomplishment made by the project and socio-economic impact on the target villages, two separate surveys, namely, i) forestry inventory survey and ii) socio-economic interview survey, will be carried out by employing external organizations, such as FIPI and NAFEC, respectively. The initial ideas of the forestry inventory survey are summarized below.

Ideas of Forest Inventory Survey

Items	Outlines
1. Analysis of satellite images	a. New purchase of the latest high resolution (2.5 m resolution) satellite images covering the target sites for forestry development components. b. Preparation of photo-like maps with GIS data for forestry inventory survey
2. Forestry Inventory	a. Forest Inventory of the afforestation and enrichment areas - Afforestation and ANR with enrichment: 750 ha - ANR/Protection: 400 ha b. Items to be surveyed - Afforestation and ANR with enrichment: i) Year of planting, ii) No. of trees planted and survival rate of trees planted, iii) Height of trees and diameter of tree trunk, iv) Quality of planted trees, and v) Growing stock of trees - ANR/Protection: i) Year of contract, ii)Vegetation cover, iii) Height of trees and diameter of tree trunk, and iv) Growing stock of trees
3. Evaluation of the efficiency of the inputs and activities	a. Input and activities for forest inventory and detailed design b. Input and activities for forest development and improvement c. Input and activities for silviculture infrastructure development d. Input and activities for forest fire control
4. Sustainability of the project	a. Technical and financial capacity of PFMBs to manage the protection forests b. Technical and financial capacity of PFMBs to manage and maintain silviculture infrastructure c. Technical and financial capacity of forest users' groups to manage the assigned protection forests d. Organizational capacity of the forest users' groups
5. Lessons learned and Recommendation	a. Lessons learned through implementation of the project and sub-projects in the 12 provinces b. Good practices found in the course of the project c. Recommendations

On the other hand, the outlines of the socio-economic survey will be the same as the baseline survey which will be carried out in the preparatory works.

(d) Ad-hoc evaluation

Ad-hoc evaluation may be conducted if there are unpredictable difficulties, problems and impacts in the course of the project. It aims at analyzing the actual situation and the arising issues and providing necessary solutions or recommendations.

(6) Monitoring formats and information management

A simplified monitoring format shall be developed prior to the implementation of the sub-projects in the field. The format should be easy to apply, but at the same time should cover all the items to be monitored by the PPMU. In order for the M&E system to be operational, the management information system to track inputs, outputs, and intermediate outcomes may be necessary.

(7) Equipment necessary for M&E

CPMU and PPMUs need the sufficient number of computer with the GIS software (Map Info) for implementation of the proposed monitoring and data management system. Both offices shall have internet connection so that they can intercommunicate and exchange the monitoring data and information in a timely manner. Vehicles and motorbikes are also needed for field monitoring as well as coordination with contractors.

(8) Training and capacity development

Since the M&E system needs to comply with the requirements of GoV and JICA, and will have to be applied consistently throughout the 12 PPMUs, it is necessary to set the agreed key monitoring indicators and methodologies for data collection prior to the project implementation. Hence, a set of guidelines on M&E shall be prepared and incorporated into the project implementation guidelines. At the same time, appropriate guidance shall be conducted at the beginning of the project so that CPMU and PPMU staff will have the same interpretation/understanding of the M&E system, such as the key monitoring indicators, data collection methods, use of monitoring and reporting forms. Moreover, technical training courses necessary for the implementation of the M&E system, such as training on monitoring and evaluation, operation of GIS and use of GPS, should be organized as part of the capacity development sub-component.

3.4.2.9 Consulting Services / Technical Cooperation

(1) Rationale

The project covers a variety of components, which require a wide range of expertise from forest planning and management techniques to community organizing, and including but not limited to livelihood development, satellite image analysis and GIS mapping. A number of contractors will be hired for the implementation of the respective components of the project. MARD (PFMB and CPMU) and DARDs (DARDs and PPMUs) shall be responsible for providing technical guidance to the contractors, including supervision of the works and maintenance of the quality of the outputs. It is noted that MARD and DARDs will face difficulties in supervising/guiding all the contractors' activities. Hence, a group of experts who can cover all the technical fields should be hired for CPMU and PPMUs to acquire technical and managerial supports on a daily basis for the smooth implementation of the project.

