

**PART II. APPLICATION TO FEASIBILITY STUDY
(PRODUCTION FOREST)**

CHAPTER 5: POLICY RATIONALES

5.1 Relevance of Feasibility Study (F/S) with National & Provincial Policies

As indicated in the previous Chapter 4, there are various types of laws, instructions and regulations on the promotion of afforestation for production forest, protection forest and special-use forest, which relate to the wood processing industry and the environment. The following explains how and why the afforestation project is necessary;

The Government of Vietnam considers poverty reduction a long-term target of socio-economic development strategies. Many activities have been conducted such as development of the 5- Year Socio-Economic Development Plan (2001 – 2005), and the Annual Socio Economic Development Plan; the Comprehensive Poverty Reduction and Growth Strategy 2001 - 2010 (CPRGS); Socio-Economic Development program for Extremely Disadvantage Communes (135 Program); 5 Million Ha Reforestation Program (5MHRP).

In order to take part in poverty reduction, and ensure social justice and sustainable growth, the Vietnamese Government has issued documents that elaborate all the general objectives, institutional arrangement, policies and solutions of the 10-Year Strategy and 5-Year Plan into specific action plans. At the same time, the Government of Vietnam has also called for realistic and efficient support for economic development and poverty reduction from communities, international organizations and NGOs

The forest sector has changed its orientation in forestry development. According to the report on 5MHRP 2005, it was realized that in the past, the forest sector has been paying most attention to the establishment of protection and special-use forests. These forests were created using State budget. Local people have little participation in these activities due to the low economic benefit from planting and conserving protection and special use forests. The consequence of this is that Vietnam cannot meet the wood demand for domestic processing, which leads to the necessity of importing raw material to cover the shortfall in annual wood needs. Up to now, every year, Vietnam has imported wood with a total value of US\$ 500-600 million.

To ensure the supply capacity for domestic timber needs, Vietnam has regularly adjusted policies and programs, making them suit the requirements of society. According to the amendment 5 MHRP, from now to 2010, the forest sector will shift from development of protection and special-use forest mainly to development of production forest, in particular, to plant about 1.5 million hectares of production forest.

In Thai Nguyen province, the particle board factory, forest stock company, Cam Giang Mining Company and some other wood processing units have total demand on raw wood material of about 65.000 M³ per year. However, raw wood material supply capacity in Thai Nguyen province cannot meet their demand, causing the particle board factory to work very slow.

Phu Binh district in Thai Nguyen province where the feasibility study was conducted to prepare

Model F/S (Book 4-1) is ranked as the fourth poorest district in Thai Nguyen Province with a poverty rate of 31.4 % (Statistic section of Phu Binh District following the criteria of Ministry of Labor, Invalid Social Affair in 2005). Household incomes in the project area are lower than the average per capita income of Vietnam. Farmers tend to develop household economies by cultivation, including plantation.

Thus, a production forest development project is extremely necessary in Phu Binh district and it is consistent with the forest policy in Vietnam. If successful, the afforestation project will contribute to the development of the wood processing industry in Thai Nguyen Province. The development of this industry is expected to improve living conditions for the people of Phu Binh.

The project may bring about negative impacts on the household economy in the short-and medium-term period even though the financial feasibility of the project is confirmed. But with the assistance of the long-term concessional loans, the project is expected to contribute to increase in income of participating smallholders.

The current socio-economic situation of the project area, the project objectives and its operation plan conform with current poverty reduction policies of the Vietnamese Government.

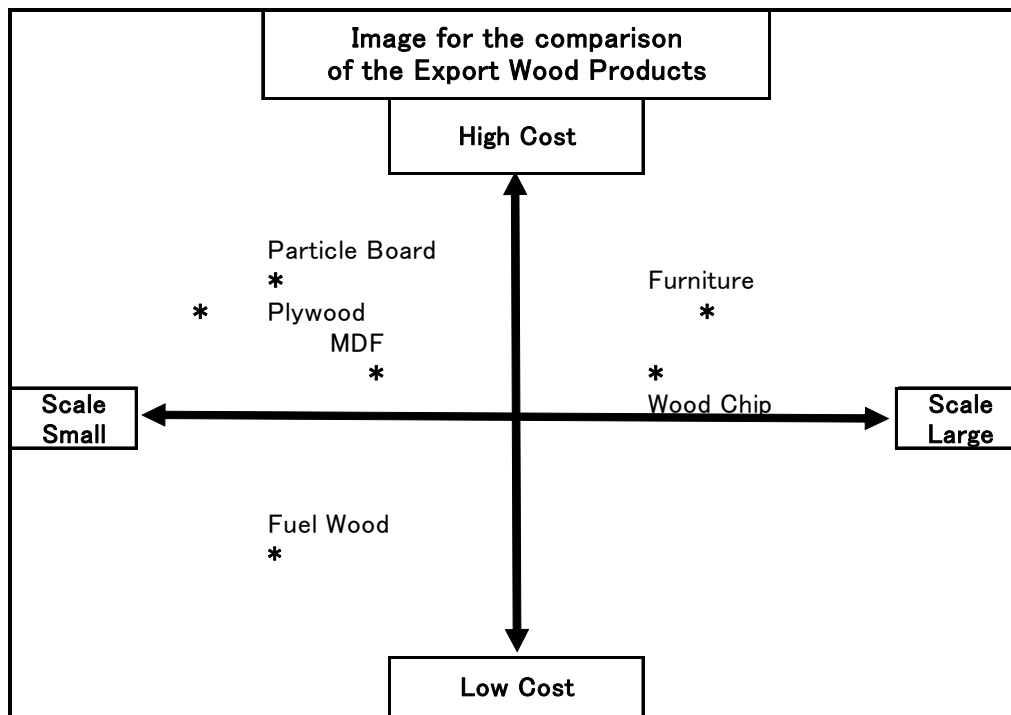


Photo No.5.1: Forested area at Phu Binh District, Thai Nguyen

5.2 Competitiveness Comparison of wood products

Due to a scarcity of the statistical data for the local wood product market, it is not easy to make a fair comparison of the competitiveness of the products. Using the Data already commented in this Book, we have been able to make some analysis about the product market;

The following is a simple comparison of wood products, which clearly shows a general trend for each



product. A similar trend is seen for paper related wood products. There may be common understanding that paper is necessary for the people of Vietnam. The following will provide an overall comparison of export products;

Reference;
Plywood = wood panel, glued in several Veneers (2 ply, 3 ply, etc) in different directions to make a high in construction material.
Veneer = wood sheet usually cut from unprocessed softwood or hardwood logs (round wood). It usually has a thickness of about 1.0mm.
Round wood = To have the most effective production of veneer, large diameter timber or logs are preferable.

5.2.1 Export products

a) Furniture

As indicated in several chapters, wood furniture is one of strategic wood products for export from Vietnam, but it is necessary to clarify its strength in the market.

The following tables show how Vietnamese wood products (wood furniture) compete in EU (15 countries), U.S.A. and Japanese markets.

