

# ECONOMIC STUDY AND STANDARD PRICE OF COMMUNITY - BASED PLANTATION FOREST (HTR) PRODUCTS

CASE STUDY:  
LAMPUNG, WEST NUSA TENGGARA AND NORTH MINAHASA  
PROVINCES

by: Dr. Tuti Herawati, Subarudi and Kristian Mairi



**ITTO CFM-PD 001/10 REV.2 (F)**

*Strengthening Capacity of Stakeholders for the Development  
of Community Based Plantation Forest at Three Selected Areas in Indonesia*



Cooperation Between  
Directorate of Plantation Forest  
Directorate General of Forest Utilization  
Ministry of Forestry of Indonesia and  
International Tropical Timber Organization (ITTO)  
2013





**PROJECT TECHNICAL REPORT**

*Economic Study and Standard Price of Community-Based Plantation Forest (HTR)*

*Case Study:*

*Lampung, West Nusa Tenggara and North Minahasa Provinces*

**Dr.Tuti Herawati**

**Subarudi**

**Kristian Mairi**

**Report for Activities 3.1. & 3.2.  
ITTO CFM-PD 001/10 Rev.2 (F)**

Strengthening Capacity of Stakeholders for the Development  
Of Community Based Plantation Forest at Three Selected Areas in Indonesia

Host Government: Indonesia

Executing Agency:  
Directorate of Plantation Forest  
Directorate-General of Forest Utilization  
Ministry of Forestry

Starting Date of the Project: July 2011 to December 2013

Project Duration: 30 Months

Project Coordinator: Dr. Anna Indria Witasari

## FOREWORD

This final report “Economic Study and Standard Price of HTR Products” is a combined report of the study sites in three provinces namely: Lampung, West Nusa Tenggara and North Sulawesi. This report is a consultancy assignment on the ITTO Project CFM-PD 001/10 Rev.2 (F): “Strengthening capacity of stakeholders for the development of Community Based Plantation Forest (HTR) at three selected areas in Indonesia”.

This report is prepared based on data and information analysis from observation, discussions, in-depth interviews, and literature reviews. Data and information from the field were gathered from agencies who are involved in the management of Community-based Plantation Forest (HTR) programme.

On this occasion, the National Consultants would like to thank all parties who have provided support and assistance so that the study could be successfully undertaken and the report can be completed. Acknowledgements are conveyed specifically to: 1) the Director of Plantation Forest as the Executing Agency of the ITTO project CFM-PD 001/10 Rev.2 (F), 2) Head of Forestry Research and Development Agency, who has given permission to the Team for the assignment. Gratitude also goes to resource persons in each province where the study was conducted, both local governments and HTR community members. The National Consultants also thank other agencies who contribute to the preparation of the report, but their names are not mentioned one by one.

Finally, we hope that this report will contribute to the enhancement of HTR development and the improvement of HTR regulations in the future.