(2) Tentative scope of works

The Project Consultant is expected to provide the CPMU and PPMUs with overall technical and managerial assistance in project implementation. The objective of assistance is to realize the improvement in efficiency, effectiveness and quality of the project implementation.

The duration of the consulting services is eight years. It is assumed the Project Consultant will be selected through international competitive bidding in accordance with JICA Guidelines and in place towards the end of the first year of the project. The tentative scope of services of the consulting services is as follow:

a) Assist CPMU and PPMUs in managing the project in an effective and efficient manner;

b) Assist CPMU and PPMUs in formulating a project implementation plan of the project at the beginning of the project;

c) Assist CPMU in formulating the project implementation guidelines and necessary materials for smooth implementation of the project;

d) Assist CPMU and PPMUs in formulating the regulations on benefit sharing mechanism on harvests from the project sites;

e) Assist DARDs/PPMUs in developing the Forest Protection and Development Fund in accordance with present regulations so that the provincial government could pool their shares derived from the project areas;

f) Assist CPMU and PPMUs in procuring and supervising the contractors for the project components, namely, Survey and Mapping of the project area, Baseline survey, Capacity Development and Information Dissemination, Development and Improvement of Protection Forests, Livelihood Development Assistance, Small Scale Infrastructure Development, Forest Fire Prevention/Control, and Mid-term and Terminal Impact Assessment;

g) Assist CPMU and PPMUs in procuring necessary equipment;

h) Assist CPMU in improving periodical monitoring system by development of simplified monitoring formats and establishment of user-friendly databases;

i) Assist CPMU and PPMUs in preparing annual work plans and budget plans based on the appropriate estimation of work quantity at the field level and of unit costs;

j) Assist CPMU in fund management and smooth communication / coordination with JICA;

k) Assist CPMU in providing guidance and orientation to DARDs and PPMUs on technical and managerial aspects necessary for implementation of the project;

l) Assist PPMUs in providing guidance and orientation to the contractors hired for the implementing project components;

m) Assist PPMUs, PFMBs and relevant stakeholders in development of an operation and maintenance plan for small scale infrastructure facilities in the post-project periods;

n) Provide technical assistance to CPMU, PPMUs, PFMBs and contractors in the execution of their works; and

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

(2) Required specialties and man-month

The following international and national experts will be required for fulfilling the above-mentioned scope of works of the Project Consultant.

International Specialists

i) Team leader

ii) Forest Development Planning and Management

iii) Community / Rural Development

iv) Satellite Image Analysis /GIS

National Specialists

i) Forest Development and Management

ii) Community-Organizing

iii) Livelihood Development

iv) Institutional / Capacity Development

v) NTFP Development

vi) GIS

The terms of reference for the respective specialists are preliminarily determined as presented in Annexes attached to this report. In addition to the specialists, the following supporting staff will be hired as part of the project consultant team.

i) Administration Officer / Translator

ii) Interpreter

iii) Secretary

The total inputs of the project consultant (including those for Technical Cooperation Project) are expected to be: 147 MM of international specialists, 253 MM of national specialists and 251 MM of supporting staff for nine years. The breakdown of the required man-month is presented in **Table J-3-6**, and summarized below.

Required Experts and Man-Month of the Project Consultant

International Experts	MM
i) Team leader	52
ii) Forest Development Planning and Monitoring	65
iii) Community / Rural Development	21
iv) Satellite Image Analysis /GIS	9
Sub-total	**147**

National Supporting staff	MM
i) Administrative Officer	100
ii) Interpreter	51
iii) Secretary	100
Sub-total	**251**

National Experts	MM
i) Forest Development and Management	74
ii) Community Organizing	48
iii) Livelihood Development	59
iv) Institutional / Capacity Development	10
v) NTFP Development	33
vi) GIS	29
Sub-total	**253**

3.5 Construction and Site

This section is not applicable to this project.

3.6 Land Acquisition and Resettlement Plans

No land acquisition and resettlement is required for the implementation of the project. Hence, no plan needs to be developed.

3.7 Environment

3.7.1 Environmental Criteria and Standards

(1) Legal framework

The following laws and regulations define the structure of the legislative framework of the environmental protection and social considerations in Vietnam.