(Product classification 9401-61 under HS code, is “wooden furniture/other seats, with wooden frames, upholstered, covered with leather or not especially specified”)

Table 5.1: Wood furniture in EU

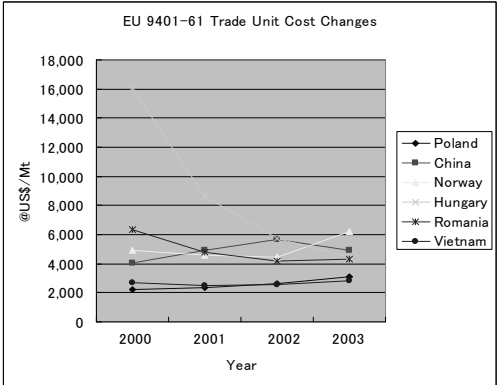
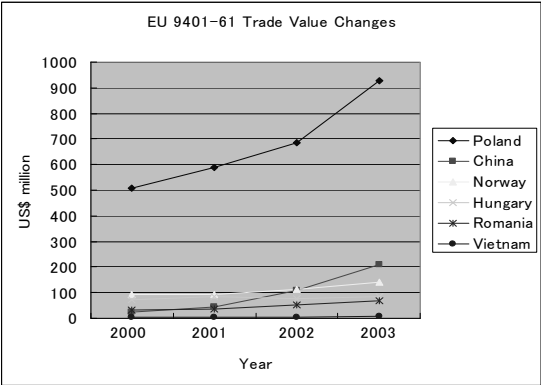


Table 5.2: Wood furniture in USA

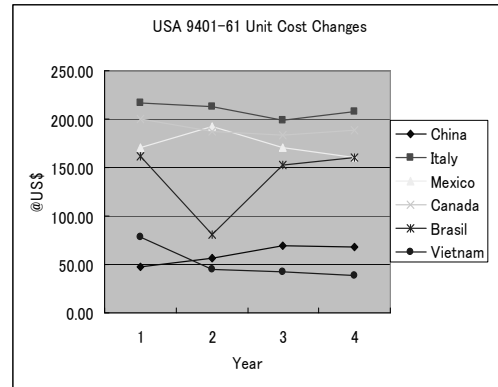
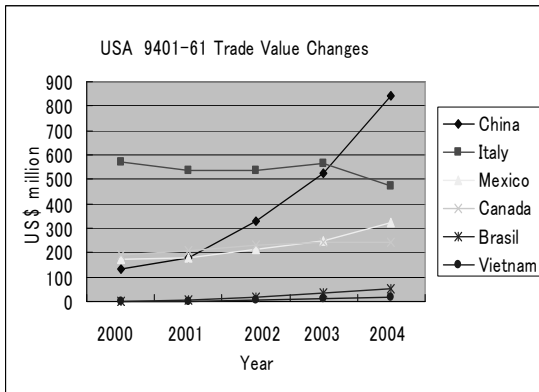
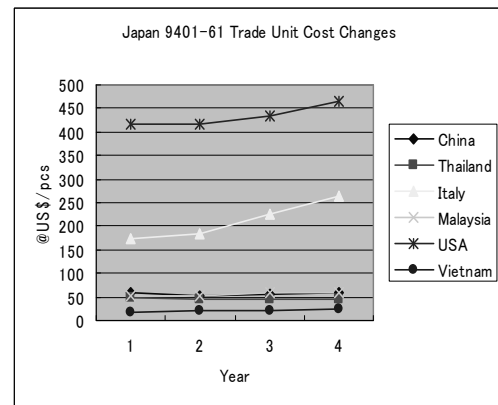
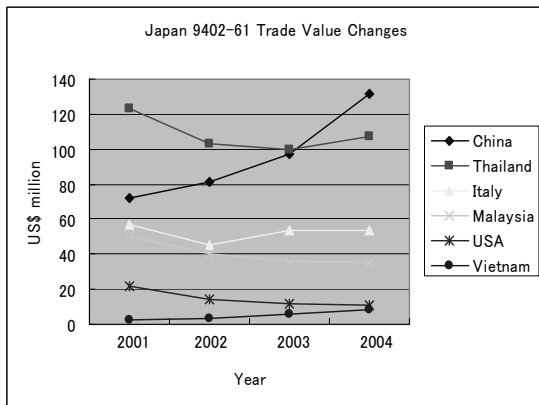


Table 5.3: Wood furniture in Japan



Source: JETRO/World Trade Atlas

Through the data shown, it is clear that China is most aggressive in the export value or volume (quantity) but the level of Unit cost is quite similar to Vietnam. In this sense, Vietnam may need to make more effort to improve the quality (aiming at higher prices) of wood furniture for export.

b) Wood Chip

Wood chip is another strategic wood product for export, especially for the pulp & paper industry in the East Asian market. The scale of production is still small, (as indicated in other chapters), however since 2004, China has become an importer of wood chip due to its increasing consumption of paper.

Both the export value and volume of wood chip reached a record high again in 2006, clearly showing its competitiveness in the East Asian market

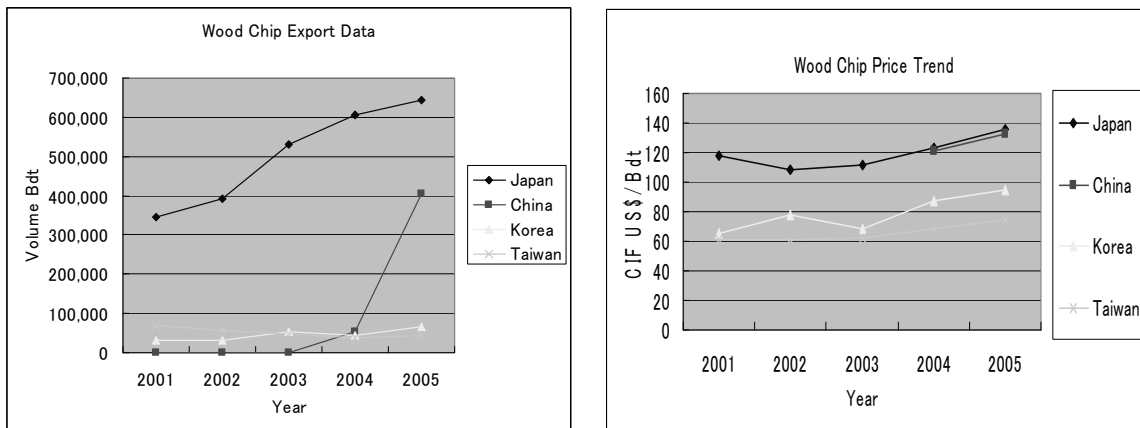
Table 5.4: Export wood chip trend

		Unit ; Value = CIF US\$ million, Quantity = Dry M/t							
Importer		1999	2000	2001	2002	2003	2004	2005	
Japan	Value	26.678	32.302	40.888	42.609	59.583	74.465	87.426	
	Quantity	198,957	261,173	346,843	391,626	531,563	606,302	644,149	
	Average	134.09	123.68	117.89	108.80	112.09	122.82	135.72	
China	Value	0	0	0	0	0	6.375	53.718	
	Quantity	0	0	0	0	0	52,527	405,160	
	Average	0	0	0	0	0	121.37	132.58	
Korea	Value	2.331	1.405	2.016	2.546	3.596	3.913	6.214	
	Quantity	32,718	22,240	30,757	32,732	52,945	44,698	65,327	
	Average	71.25	63.17	65.55	77.78	67.92	87.54	95.12	
Taiwan	Value	3.553	5.762	4.150	3.501	2.903	2.630	3.205	
	Quantity	57,581	91,039	68,265	57,733	46,541	38,716	42,667	
	Average	61.70	63.29	60.79	60.64	62.38	67.93	75.12	
Total Value	Value	32.562	39.469	47.054	48.656	66.082	87.383	150.563	
Total Qty	Quantity	289,256	374,452	445,865	482,091	631,049	742,243	1,157,303	
Average	Average	112.57	105.40	105.53	100.93	104.72	117.73	130.10	

Source ; World Trade Atlas/JETRO

Table 5.4 and 5.5, Export of wood Chip, shows a very healthy trend for the future value and volume (quantity) demonstrating that the unit price is very stable in the long run.