Bogor, November 2013

The National Consultants:  
Dr. Tuti Herawati  
Subarudi  
Kristian Mairi

## EXECUTIVE SUMMARY

Aspects on product marketing and CBPF (HTR) pricing standard are necessary for the sustainability of the business. The study is intended to determine the feasibility of standard price, marketing efficiency, and financial feasibility analysis of HTR products in three selected areas in Indonesia i.e. Lampung Province, West Nusa Tenggara Province, and North Sulawesi Province. The study was conducted from January to April 2013. The method used in this study is financial feasibility analysis which is based on three criteria, namely net present value (NPV), benefit cost ratio (BCR) and internal rate of return (IRR). The results of the financial analysis in three provinces showed that HTR businesses are feasible. It is indicated by: 1) NPV (Net Present Value) ranges between Rp 9,000,000 and Rp 20,000,000; 2) BCR value (Benefit Cost Ratio) between 1.6 and 3.3, and 3) IRR (Internal Rate of Return) ranges between 19% and 28%. The result of the financial analysis is based on fast-growing species with an eight-year cutting cycle. It is adapted from the concept of HTR policy, which is fast growing tree species. The result of the financial analysis is strongly influenced by location, the amount of component costs, as well as time. Therefore, these values will change dynamically. Percentage of profit margin in the *Paraserianthes falcataria* logs trade chain in three provinces (North Sulawesi, NTB and Lampung) received by farmers ranges between 13% and 43%, a profit margin for trade collector ranges between around 22% and 73%, and for wood industry between 35 and 38%. Standard-setting policy prices are needed when there is an imbalance margin distribution among market-channel actors. Farmers are in the weakest position due to low bargaining position. Hence, standard price is required to protect HTR farmers. The study used three approaches to establish a basic price, namely 1) stumpage value, 2) market price, and 3) parity or social price. Stumpage value for *Paraserianthes falcataria* in the study area varies between Rp 115,270 and Rp 164,593 per m<sup>3</sup>. Market price at a farm level varies between Rp 150,000 and Rp 400,000 per m<sup>3</sup>, and parity/social price varies between Rp 200,000 and Rp 300,000 per m<sup>3</sup>. The standard provides maximum benefit to farmers when the price is determined based on parity / social price.

Based on problem analysis in each location, general strategies that can be done are as follows: 1) Institutional Strengthening 2) Facilitation 3) Strengthening capacity of HTR farmers. Marketing strategy for HTR should be supported by the government through: 1) The improvement of infrastructures such as road access to HTR sites, and 2) The establishment of wood industries, close to HTR locations.

## TABLE OF CONTENTS

<b>FOREWORD .....</b>	<b>i</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>ii</b>
<b>TABLE OF CONTENTS.....</b>	<b>iii</b>
<b>LIST OF TABLES.....</b>	<b>v</b>
<b>LIST OF FIGURES.....</b>	<b>vi</b>
<b>I. INTRODUCTION.....</b>	<b>1</b>
A. Background .....	1
B. Problem Formulation .....	2
C. Hypothesis.....	3
D. Purpose and Aim .....	3
E. Outcomes and Impact.....	3
F. Scope.....	3
<b>II. RESEARCH METHOD .....</b>	<b>4</b>
A. Location and Research Respondents.....	4
B. Data Collection Techniques.....	4
C. Data Analysis .....	5
D. Assumptions in Financial Analysis .....	8
<b>III. THE DEVELOPMENT OF HTR PROGRAMME IN THREE PROVINCES .....</b>	<b>10</b>
A. HTR Development in Lampung Province.....	10
B. HTR development in West Nusa Tenggara (NTB) Province.....	12
C. HTR Development in North Sulawesi Province .....	13
<b>IV. MARKET ANALYSIS AND STANDARD PRICE FOR WOOD .....</b>	<b>16</b>
A. Financial Analysis of HTR Management.....	16
<i>A.1. Stages in HTR Activities.....</i>	<i>16</i>
<i>A.2. Components of Cost of HTR Business.....</i>	<i>17</i>
<i>A.3. Income from HTR Business.....</i>	<i>18</i>
<i>A.4. NPV, BCR, and IRR Analysis.....</i>	<i>18</i>

B.	Analysis of Market and Marketing Channel of HTR Products.....	19
	<i>B.1. Pattern of HTR product marketing channel .....</i>	<i>19</i>
	<i>B.2. Marketing Cost Analysis.....</i>	<i>20</i>
	<i>B.3. Analysis on Marketing Margin and Profit Margin.....</i>	<i>21</i>
C.	Basic Pricing Analysis of HTR Timber Products.....	22
	<i>C.1. Market Price .....</i>	<i>23</i>
	<i>C.2. Stumpage Price .....</i>	<i>23</i>
	<i>C.3. Social/Parity Price.....</i>	<i>24</i>
D.	Policy in determining basic price for HTR products .....	25
<b>V.</b>	<b>HTR DEVELOPMENT STRATEGY .....</b>	<b>27</b>
A.	General Strategy on HTR Management.....	27
B.	Basic pricing of HTR wood products.....	28
<b>VI.</b>	<b>CONCLUSION AND RECOMMENDATION .....</b>	<b>31</b>
A.	Conclusion .....	31
B.	Recommendation .....	32
	<b>BIBLIOGRAPHY .....</b>	<b>33</b>