Environmental Protection and Management:

a. Law on Environmental Protection (No. 52/2005/QH11) of November 29, 2005

b. Government's Decree No.80/2006/ND-CP of August 9, 2006, detailing and guiding the implementation of a number of articles of the Law on Environmental Protection

c. MONRE Circular No. 08/2006/TT-BTNMT of September 8, 2006, guiding the implementation of the contents of Strategic Environment Assessment, Environmental Impact Assessment and Environmental Protection Commitments

d. MONRE Decision No. 19/2007/QD-BTNMT of November 26, 2007, promulgating the regulation on the conditions for and provision of the service of appraising Environmental Impact Assessment Reports

e. Government's Decree No. 21/2008/ND-CP of February 28, 2008, amending and supplementing a number of articles of the Government's Decree No.80/2006/ND-CP of August 9, 2006

f. MARD Directive No.36/2008/CT-BNN of February 20, 2008, enhancing environmental protection activities in agriculture and rural development

g. MARD Notice No.6494/TB-BNN-VP of November 3, 2008, the conclusion given by the MARD Minister Cao Duc Phat at the conference on agriculture and rural environmental protection

Social and Land Use Issues:

a. Land Law (No. 13/2003/QH11) of November 26, 2003

b. Government's Decree No. 181/2004/ND-CP of October 29, 2004, on the implementation of the Land Law

c. Government's Decree No.197/2004/ND-CP of December 2, 2004, on compensation, support and resettlement when land is recovered by the State

d. Government's Decree No.17/2006/ND-CP dated on January 27, 2006 amending and supplementing a number of articles of the Decrees guiding the implementation of the Land Law and Decree No.187/2004/ND-CP on transformation of state companies into joint-stock companies

e. Government's Decree No.84/2007/ND-CP dated on May 25, 2007 Additionally Stipulating the Grant of Land Use Right Certificates, Recovery of Land, Exercise of Land Use Rights, Order and Procedures for Compensation, Support and Resettlement upon Land Recovery by the State, and Settlement of Land-related Complaints

f. MONRE Circular No.06/2007/TT-BTNMT dated on June 2, 2007 Guiding the Implementation of a Number of Articles of the Government's Decree No.84/2007/ND-CP of May 25, 2007

Overall issue:

a. Government's Decree No.131/2006/ND-CP of November 9, 2006, issuing regulation on management and utilization of Official Development Assistance

b. Prime Minister's Decision No.48/2008/QD-TTg of April 5, 2008, regarding general guidelines on F/S Reports of Projects using ODA Funds

(2) Requirements of impact assessment in the project

The Law on Environmental Protection (No.52, dated on 29/11/2005) specifies the natures and types of the project require the Strategic Environmental Assessment (SEA) and those need to submit an EIA report as shown below.

Requirement	Types and Natures of the Project
Project requires SEA.	i) National socio-economic development project ii) Development of branches or domains on a national scale iii) Socio-economic development project in provinces, cities under direct management of central government or regions iv) Land use, forest protection and development, exploitation and utilization project in inter-provincial or inter-regional areas v) Development in key economic regions vi) Project of inter-provincial river watersheds.
Project requires EIA.	i) National important project ii) Projects that plan to use part of land of or exerting adverse impacts on, the natural sanctuaries, national parks, historical and cultural relic sites, natural heritages or beautiful landscapes iii) Projects that potentially predict adverse impacts on the river watershed, coastal areas or areas of protected ecosystems iv) Projects that construct infrastructure facilities in economic zones, industrial parks, high-tech parks, export-processing zones or craft village areas v) Projects that construct new urban centers or concentrated residential areas vi) Projects that exploit and use groundwater or natural resources on a large scale vii) Other projects that have potential risks or adverse impacts on the environment

Source: Law on Environmental Protection (No. 52/2005/QH11)

In the case of this project, each target province directly and independently implements and manages the related activities and the whole project is an aggregation of the sub-projects in the 12 provinces. Therefore, this project is not regarded as inter-provincial project and is not subject to SEA application.

However, the project will be required to submit an EIA report for approval in accordance with Decree No.21/2008/ND-CP (later amended and supplemented by the government's Decree No.80/2006/ND-CP), which legitimately states that forestation projects of 1,000 ha or more and forest exploitation projects of 200 ha or more are subject to the submission of EIA reports for appraisal and approval. As the project areas of all the provinces are over 1,000 ha for afforestation, the project owner (MARD/DARDs) is obliged to submit an EIA report.