Table 5.5: Export wood chip trend



5.2.2 Import products

Vietnam has been importing wood products for local sale as well as wood materials for manufacturing wood products since the end of last century. These imports balance the growing demand for the local market. Such imports are considered an important factor in the national economy.

The import of wood products exceeded US\$ 650 million in 2005 and the import of wood materials has increased over 400 percent since 2001. This import is mainly to cover the active export demand from furniture and an active domestic demand for construction wood, plywood, etc. The following table was prepared by MARD to indicate details of the import of wood materials.

Table 5.6: Import quantity of wood materials

Species	2003		2004	
	Quantity (m ³)	%	Quantity (m ³)	%
Total	900,000	100	2,550,000	100
Eucalyptus	405,000	45	637,500	25
Acasia	27,000	3	127,000	5
Parashorea+Taloma	90,000	10	331,500	13
Pine	72,000	8	204,000	8
Dipterocarpus	135,000	15	637,000	25
Tectona Grandis	27,000	3	102,000	4
Others	144,000	16	510,000	2

Source: MARD, 2004

There has been a sudden increase in the import of wood materials since 2004, when export of furniture increased significantly and the export of wood products jumped over US\$1.5 billion in year 2005.

Photo No.5.2: Sawn wood from Laos

Import of wood materials includes raw logs and sawn wood for furniture or construction purposes as well as products such as particle board, MDF, plywood.

The import of wood and wood products has increased from US\$158 million in 2001 to US\$650 million in 2005. However there is still the little statistical data available for these imports. The following Table 3-9 shows the latest available data for reference;



Table 5.7: Wood & wood product imports

Unit: CIF US\$1,000

Country	2001	2002	2003	2004	2005
Total Import	158,787	179,055	273,670	538,545	650,714
Malaysia	Details, Not available			150,583	135,088
Laos				59,042	69,515
Cambodia				43,678	57,680
China				24,989	54,808
USA				30,765	39,339
Thailand				21,994	36,481
Taiwan				29,089	31,069

Source: General Department of Customs 2005

Malaysia is a key exporter of wood materials and wood products for Vietnam. It is assumed that the main products are MDF, plywood, particle board and sawn wood. These products are used for construction. While Laos and Cambodia have been supplying Vietnam with round wood and sawn wood for construction, there is no import record for these products to date.

Photo No. 5.3: Some Images of Vietnam wood products



As already explained in this document it is generally understood that Logs (wood) with a value of about US\$ 500 million (US\$ 200 X 2.5 million m³) are imported from Laos, Cambodia, USA, and African Countries for the purpose of manufacturing wooden furniture or construction materials.

Also with the development of general living standards in Vietnam, there is a significant increase in the import demand for pulp & paper, which are imported mainly from Japan, USA, etc (for pulp of about US\$ 70 million) and Indonesia, Taiwan, Japan, Korea, etc (for paper of about US\$ 370 million = US\$ 750 X 490,000 Mt).

Table 5.8: Vietnam paper demand/ consumption data**Unit: M/t**

Item	2003	2004	2005	2006*
Consumption	976,117	1,120,973	1,260,093	1,607,092
Production	647,000	752,143	868,207	1,024,506
Import	425,784	485,930	527,297	727,708
Export	96,667	117,100	135,411	145,122

Source: Private Distributor; (2006* is for the forecast)

Logs/woods are used for furniture, plywood or construction materials and pulp is imported for paper making. However there is no clear record how Imported Logs/woods are used in Vietnamese processing industries. The following are estimations;

Table 5.9: Utilization of imported logs/wood and pulp & paper

product	Import quantity in 2004	Purpose	Estimated quantity for each product
Logs/wood	2,550,000 m ³	furniture	2,000,000 m ³
		plywood	10,000 m ³
		construction	540,000 m ³
Pulp & paper	488,000 M/t paper 120,000 M/t pulp	Coated paper	20,000 m ³
		Non Coated paper	28,800 m ³
		papers	120,000 M/t

Source: MARD, VINAPACO, Estimated quantity by FIPI

CHAPTER 6: EVALUATION AND SELECTION OF PROJECT OPTION (PRODUCTION FOREST)

This Chapter is intended to clarify how to carry out an evaluation and selection of the products for sale or marketing in the feasibility study by taking Thai Nguyen Province as an example. The actual feasibility study will also require technical and social evaluation.

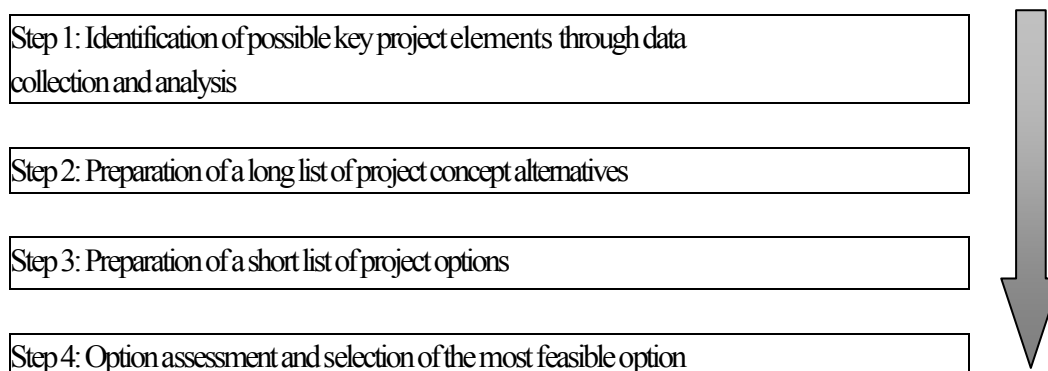
This case study can be used as an example for those who intend to carry out the feasibility studies in any area of the country. However it is clearly noted that local social, economic and environmental conditions are different in each Province. Those who implement studies should carefully adjust or apply the conditions, suitable for their area of interest.

6.1 Method of Project Option Evaluation

The project option evaluation is part of the feasibility study process to screen various project options and then select the most feasible project option. It will help project planners identify the most feasible option out of a number of possible options in the early planning stages of the project. This methodology will also contribute to lowering costs.

Initially, a long-list of project options is formulated in consideration of natural and socio-economic conditions in the target area. Based on the long-list, a short-list of project options is prepared. The economic, financial, technical and environmental aspects of Short-listed options are examined and the most feasible project option is selected.