## LIST OF TABLES

No	Table	Page
Table 1.	Collected Data and Information .....	5
Table 2.	The progress of activities of each cooperative in Lampung Province .....	11
Table 3.	Target and realization of allocated HTR area in West Nusa Tenggara Province.....	12
Table 4.	Number and name of cooperative involved in implementation of HTR activities in Province Lampung.....	12
Table 5.	Data on HTR proposals in North Sulawesi Province .....	14
Table 6.	The realization of loan disbursement (first period) up to January 2013 .....	14
Table 7.	Stages of activities in HTR Business .....	16
Table 8.	Income of farmer from HTR business in North Sulawesi, West Nusa Tenggara and Lampung provinces per hectare .....	18
Table 9.	HTR financial analysis of <i>Paraserianthes falcataria</i> in the provinces of North Sulawesi, West Nusa Tenggara and Lampung.....	18
Table 10.	Marketing channel pattern of HTR products .....	19
Table 11.	The specification of marketing cost for <i>Paraserianthes falcataria</i> logs .....	21
Table 12.	The distribution of marketing margin and profit margin of <i>Paraserianthes falcataria</i> logs based on marketing pattern .....	21
Table 13.	Price of sawn timber in North Sulawesi, West Nusa Tenggara, and Lampung Provinces .....	23
Table 14.	The calculation of stumpage price of <i>Paraserianthes falcataria</i> .....	24
Table 15.	Calculation of parity/social price (Rp/m <sup>3</sup> ) of <i>Paraserianthes falcataria</i> .....	25
Table 16.	Price comparison in each study site.....	25

## LIST OF FIGURES

No	Figure	Page
	Figure 1 HTR area managed by HTR Cooperatives in Lampung Province .....	10



## I. INTRODUCTION

### A. *Background*

HTR programme provides access rights to communities living around forest areas to play an active role as agents of development in plantation forests in state-owned forest areas. The objectives of the HTR programme are to develop HTR business. Problems that could potentially be an obstacle in the development of smallholder plantations are the feasibility and HTR products marketing. Farmers are rational individuals, meaning that the choice to engage in a business investment is determined by the potential of a profit which will be received from such business. Research by Darusman and Hardjanto (2006); Lubis (2010), as well as Sitanggang (2009) showed that HTR business in general, is only as a minor instead a major source of income. This indicates that the plantation forest business has not become a significant source of household's income.

These conditions raise questions regarding HTR feasibility. Therefore, the feasibility analysis of HTR is important to study. From the feasibility analysis of business, the standard price of HTR products can be identified. HTR products which are subjected to feasibility analysis are timber forest products. When in the areas managed by HTR farmers non-timber forest products are also produced, they are considered additional income by farmers.

Many researches relating to timber business have been done. However, there is a little to be done for the study on the feasibility analysis on the HTR business. Previous research results can be used as references in the study of business economics on HTR. Race et al. (2009) stated that the community-based forest plantation business only provides a marginal financial benefit. Siregar et al. (2007) reported a case in Kediri where *Paraserianthes falcataria* is planted together with various agricultural crops. The combination provides revenue in a relatively high interest rate (17.53%). In the case in other countries, Kishor and Constantino (1993) reported that business in community timber plants is more profitable than other crops at the time when bank interest rate is low. However, it is not when the bank interest rate is high. This condition becomes a reason why farmers are not interested in forest plantation business.

---

The study is intended to gather information from the areas where HTR programme is implemented. The study was conducted in three provinces, namely Lampung, North Sulawesi, and West Nusa Tenggara. These three provinces are the sites of ITTO Project CFM-PD 001/10 Rev.2 (F): “Strengthening Capacity of Stakeholders for the Development of Community Based Forest Plantation”.

Lampung Province covers 13,576 hectares allocated for HTR areas. Community engagement in state-owned forest management in Lampung Province is going pretty well and this can be regarded as a successful example of the implementation of Community Forestry programme on Social Forestry scheme (HKM). The Implementation of HTR programme in Lampung Province is interesting to study, to explore the relevancy of the implementation process of the two community development programmes of the Ministry of Forestry.