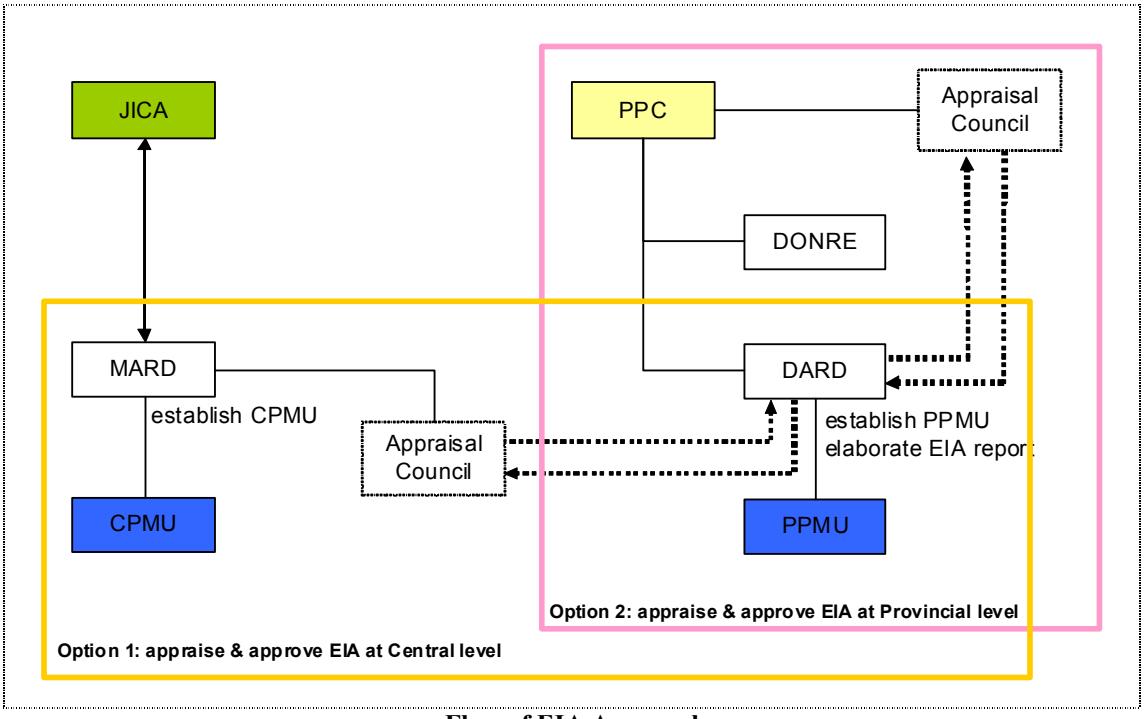
(3) Organization and procedures for appraisal and approval of EIA

The Law on Environmental Protection also stipulates that a council or a service organization shall be established to appraise an EIA report at any one of the following: i) Ministry of Natural Resources

and Environment (MONRE), ii) other ministries that implement the project, and iii) PPC where the project is located. The organization where the council shall be placed is determined based on the nature of the project. For the project which ought to be decided or approved by the National Assembly, the cabinet council and Prime Minister, the appraisal council shall be organized at MONRE. Meanwhile, the implementing ministries will be the appropriate organizations where the council is placed for the projects managed by the line ministries. For the projects which are located in a province and under the direct responsibility of PPC, the council shall be organized at PPC.

Since the project is categorized as the umbrella project which has implementing agencies (or so-called line agencies) at both the central and provincial levels, the appraisal council for EIA should be established at either MARD or PPC.

In case MARD is the responsible body for the council as illustrated in Option 1 below, the Department of Science, Technology and Environment (DSTE) under MARD is the focal point for appraising and monitoring of SEA and EIA, in accordance with MARD Directive No.36/2008/CT-BNN on enhancing environmental protection activities. Minister of MARD will be the chairperson of the council and will be responsible for the appraisal and final approval of EIA. When PPC establishes the council as shown in Option 2, the council responsible for reviewing and assessing the possible environmental impacts of the Project comprise of the director and representatives of the environmental division of DONRE, experts on forestry, DARD representatives, and representatives of concerned DPCs.