The project option evaluation is undertaken with the following steps;



6.1.1 Step 1: Identification of possible key Project Elements through Data Collection and Analysis

Data collection and analysis are initiated to identify possible key project elements (i.e., implementing body, type of products and financing source) in the project area. The analysis will be conducted on various aspects of the natural and socio-economic settings. The following aspects are to be studied:

- Current situation of forest (distribution of forest and forest resources)
- Land holding status of forest zone
- Accessibility
- Macro-natural settings (climate, soil type, land productivity, topography)
- Increment of the existing and possible trees and agro-forestry species
- Macro-market potential and local market
- Local enterprises in forest related industry and trade
- Political and institutional environment (social organization, social network structures)
- Population and demographic characteristics of related people
- Financial arrangements for the potential implementing agencies

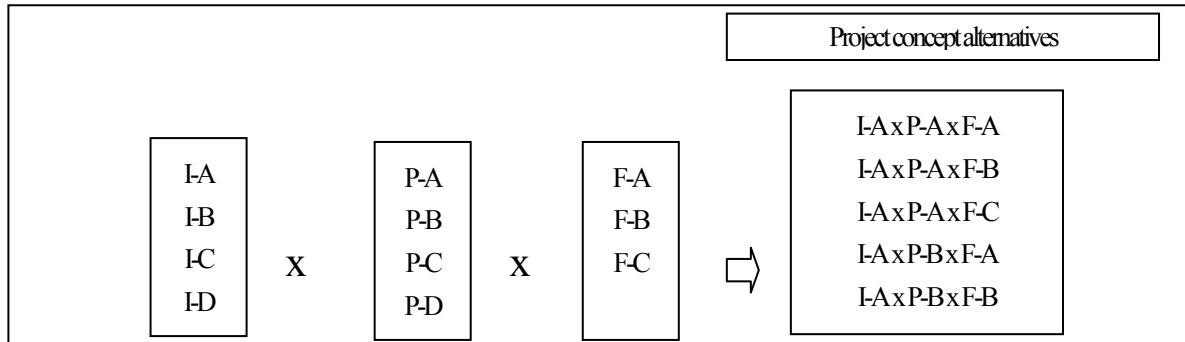
Based on the analysis of the natural and socio-economic settings , possible and specific combinations of the three key project elements are identified as project concept alternatives. An example of how these key project elements are combined is shown in the Table 6.1 below.

Table 6.1: Project concept alternatives

Implementing Bodies	I-A Vinafor	I-B People (Farmer)	I-C ○○○○	I-D ○○○○
Products	P-A Chip wood	Particle board Furniture wood	P-C ○○○○	P-D ○○○○
Financing Sources	F-A DAF	F-B Private Bank	F-C ○○○○	

6.1.2 Step 2: Preparation of a Long-list of Project Concept Alternatives

A long-list of the project concept alternatives is initially prepared by identifying selected possible and specific combinations of the three key project elements. And then, the long-list of the alternatives is further studied from a viewpoint of physical possibilities for implementation. The method for preparing an initial long-list is illustrated below.



6.1.3 Step 3: Preparation of a Short-list of Project Options

Based on the long-list of project concept alternatives, a short-list of project options is prepared taking into consideration of the viability of technical, institutional and economical aspects.

6.1.4 Step 4: Option Assessment

- 1) The criteria and indicators for the following categories will be established for the assessment:
 - (a) Policy consideration
 - (b) Silvicultural technology
 - (c) Market potential
 - (d) Economic and financial evaluation
 - (e) Environmental impact
 - (f) People's opinion
 - (g) Social impact
 - (h) Comparison with similar Afforestation projects from the past

2) The short-listed project options will be assessed in accordance with the criteria and indicators. If a project option highly satisfies the criteria and indicators, (A) will be placed in the corresponding box of the table. If a project option satisfy the criteria, (B) will be put in the box. If a project option does not satisfy, (C) will be put, and in case a project option does not satisfy at all, (D) will be put in the box. The following table illustrates an example of how each option will be evaluated by applying different criteria.

Table 6.2: Assessment of short-listed project options

	Option I-A x P-A x F-B	Option I-A x P-A x F-B	Option	Option
(a) Policy consideration				
(b) Silvicultural technology				
(c) Market potential				
(d) Economic and financial evaluation				
(e) Environmental impact				
(f) People's opinion				
(g) Social impact				
(h) Comparison with similar afforestation projects in the past				
Merit or Demerit	1A,5B,2C,0D	0A,3B,4C,1D		
Result of assessment	Viable	Not viable		

Project options are assessed synthetically taking into consideration the number of (A), (B), (C) and (D). Thus, the most viable project option will be selected and a possible original project plan will be prepared for the option selected.

(3) After selecting the most feasible project option, it is recommended to consult with local government such as provincial and/or district people's committee, whether a selected option is consistent with local policy or not.

6.2 Project Option Evaluation conducted in the Province of Thai Nguyen

In Thai Nguyen province the project option evaluation has been conducted for two (2) types, i.e. production forest and an agro-forestry project in Phu Binh District. But it is intended to introduce project option Evaluation for production forest.

6.2.1 Step 1: Identification of Possible Key Project Elements through Data Collection and Analysis (production forest)

Based on the data collection and analysis on the environmental and socio-economic settings in the project area, possible key project elements have been identified.

1) Possible implementing bodies

As for the implementing body for production forest projects, two possibilities have been identified, i.e., (a) a State-owned enterprise (SOE) and (b) People (Private Sector). Specific features of these possible Implementing bodies are described as follows:

(a) SOE (Dong Phu Forest Enterprise) as a possible implementing body

- In five communes of t Phu Binh District, SOE claims user rights over 2,000 ha of the forest land that can be used for production forest.

- SOE has much experience in afforestation.

- SOE has technical and institutional knowledge about afforestation.

- SOE has responsibility for provision of wood materials to VINAFOR.

(b) People (Private Sector)

- People (Private Sector) have forestry land.

- People (Private Sector) have motivation for afforestation.

- People (Private Sector) have a labor forces for afforestation

2) Possible product types

(a) Examination of possible products in terms of natural conditions and silvicultural Technology.

- Product expected to grow reasonably in consideration of natural conditions such as soil type, altitude, and

inclination of land: Acacia, Eucalyptus and Pine

- Product for which much technical experience in afforestation has been accumulated in the study area: Acacia, Eucalyptus and Pine.

(b) Examination of possible product types from a socio-economic viewpoint

- Product demanded in the light of situations of local living conditions and local industry: Resin, Furniture wood

- Product preferred by local people for production due to high market demand: Chip wood, Furniture wood

- Product for which the local authorities encourage production: Wood for industry (wood chip, particle-board)

- Products that processing factories demand, located in and around the project area: Particle-board wood

- Products that are convenient for transportation due to short distance from a port for export: Chip wood

3) Possible financing sources

The following sources have been identified:

(a). Self capital of people (private sector)

(b). Bank Loan (Vietnam Bank for Social Policies) for people (private sector)

(c). Preferential Loan (DAF) for SOE

(d). State Budget (773 program) for people (private sector)

The key project elements have been identified for production forest project as in Table 6.3 below.

Table 6.3 Project elements for production forest project

Project component	
Implementing agency	People (Private Sector)
	State-Owned Enterprise
Products	Household wood
	Particle-board
	Chip wood

	Household wood + particle board
	Household wood + Chip wood
	Pine Resin
Financing sources	Self funding
	Bank Loan
	Preferential Loan
	State Budget

6.2.2 Step 2: Preparation of a long-list of project concept alternatives

A long-list of project concept alternatives has been prepared by combining the three key project elements. As combinations of the project elements are mechanically done, Project Concept alternatives that are not likely to be implemented are also included. Therefore, project concept alternatives for the long-list are examined from a viewpoint of the physical feasibility. Consequently, fourteen (14) possible project concept alternatives have been selected as in Table 4 below.