Flow of EIA Approval

(4) Roles and responsibilities of the stakeholders

DARD is responsible for sharing the EIA report and other related documents with the Commune People's Committees (CPCs) and other representatives of the communes concerned in the project areas. This is intended to disclose the relevant information including possible adverse impacts and mitigation measures to people who might be affected by the project. Local residents are also given the right to express their public opinions and comments on the project.

PPMU can start the implementation of the project prior to the official approval of an EIA report. However, they are not allowed to start any physical development, such as infrastructure development, forest development, and introduction of demonstration model for livelihood improvement, before official approval is granted by the approving council.

3.7.2 Mitigation Measures and Management Solutions for Environmental Protection

(1) Examination of Potential Impacts on Natural Environment

(a) Positive effects by afforestation and forest management

Forest development and improvement activities (such as afforestation of bare lands, ANR with enrichment planting, ANR, protection of natural forests, improvement of existing plantation, etc.) are all expected to help increase water retention capacity and soil stability, and improve drainage patterns of major rivers running through the target watersheds. It is also anticipated that the project would contribute in reducing the cases of floods, slope failures and landslides in the target watersheds. Furthermore, the project is expected to improve the landscapes of the project areas by planting indigenous tree species in bare lands and bushes.

(b) Harvest of sub-ordinate/main tree species

Sub-ordinate or fast growing species planted by afforestation/reforestation activities can be harvested seven to ten years after being planted. The local communities who make long-term agreements with the respective PFMBs on forest management and protection shall follow the government regulations, which clearly state that the volume of exploitable trees in the area shall be less than 20 % of the total volume of wood and at the same time canopy enclosure shall be maintained at 60% after cutting trees. Consequently, the impact caused by harvesting is expected to be minimal as long as the local communities follow the regulations. It is therefore important to familiarize the local communities with the regulations and to keep on guiding them to follow the rules.

(c) Selection of tree species introduced

Tree species proposed in the plan were carefully examined and selected to ensure that no negative impacts are caused on the existing ecosystems of the surrounding project areas. As a result, mix plantation models including both indigenous and fast growing species are proposed as the standard designs for the project. Its aim is to improve the soil fertility simultaneously while restoring the forest cover, dominated by indigenous tree species. Since almost all of the fast growing species will be cut before the secondary forest with indigenous species is established, the survey team does not anticipate any significant environmental impact.

(d) Construction of silvicultural infrastructure and small scale infrastructure

Construction and improvement of silviculture infrastructure and small-scale rural infrastructure is planned in the project. As all infrastructures are micro or small scale, it is expected that construction activities would not adversely affect the natural environment (ecosystem), unlike a large-scale infrastructure development. However, there is a possibility of causing soil erosion or sedimentation into rivers in small scale and temporal nature due to poor implementation of construction methods, such as improper cutting of earth materials and unnecessary excavation of earth fill. It is therefore important for the PPMUs to provide necessary guidance and monitoring/supervision to the contractors to ensure that that they l employ suitable construction methods and utilize cut and fill materials properly.

(f) Other environmental aspects

There was no air pollutant such as dust, soot and dust, sulfur oxides (SOx), nitrogen oxides (NOx), and organic chemical substances emitted from various sources in the implementation of SPL-III project. As most of the Project's activities are the same as those under SPL-III, there is no air pollution anticipated. Likewise, there is no major adverse impact expected with the use of chemicals such as fertilizers and agrochemical, because the amount of fertilizer to be applied in planting seedlings is too small to affect the environmental. In addition, the use of agrochemical is not programmed in the plan.

The survey team also confirmed that the Project areas are not located in or adjacent to special use forests, primary forests, and tropical rain forests which are ecologically valuable habitats for endangered species, designated by Vietnam's laws or international treaties and conventions.

(2) Examination of Potential Impacts on Social Environment

(a) Resettlement or Land Acquisition

As stated in Chapter 5 of PART II of the report, the project areas were selected in accordance with the pre-determined minimum requirements for the selection of the target areas. One of the minimum requirements is that there should be no resettlement or land acquisition with the introduction/implementation of the project. In fact, as far as the Survey Team has confirmed in the field, all the Project areas are apparently located in protection forests which are not utilized for farming or any economic activities. Consequently, no land acquisition, involuntary resettlement, or loss of means of livelihoods is expected during and after the project.

(b) Heritage sites

There are no activities planned that may damage the local archaeological, historical, cultural, and religious heritage sites.

(c) Conflict on future land use

According to DARDs in the target provinces, there is no plan to convert the project areas into industrial/agricultural development area/zone in the future. Hence, it is unlikely that any social and/or political conflicts will occur over land use of the project sites.

(d) Improvement of living and livelihood conditions

It is expected that the project will contribute to improving the livelihood conditions of local communities by providing agriculture and forestry extension services, and conducting training on livelihood development to the local communities. Since the project will pay particular attention to the social welfare of the local residents involved in the project, it is expected that the project would bring significant positive impact on the socio-economic conditions of the people living in hilly and mountainous areas, who mainly belong to ethnic minority groups.

(e) Changes in lifestyle of ethnic minorities

There may be a worry that increase of cash income might affect their traditional lifestyle or culture of ethnic minorities. However, no drastic change in their lifestyle/culture is expected, as they have already been exposed to the market economy. On the contrary, the living

conditions and access to the social services will be significantly improved by the implementation of the project, such as i) construction of small scale rural infrastructure, ii) training on livelihood development, and iii) introduction of the long-term agreement/contract on protection, management and use of protection forests.

4. Total Investment, Funding Structure, Financial Schedule

4.1 Total Investment Capital Cost

4.1.1 Composition of the Project Cost

(1) Direct cost

The direct cost of the project consists of costs for all the components, namely, "Preparatory Works," "Survey and Planning," "Capacity Development, Information Dissemination and Phase-in/-out Works," "Development and Improvement of Protection Forest," "Livelihood Improvement Assistance," "Infrastructure for Livelihood Development," "Forest Fire Control," and "Monitoring and Evaluation." The total cost of all these components is estimated to be VND 1,362.7 billion.

Since only protection forest is targeted by the component of "Development and Improvement of Protection Forest" and all the facilities to be developed by the component of "Infrastructure for Livelihood Development" is small scale, no land acquisition is anticipated for the project. Therefore, no cost for land acquisition is taken into account.

(2) Administration cost

Administration costs consist of i) personnel expenditures of CPMU and PPMUs and ii) operational expenses necessary for CPMU's and PPMUs' operations, such as allowance and travel expenses, fuel and maintenance of vehicles, utility charges, maintenance of offices, office supplies, expenses for supporting staff, and costs for meetings and workshops. The total administration cost is estimated at VND 113.6 billion as the base cost.

(3) Price contingency

Price contingency is the amount of price escalation during the project period, and is applied separately for local and foreign currency portions for all the cost components. Price contingency is estimated at VND 933.6 billion.

(4) Physical contingency

Physical contingency of 5% is applied to all costs for the various project components. Physical contingency is estimated at VND 120.5 billion.

(5) Project consultant

The unit costs for the consultants were derived from the market price corresponding to the expected appropriate qualifications. The total estimated cost for consulting services excluding the taxes and duties is tabulated below.

Cost for Consulting Services of the Project Consultant

Currency	Item	Cost (VND million)
Foreign currency portion	Base Cost (w/o tax)	96,496
	Physical and price contingency	19,628
Local currency portion	Base Cost (w/o tax)	26,326
	Physical and price contingency	18,352
Total		160,802

Source: JICA Preparatory Survey Team (2009)

(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.

4.1.2 Cost Estimate

The total project cost is estimated to be VND 2,950 billion. The summary of the project cost breakdown is shown in the following table, while the details as well as the cost estimates for the 12 target provinces are presented in **Tables J-4-1**.

Summary of Project Cost

Component	Cost (VND million)
1. Preparatory Works	15,432
2. Survey and Planning	20,750
3. Capacity Development, Information Dissemination, Phase-in/-out Works	53,160
4. Development of Watershed Protection Forest	845,441
5. Improvement of SPL-3 forests	38,927
6. Development of Coastal Protection Forest	61,732
7. Livelihood Development Assistance	75,127
8. Infrastructure for Livelihood Development	231,158
9. Forest Fire Control	5,274
10. Monitoring and Evaluation	15,661
11. Sub-total of Direct Costs (Sum of 1~10)	**1,362,662**
12. Project Management	113,580
13. Sub-total (11+12)	**1,476,242**
14. Price Contingency	933,584
15. Sub-total (13+14)	**2,409,826**
16. Physical contingency	120,491
17. Consulting Services	160,802
18. Taxes and Duties	258,484
19. Grand Total (Sum of 15~18)	**2,949,603**