Table 6.4: Long-list of project concept alternatives for production forest

No.	Implementing Bodies	products	Financing Sources
1.	People	Particle-board	Self-Funded
2.	People	Particle-board	Bank Loan
3.	People	Chip wood	Self-Funded
4.	People	Chip wood	Bank Loan
5.	People	Household wood + Particle board	Self-Funded
6.	People	Household wood + Particle board	Bank Loan
7.	People	Household wood + Chip wood	Self-Funded
8.	People	Household wood + Chip wood	Bank Loan
9.	SOE	Particle-board	Bank Loan
10.	SOE	Particle-board	Preferential Loan
11.	SOE	Chip wood	Bank Loan
12.	SOE	Household wood + Particle-board	Bank Loan
13.	SOE	Household wood + Particle-board	Preferential Loan
14.	SOE	Household wood + Chip wood	Bank Loan

Reference:

Saw mills or timber processing equipment for the wood processing industry

The wood processing industry requires a sawmill or timber processing equipment at every location where timber is collected as wood has to be cut or sawed due to its nature.

This equipment is used for (1) sawing, (2) milling, (3) planing, (4) chipping, (5) crushing, (6) thinning, (7) brunching, (8) curving, (9) slicing, (10) etc

Then each process requires a specific type of equipment to produce the best result. The efficiency of the processing equates to the efficiency of the production.

This area requires careful attention as investment in correct equipment and facilities can have a huge impact on profitability of operations.

6.2.3 Step 3: Preparation of a short-list of project options

Project concept alternatives on the long-list are examined on their feasibility in terms of institutional, technical and economic aspects. Furthermore, the government policy directions and local socio-economic conditions and natural conditions are taken into consideration as follows.

(1) Technical aspect

a) As short rotation forestry have been applied in many province and silvicultural technologies such as planting, tending, harvesting for it have been confirmed, there are no specific problems on this technical aspect for short rotation forestry.

b) Silvicultural technology has not been confirmed for long rotation forestry such as production of furniture wood, which requires more than 20 years period.

(2) Economic aspect

a) It is considered that production of wood for manufacture of furniture and wood resin, which require more than 20 years for harvesting, would not be economically feasible due to a long investment period.

b) Products with a high market price have been selected as a specific case for key project element.

(3) Institutional aspect

a) SOE (Dong Phu F.E) is a subsidiary of VINAFOR and is expected to provide raw materials to a particle board factory.

b) Farmers are not qualified for using preferential loans of DAF.

c) State budget is allocated mainly for protection forest.

d) The possibility of introducing finance from international donors is low because as international donors have guidelines for assistance such as poverty reduction, environment protection therefore in case of Thai Nguyen Province, the priority for assistance by international donors is not so high.

Short-listed project options for production forest project is shown as in Tables 6.5

Table 6.5: Short-list of project options for production forest

No.	Implementing Bodies	products	Financing source
17	People	Chip wood + Household wood	Self-capital
18	People	Chip wood + Household wood	Bank loan
39	SOE	particle-board + Household	Preferential loan

Photo No. 6.1: Wood chip loading for Japan at Cai Lan Port



6.2.4 Step 4: Option assessment and selection of the most feasible project option

In order to select the most feasible option from the short-listed project options, assessment criteria is set up as in Table 6.6

Table 6.6: Assessment criteria for Project Option Evaluation

Category	Criteria	Indicator
Policy consideration	Balance among key policy considerations (economic efficiency, environmental sustainability and social equity)	Whether or not the project option takes into account three key policy considerations
Silvicultural technology	Appropriateness of operations	Whether or not the operations of the project option satisfy technological rationality
Market potential	Accessibility to market	Whether or not the targeted market accepts the products - Location of the market - Transportation network
Economic & financial evaluation	Profitability Rough estimate of profitability (cash inflow and outflow) based on the unit benefits and costs	Whether or not the project option yields profit - Project cost - Sales -Terms and conditions from financial sources -Project schedule
Environmental impact	Sensitive activity	Whether or not the operations of the project option affect environment such as river, soil and atmosphere
People's opinion	Priority of the people, people's need	Is the priority of the project option high among the people?
Social impact	Sensitive activity	Whether or not the operations of the project option affect people's life and how they affect their life? - Changes of traditional land tenure and land use - Widening of the socioeconomic gap - Negative impact on poverty, gender and ethnic minority
Comparison with similar afforestation projects in the past	Comparison with past practices (bad or good cases)	Whether or not the project option contain any lessons learned or bad practices of past projects

The project options of the short-list are examined how they satisfy the criteria in Table 7. The result of assessment is indicated by four grades of satisfied level as follows and it is examined synthetically which project option is most feasible. Project option No.39 for production forest project and project option No.2 for agro-forestry project is selected respectively as the most feasible project option. The result of assessment is shown in Table 8 and Table 9 using the following

symbols:

A for criteria being highly satisfied

B for criteria being satisfied

C for criteria not being satisfied

D for criteria not being satisfied at all

Table 6.7: The results of Project Option Evaluation for production forests

Category	Project Option No.		
	17	18	39
Policy consideration	B	B	B
Silvicultural technology	C	C	B
Market potential	C	C	B
Economic & financial evaluation	D	B	A
Environmental impact	B	B	B
People's opinion	C	B	C
Social impact	C	B	C
Comparison with similar afforestation projects in the past	C	C	A

Project Option No.39 is a Project in which the implementing body is SOE (Dong Phu forest Enterprise). The source of finance is a preferential loan from DAF. The products are **wood for particle- board for the Thai Nguyen particle board factory**. In order for the smooth Implementation of the project, it is necessary to reconsider terms and conditions of contracts between SOE and farmers in F/S, on which concerns were raised at the Commune consultation meeting (CCM) held in August 2005. Despite the concerns of farmers, however, it is considered that **the**

Project Option No.39 is the most feasible project option because the Option satisfies criteria concerning the natural, socio-economic conditions and the direction of local government policy.

CHAPTER 7: PREPARATION OF FEASIBILITY STUDY (PRODUCTION FOREST)

7.1 Feasibility Study (F/S) Report and its Outline

A feasibility study is conducted to examine the feasibility of the project. The feasibility study report, as an output of the study, is prepared for users such as governments, financial institutions and investors. The report will assist them in making their decision on whether they approve, assist, and/or implement the project.

The main content of a feasibility study report is comprised of four parts: “project background,” “project contents,” “project justification,” and “conclusion and recommendations.” The whole structure of the feasibility study report is shown as follows:

Structure of the feasibility report

Legal Framework
Introduction
Part I. Project Background
1 Context of project formulation
2 Natural and socio-economic conditions
2.1 Natural conditions in the project area
2.2 Socio-economic conditions
2.3 Status of land and forest resource use
2.4 Sales and marketing
2.5 Lessons learned from on-going and completed projects
2.6 Opportunities and challenges
Part II. Project Contents
1 Project rationale
2 Project objectives and outputs
3 Project activities
3.1 Project components
3.2 Project implementation plan
3.3 Project implementation schedule
4 Project cost
5 Financing plan
6 Organization of management and implementation
7 Monitoring and Evaluation (M & E)
Part III. Project Justification
1 Financial and economic analyses
1.1 Financial analysis
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3 Evaluation of social impacts
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5 Project risks and mitigating measures
Part IV. Conclusions and Recommendations
1 Conclusions
2 Recommendations
Annex
Annex 1: Project design matrix (PDM)
Annex 2: Physical features of the project area
Annex 3: Socio-economic data
Annex 4: Cost tables
Annex 5: Financial and economic analyses
Annex 6: Forest Inventory Log Book of the Forest Land

Note: For details, please refer to Volume II: Structure and Contents of a Feasibility Study Report of F/S Manual (Book 2).