Source: JICA Preparatory Survey Team (2009)

4.1.3 Calculation of the Project Cost

4.1.3.1 Conditions of Cost Estimation

The project costs are estimated under the following conditions.

a. The project costs in the project period of 10 years are estimated based on August 2009 constant prices in Vietnamese dong .

b. The daily wage for unskilled labor is estimated at VND 60,000. The daily wages originally proposed by DARDs ranged from VND 45,000 to VND 80,000. Some DARDs estimated

the wage rate for forest development according to the regulations on estimating the daily payment for contractual workers on a monthly basis, as there is no government fixed wage for unskilled labor. Since the wage estimated by such method is higher than the prevailing wages, and considering the suggestion from MBFP that said estimation was not applicable to forest development, the average prevailing labor wage of VND 60,000 was adopted as a labor wage used for the sub-projects[16].

c. The exchange rates of US$1.0 = VND 16,968 as of July 2009 and US$ 1.0 = JPY 89.6 as of December 2009 are applied, respectively.

d. Price escalation is estimated at 10.3% per annum for local currency components and 3.1% for foreign currency components.

e. The physical contingency is 5% of the sum of base costs including administration cost.

4.1.3.2 Applied Unit Prices and Ratios

The unit costs for the project components and sub-components were estimated on the basis of detailed cost breakdown for each unit cost. The government cost norms were adopted for the components of Capacity Development, Information Dissemination and Phase-in/-out Works, Development and Improvement of Protection Forest, Livelihood Improvement Support, and Infrastructure for Livelihood Development, while price quotations and past experiences were used for the other components. The following table gives more details.

Bases of Unit Costs for Cost Estimation of the Project Components

Component	Bases of estimation
Preparatory work	- Price quotations for equipments to be procured
Survey and detailed planning	- Price quotations for survey and mapping work - Price quotation for satellite images - Decision No. 61/ QD-BTC on 2 Nov 2006 for participatory planning
Capacity development and information dissemination	- Decision No. 61/ QD-BTC on 2 Nov 2006 for project orientation to the government staff - Decision No. 526/QD-BNN-TC of 3 Mar 2009 for capacity development of the government staff - Decision No. 61/ QD-BTC on 2 Nov 2006 for information dissemination to local communities and formation of local communities - Decision No. 526/QD-BNN-TC of 3 Mar 2009 for development of publications
Development/improvement of protection forests	- Decision No. 38/2005/QD-BNN dated on 06/07/2005 on Technical and Economic Norms of Forest Plantation, ANR and Forest Protection - Prevailing labor wage for labor cost - Degree No.99/2007ND-CP and past experiences for silvicultural infrastructure
Livelihood improvement	- Decision No. 526/QD-BNN-TC of 3 Mar 2009 for technical training for local communities - Past experiences for development of demonstration models
Small scale infrastructure	- Degree No.99/2007ND-CP for construction of small scale rural infrastructure - Prevailing labor wage for labor cost
Forest fire control	- Past experiences for training on forest fire control - Price quotation for forest fire equipment

[16] The daily labor wage was calculated by the following formula:
650,000 (minimum monthly labor wage)×2.54~2.94 (coefficient for unskilled labor without and with minority factor)÷22 working days per month x 75% = VND 80,000 (VND 75,000 ~ 86,000) x 75 % =about VND 60,000

Component	Bases of estimation
Monitoring and evaluation	- Price quotation for mid-term and terminal evaluations
Technical cooperation / Consulting services	- Past experience for consulting services

4.1.4 Corresponding Time Table for Monetary Needs

The annual cost disbursement schedule of the whole project is shown in **Table J-4-2**, and summarized below.

Summary of Annual Cost Schedule of the Whole Project

(Unit: VND million)

Items	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Direct cost	0	15,346	23,338	188,257	342,161	386,852	243,453	104,792	38,782	18,059	0	1,362,662
Administration	2,840	11,358	11,358	11,358	11,358	11,358	11,358	11,358	11,358	11,358	8,519	113,580
Price contingency	0	1,328	7,516	68,252	169,738	251,905	204,040	114,550	59,707	41,667	14,186	933,584
Physical contingency	142	711	2,111	13,393	26,163	32,506	22,943	11,535	5,492	3,554	1,135	120,491
Consulting services	0	9,955	23,619	23,562	24,994	21,364	17,083	14,193	11,619	14,414	0	160,802
Taxes & duties	0	12,724	5,343	28,882	55,676	68,739	47,740	23,274	10,083	6,024	0	258,484
Total	2,981	52,562	73,284	333,705	630,089	774,706	546,617	279,701	137,042	95,075	23,840	2,949,603

Source: JICA Preparatory Survey Team (2009)

4.2 Funding

4.2.1 Type of Capital Sources

The major part of the project costs will be covered by the JICA'S loan. Based on the JICA funding policy, administration cost and taxes and duties relating to the project activities will not be eligible for the JICA loan. The rest of the project costs will be financed from the JICA's loan

4.2.2 Proposals for Mobilizing Capital Source

JICA provides a concessionary loan with annual interest rate of 0.65% per annum, a maturity term of 30 years and a grace period of 10 years for environmental projects in Vietnam, which is more favourable to Vietnam than those of other donors. Commitment charge of 0.1% per annum will be charged to unused amount of loan.

4.2.3 Preliminary Financing Plan for the Project

As a result, the total cost to be shouldered by the Government of Vietnam is estimated at VND 466.2 billion, while the total cost to be covered by the JICA loan is estimated at VND 2,483.4 billion, which is equivalent to JPY 13,114 million. Breakdown of the financial plan is presented in **Table J-4-3**, and its summary is given below.

Summary of Financial Plan

(Unit: VND million)

Component	GoV	Loan	Total
1. Preparatory Works	0	15,432	15,432
2. Survey and Planning	0	20,750	20,750
3. Capacity Development, Information Dissemination, Phase-in/-out Works	0	53,160	53,160
4. Development of Watershed Protection Forest	0	845,441	845,441
5. Improvement of SPL-3 Forests	0	38,927	38,927
6. Development of Coastal Protection Forest	0	61,732	61,732
7. Livelihood Development Assistance	0	75,127	75,127
8. Infrastructure for Livelihood Development	0	231,158	231,158
9. Forest Fire Control	0	5,274	5,274
10. Monitoring and Evaluation	0	15,661	15,661
11. Sub-total of Direct Costs (Sum of 1~10) **(Million Yen Equivalent at JPY 1=VND 189.576)**	**0**	**1,362,662** **(7,187.9)**	**1,362,662** **(7,187.9)**
12. Administration Cost	113,580		113,580
13. Sub-total (11+12) **(Million Yen Equivalent at JPY 1=VND 189.576)**	**113,580** **(619.8)**	**1,362,662** **(7,187.9)**	**1,476,242** **(7,787.1)**
14. Price Contingency	84,248	849,336	933,584
15. Sub-total (13+14) **(Million Yen Equivalent at JPY 1=VND 189.576)**	**197,828** **(1,043.5)**	**2,211,998** **(11,668.1)**	**2,409,826** **(12,711.7)**
16. Physical Contingency	9,891	110,600	120,491
17. Consulting Services	0	160,802	160,802
18. Taxes and Duties	258,484	0	258,484
19. Grand Total (Sum of 15~18) **(Million Yen Equivalent at JPY 1= VND 189.576)**	**466,204** **(2,459.2)**	**2,483,400** **(13,099.8)**	**2,949,603** **(15,558.9)**

Source: JICA Preparatory Survey Team (2009)

4.2.4 O&M Cost and Corresponding Financing Mechanism

In addition to the project investment costs described above, the following operation and maintenance costs will be required mainly in the post project period.

a. Maintenance cost for protection forests

b. Operation cost for forest exploitation activities

c. O&M cost for small scale rural infrastructure

The estimated O&M costs and responsible bodies for O&M activities are given below.

Annual Operation and Maintenance Cost

(Unit: VND million)

Items	Necessary Cost	Responsible organizations
Maintenance cost for protection forest	Labor cost but no cash payment for patrolling and other protection activities, but no cash payment	Local communities
Operation cost for forest exploitation	Labor cost but no cash payment timber exploitation	Local communities
O&M cost for small scale rural infrastructure	0.5% of the economic cost for small scale infrastructure development VND 0.99 million for road in watershed VND 0.87 million for road in coastal VND 0.60 million for unit (for 15 ha) VND 0.21 million for unit	CPC concerns with small scale infrastructure