The results of the market survey will be described in Part I Sub-chapter 2.4 Sales and marketing of the F/S report. The data collected through the survey will be used for the project planning and the project justification, particularly financial and economic analyses.

Photo No. 7.1: Forested area at Phu Binh District, Thai Nguyen Province



7.2 Market Information for the Feasibility Study (example of production forest project)

The feasibility study of production forest development project in Vietnam will require the following basic data;

- a) Forest resource data in the project area and neighboring areas.

(Including: species, ages, geographic location - if available)

- b) Wood product industry in the project area and neighboring areas.

(Including: types of product and annual production for the last 5 years)

- c) A listing of major wood products and factories in the project area and neighboring areas.

- d) Specifications of wood materials required for specific wood products or factories.

(Specification of wood materials will include: the length, width of the wood materials, including wood species)

- e) Prices of wood materials in the harvest area (road side) and factory gate.

(Suggest collecting information on how the wood will be treated at harvest area: eg. cut to a certain length or debarked)

- f) Data for road conditions (from the forest road side to the factory gate) and restriction for traffic, if any.
- g) Transport costs from transportation companies.

The data can be obtained either by interviews at each factory, industry associations, industry experts, news agencies, Provincial Forestry Departments, Provincial Statistical Offices or the General Department of Statistics at state level. Contacts with government organizations should be made through official procedures and private data or information should be kept confidential, indicating “Private Data or Information” for any publication, if necessary.

Photo No. 7.2: Degraded forest area at Phu Binh District, Thai Nguyen Province



7.3 Sample of data summary for wood materials

The following is an example summary for Wood Material Harvest Plan (Table 7-1) and Supply Program (Table 7-2), prepared by DARD, Province of Thai Nguyen. This is quite useful in helping to know the market size, main wood factories as well as wood products produced in the Province.

Table 7.1: Wood material harvest plan by district, Thai Nguyen Province 2005

	Round timber (m ³) Home Garden	timber from plantation forest (m ³)	Scattered Styrax Tonki- nensis (m ³)	Bamboo (ton)	Pine resin (ton)
Total	3,150	22,660	4,280	4,000	120
Dinh Hoa District	800	8,300	1,500	3,490	0
Phu Luong District	310	2,360	280	110	0
Vo Nhai District	600	2,500	2,000	0	0
Dong Hy District	240	4,000	500	400	0
Dai Tu District	800	3,500	0	0	0
Phu Binh District	300	1,000	0	0	120
Pho Yen District	100	1,000	0	0	0

Table 7.2: Wood material supply program in Thai Nguyen Province 2005

Factory	Round wood (M ³) Home Garden	Timber from plantation forest(M ³)	Scattered Styrax Tonki.(M ³)	Bamboo (Ton)	Pine Resin (Ton)
Thai Nguyen particle board factory	0	13,000	0	0	0
Dai Tu forest Enterprise	200	1,800	0	0	0
Dinh Hoa forest Enterprise	150	1,500	500	0	0
Vo Nhai forest Enterprise	150	1,500	500	0	0
Thai Nguyen Stock Co Export paper	0	0	0	3,500	0
Others	2,650	4,800	3,280	500	120
Total of the Province	3,150	22,600	4,280	4,000	120

Source; DARD, Province of Thai Nguyen 2005

Photo No. 7.3: Wood material for Chipping



Photo No. 7.4: Wood harvesting



7.4 Sample of the interview at the factory

The following is an example of **the Interview Memo**, conducted in the year 2005. This example shows what type of data and information can be collected through the interviews.

This factory was visited during the month of July, when the factory was closed due to a shortage of wood material. This factory is the only integrated wood processing facility in Thai Nguyen, operating under VINAFOR. We had a meeting regarding its sales as well as the wood supply.

Main Points;

- 1) The factory commenced its operation on/from December 2002, with a production capacity of 16,500M³ of particle board and has the following history;
 - Year 2003 Start-up period and no clear data
 - Year 2004 Operation 60% (9,600M³ of particle board ?)
 - Production was not smooth due technical issues.
 - Year 2005 Operation 60% (9,600M³ of particle board ?) + Estimated
 - Production was not smooth due to technical issues
 - and shortage of wood material
 - Year 2006 Operation to be 80% (12,800M³)
 - Year 2007 Operation to be 90% (14,400M³)
- 2) Current sales prices for particle board vary due differences in size, but the standard is around Vnd. 2,000,000/M³. Prices for the main size board are as follows; Rough surface finish and including VAT and Ex-factory base;

□ 1,220mm X 2,440mm X 12mm	Vnd. 2,119,770/M ³
□ 1,220mm X 2,440mm X 14mm	Vnd. 2,099,570/M ³
□ 1,200mm X 2,440mm X 28mm	Vnd. 1,763,640/M ³
- 3) The market is relatively stable due good demand but the factory is having tough competition against imported particle boards mostly from Indonesia and Malaysia also against cheap and low quality particle boards from small local manufacturers.
 - Quality of imported particle board is low, compared with Thai Nguyen board but is also priced cheap. The detail of imported particle board is not available.
 - Local cheap lower quality board is produced using second hand machines, imported from china.
- 4) Supply of wood material
 - Aprox. 30,000 – 35,000 M³ (Solid Base) of wood material is necessary for production of particle board at the factory.
 - And Basic wood material Specification is φ3 – 30cm X 1.0 – 2.5M. wood of Diameter over 30cm is normally used for the furniture and is not delivered by farmers or wood traders

The current wood material price (purchase price by the factory) is as follows, (as at June 2005.)

- | | | |
|---|----------------------|------------------|
| ① | φ16cm Min X 2.0M Min | Vnd. 470,000/M/t |
| ② | φ12-16cm X 2.0M up | Vnd. 430,000/M/t |
| ③ | φ8 - 12cm X 2.0M up | Vnd. 390,000/M/t |
| ④ | φ5 – 8 cm X 0.5M Min | Vnd. 350,000/M/t |

In the case of raw wood materials retaining bark, prices will be discounted by 16% on the weight. conversion rates per M³ to weight (Mt) are as follows;

- | | | |
|---|------------------|--------------------------------|
| ① | Eucalyptus | 1.0~1.2 Mt = 1.0M ³ |
| ② | Acasia | 0.8 Mt = 1.0M ³ |
| ③ | Maglietia Glouca | 0.6 Mt = 1.0M ³ |

Also prices are adjusted on the moisture content of the material in a range of ± 0.2 Mt.

Main supply source areas are in Dai Tu, Vo Nhai and Dong Hy Districts.

- 5) To secure a stable supply of wood material, the factory (or VINAFOR) established Dong Phu forest enterprise for collection of wood material and afforestation. But VINAFOR (?) have decided to close down this forest enterprise operation soon. Operation and management of this process shall be carried out by the factory.
- 6) Comment; Thai Nguyen particle board factory is the biggest wood processing factory in the province and has controlling power on the supply / demand situation of wood material in the province. This influence on the local industry means that this operation should be carefully observed.

The forecast of wood material procurement is not yet clear and has a great challenge to compete against imported and domestic particle board.

Other Check Points for the Survey Prepared November 11, 2005

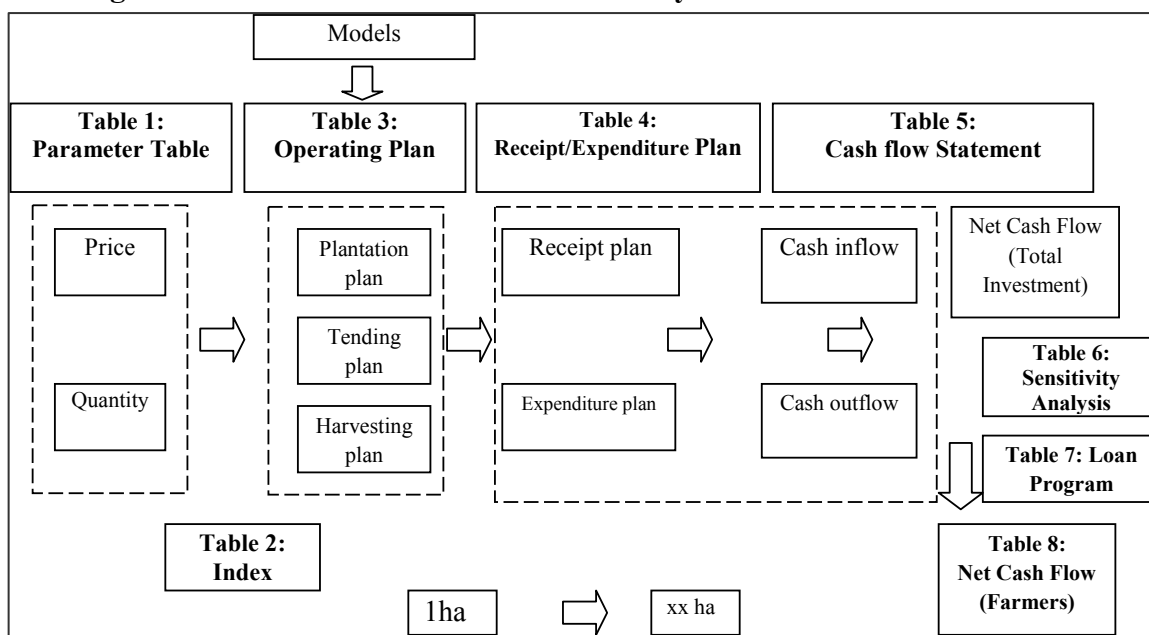
Visit Date	Factory Name	Thai Nguyen Particle Board Factory		
	Location	Thai Nguyen City, Thai Nguyen Province		
Distances	To Thai Nguyen	8 Km to Sub-DoF		
	To Hanoi	88 Km to Hotel Nikko Hanoi		
Road Condition	To Thai Nguyen	Route No.1, Good Paved Condition		
	To Hanoi	Route No.1, Good Paved Condition		
	production capacity	Annual production	wood Species product price	wood Specification
Supply of wood material	particle board 16,000M ³	9,900M³	Mainly Acasia Mangium, Mo Others	Various

(Some Part of the Memo were deleted due Privacy.)

7.5 Contribution of Results of the Market Survey to Financial & Economic Analysis

The following diagram shows the overall flow of the financial analysis of one ha model. This analysis will be based partly on the data collected through the market survey in the field.

Diagram for the flow of the financial analysis for one ha model



Note: For details of the procedure, please refer to Volume IV Chapter 7 Financial and economic analyses of F/S manual (Book 2).

The analysis shall be initiated in an area of one (1) hectare and then expanded to the entire planting/cultivating sites. In addition to the production forest development component, costs of other project components such as project management and supporting services will be estimated to provide a total project cost.

From the viewpoint of total investment analysis, direct cost and benefit will be taken into account in the cash flow statement. The net cash flow is calculated by referring to sales and expenditure plans which are estimated with prices and quantities presented in the parameter table. Loans and repayments shall be integrated into the cash flow at the later stage where the analysis is made from an owner's viewpoint.

The analysis will be carried out with the net cash flow applying investment criteria such as Net Present Value (NPV), Internal Rate of Return (IRR) and Benefit-Cost Ratio (B/C Ratio=Total PVB/Total PVC) on the basis of 2005 constant

prices.

Information on taxes and subsidies collected through the market survey will be used for the economic analysis.

7.5.1 Operation Plan of the Project

As seen in Table 3 Operation Plan of the above “diagram for the flow of the financial analysis for one ha model,” an afforestation plan and a harvesting plan will be prepared during the process for the feasibility study. A tending and protection plan will be also developed. These three plans are closely related to costs required for production forest development component. These plans will be also related to the selling price and quantity.

Table 7.3: Plans for plantation, tending, protection and harvesting

Unit: Hectare

Calendar Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Year of implementation	0	1	2	3	4	5	6	7	8	
Hybrid Acacia			57	110	110	220	220	220	220	1,157
Acacia Mangium			115	110	110					335
Total			172	220	220	220	220	220	220	1,492

Source: Estimate of F/S team

Table 7.4: Harvesting plan

Unit: Hectare

Calendar Years	2014	2015	2016	2017	2018	2019	2020	Total
Years of implementation	9	10	11	12	13	14	15	
Hybrid Acacia	57	110	110	220	220	220	220	1,157
Acacia Magium	115	110	110					335
Total	172	220	220	220	220	220	220	1,492

Source: Estimate of F/S team

7.5.2 Sales and Expenditure Plan of the Project

As seen in Table 4 Sales and expenditure plan of the above “diagram for the flow of the financial analysis for one ha model,” sales and expenditure plan will be prepared.

The labor cost, normally applicable for planting, tending, protection and planting design, etc. shall be surveyed in the field. In the case of Phu Binh District, the rural wage rate in 2005 ranged from VND 15,000 to VND 40,000 per working day. Other costs are also investigated in the fields as in the following table (**Table 7.5**)

Table 7.5: Unit cost of labor and materials

Items	Unit cost in 2005	Quantity
Unskilled labor force (forest plantation and tending and protection)	VND 25,000 per man-day	As a Plan for mobilizing labor force
Skilled labor for design for forest plantation, tending and protection and inspection	VND 46,136 per man-day	As a Plan for mobilizing labor force
Seedling		
Hybrid acacia	VND 530 per seedling	1,826 seedlings per ha
Acacia magium	VND 340 per seedling	1,826 seedlings per ha
Fertilizer	VND 1,800 per kg	Year 1: 332 kg/ha, Year 2: 166 kg/ha

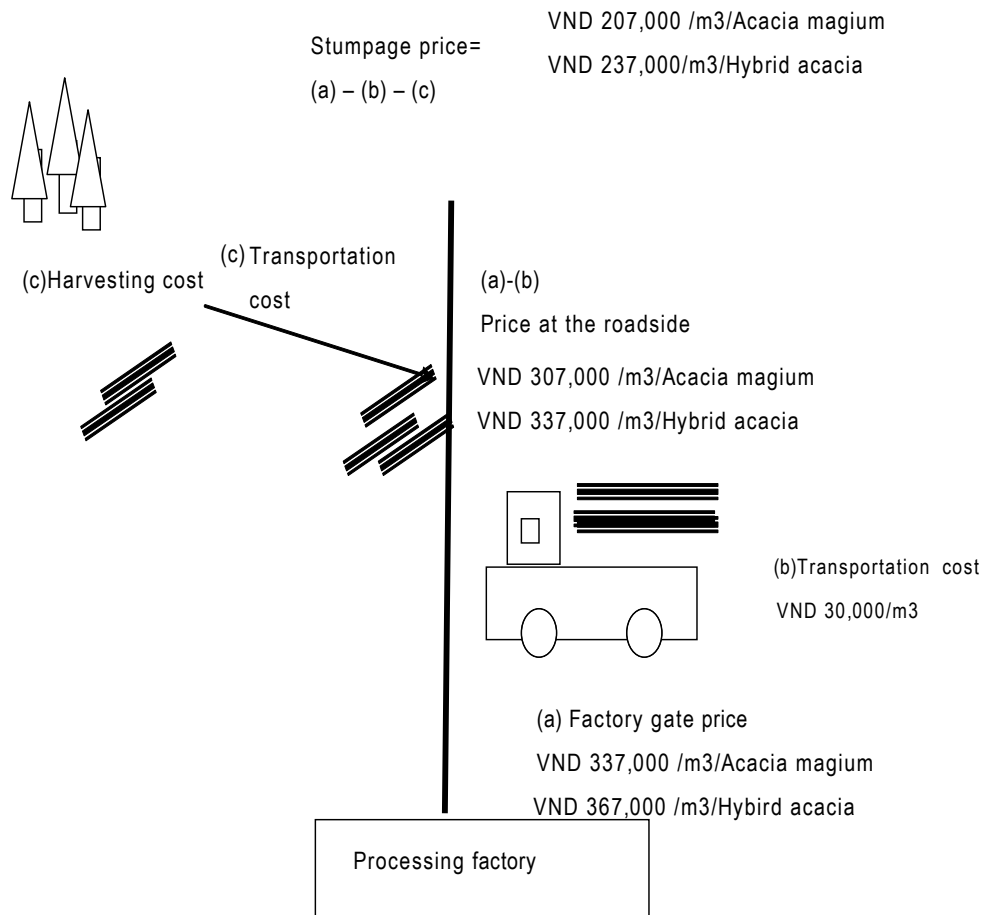
Note: Model F/S (Book 4-1) shall be referred to for detail of the cost data.

For the purpose of finding sales from the project, data on sales prices at different sources will be compared. The following price data (**Table 7.6**), for example, provides one of the ways to find price data (stumpage) based on the field survey.

Table 7.6: Price data (estimation of stumpage based on the factory gate price)

	Items	Price for year 2005 in VND/m3	
		Hybrid acacia	Acacia magium
(a)	Price charged at the factory gate	367,000	337,000
(b)	Transportation cost	30,000	30,000
(a)-(b)	Price charged at the road side	337,000	307,000
(c)	Harvesting and transportation costs	100,000	100,000
(a)-(b)-(c)	Stumpage price per sales volume	237,000	207,000

The following diagram will clarify the way to calculate the stumpage backward from the factory gate prices;



Basic Assumptions of Model Feasibility Study:

Assumptions:	
1) Total Planting	1,492 Ha.
a) Hybrid Acacia	1,157 Ha.
b) Acacia Mangium	335 Ha.
2) Harvesting in 8 years (Sales Volume)	
a) Hybrid Acacia	104.8 M ³ /Ha
b) Acacia Mangium	68.4 M ³ /Ha
3) Cost during the assistance period (8 years from 2006 to 2013)	VND 21,191 Million
4) Loan amount (Year 2005 basis)	VND 5 Million/Ha

7.5.3 Results of Financial Analysis

Based on the sales and expenditure plans, the cash flow statement will be developed. The net cash flow will be calculated for both with-and without-project cases and the incremental net cash flow will be obtained through these two net cash flow. The results of the financial analysis will be presented using a table as shown below.

Table 7.7: Analysis results for one (1) hectare

Plantation	A. hybrid	A. mangium
Output (m ³ /ha)	105	68
Base Case		
Average Stumpage Prices (000 VND/m ³)	350	400
Sales (million VND)	37	27
Financial Rate of Return	22%	17%
Lower Case		
Average Stumpage Prices (000 VND/m ³)	237	207
Sales (million VND)	25	14
Financial Rate of Return	15%	5%
Upper Case		
Average Stumpage Prices (000 VND/m ³)	500	550
Sales (million VND)	52	38
Financial Rate of Return	29%	23%

Source: Estimate of F/S team

7.6 Monitoring and Evaluation

A feasibility study is conducted with the data and information collected through the filed survey and analysis. The market survey is undertaken as part of the field survey and analysis. The data and information used for the analysis is determined by what is applicable and available at the time of the study.

Once the project is implemented, the results of the feasibility study shall be reviewed time to time through the monitoring and evaluation (M & E) of the project. M & E indicators may include sales prices of target products of the projects.

Photo No.7.5: Forested area at Phu Binh District, Thai Nguyen



Training Package

Book 1:	Training Plan on Capacity Building for Preparing Feasibility Studies and Implementation Plans for Production Forest/Agroforestry Development Projects in Vietnam
Book 2:	Manual for Preparation of Feasibility Study Reports for Production Forest/Agroforestry Development Projects in Vietnam
Book 3:	Manual for Preparation of Implementation Plans for Production Forest/Agroforestry Development Projects in Vietnam
Book 4:	Model F/S of Thai Nguyen Province
	Book 4-1: Model Feasibility Study Report for Smallholder Production Forest Development Project in Thai Nguyen Province
	Book 4-2: Model Feasibility Study Report for Agroforestry Development Project in Thai Nguyen Province
Book 5:	Model IP of Thai Nguyen Province
	Book 5-1: Model Implementation Plan for Smallholder Production Forest Development Project in Thai Nguyen Province
	Book 5-2: Model Implementation Plan for Agroforestry Development Project in Thai Nguyen Province
Book 6:	Monitoring and Evaluation Report on Technical Training of Participating Provinces
Book 7:	Market Trend Reference Book on Wood-based and Agroforestry Products
Book 8:	Feasibility Study Reports of Participating Provinces
	Book 8-1: Feasibility Study Report on Agroforestry Project in Ta Hoc Commune, Mai Son District, Son La Province
	Book 8-2: Feasibility Study Report on Production Forest Establishment Project in Nui Thanh District, Quang Nam Province
	Book 8-3: Feasibility Study Report on Treatment of Exhausted Natural Forest and Production Forest Establishment Project in Da Teh District, Lam Dong Province
	Book 8-4: Feasibility Study Report on Afforestation Project for Serving Biodiversity Conservation in Long An Province
Book 9:	Implementation Plans of Participating Provinces
	Book 9-1: Implementation Plan on Agroforestry Project in Ta Hoc Commune, Mai Son District, Son La Province
	Book 9-2: Implementation Plan on Production Forest Establishment Project in Nui Thanh District, Quang Nam Province
	Book 9-3: Implementation Plan on Treatment of Exhausted Natural Forest and Production Forest Establishment Project in Da Teh District, Lam Dong Province
	Book 9-4: Implementation Plan on Afforestation Project for Serving Biodiversity Conservation in Long An Province