North Sulawesi province is also one example of successful HTR development. It is indicated by the areas which have been approved for the HTR license (approximately 32,000 hectares out of 48,000 hectares of allocated HTR areas).

Meanwhile, West Nusa Tenggara has a relatively large HTR area, which is scattered over several districts i.e. Sumbawa (491 ha) and West Lombok (1,495 ha). Besides, there are also 97,250 hectares potential to be allocated for HTR development. These potential areas include West Lombok, Central Lombok, East Lombok, West Sumbawa, Sumbawa, Dompu, and Bima (Ministry of Forestry, 2009).

## ***B. Problem Formulation***

Feasibility and market opportunity for timber products is some critical success factors for smallholder plantations. For the reason, this study is aimed to answer some questions related to the feasibility and the potential of HTR business and HTR product marketing. The research questions are:

- a. Is HTR business financially feasible?
  - b. How is timber marketing channel?
  - c. How to determine optimal price for HTR products?
  - d. What are the problems in the implementation of HTR programme and what are the marketing strategies for HTR products to improve HTR development?
-

**C. Hypothesis**

Hypothesis developed in this study are: HTR business is financially feasible and has a promising or a potential market.

**D. Purpose and Aim**

Economic study and standard price for HTR products is intended to provide data and related information on management strategies of smallholder plantations. The objectives of the study are:

1. Analysing financial feasibility of HTR management.
2. Inventory of marketing system in HTR management.
3. Conducting standard price analysis of HTR products.
4. Identifying problems and constraints of HTR implementation at HTR study areas and formulating policy recommendations for HTR development.

**E. Outcomes and Impact**

The expected outcomes of economic study and standard prices for HTR products are:

1. Data and information on financial feasibility of HTR management.
2. Data and information on marketing channel.
3. Data and information on HTR standard prices.
4. Data and information on the conditions of HTR management and the formulation of HTR strategies on HTR management policies.

The expected impact of this study is a well-developed Plantation Forest business system which is beneficial to all parties involved in HTR development. Another expected impact is conditions which are conducive for HTR business as a major source of income for HTR farmers.

**F. Scope**

The scope of the economic study and standard prices for HTR forest products include: financial feasibility study on HTR at a household level, study on potential of HTR products, market channel for HTR products, study on standard prices which are feasible for HTR products, and analysis the problems that often occur in HTR management.

---

---

## II. RESEARCH METHOD

### A. *Location and Research Respondents*

The study was conducted in Lampung Province, North Sulawesi, and West Nusa Tenggara. Site selection is done intentionally (purposive sampling), which are the sites of ITTO project CFM-PD 001/10 Rev.2 (F): "Strengthening Capacity of Stakeholders for the Development of Community-Based Forest Plantation at Three Selected Areas in Indonesia".

The priority of areas selected were HTR areas which have already been planted and HTR farmers have experiences in marketing wood products. The areas chosen at district, sub-district and village levels are areas where there are allocated HTR areas. Farmer population is farmers who has planted timber trees in their managed HTR areas and ever did timber transaction.

To assess market channel of HTR products, survey was also conducted through interviews with market actors. Respondents were selected by using snowballs sampling technique where respondents, who are the buyers of the commodities are identified based on the information from the farmers.

### B. *Data Collection Techniques*

Data collection techniques are:

1. Literature Study: data collection through literature study and reports from institutions involved in HTR implementation particularly in the three study sites, as well as other supporting research documents.
2. Observation: direct observation on biophysical conditions relating to HTR implementation.
3. In-depth interviews and Focus Group Discussions or FGDs.

Data collected included primary and secondary data. Primary data were collected by using survey method, observation, and structured-interviews with questionnaires to market actors. Primary data included data on costs and revenues on HTR management, data on HTR product marketing channel, and problems in HTR management.

---

Secondary data was collected through literature reviews or reports from relevant agencies such as Regional Offices of Forestry and Agriculture, Industry and Trade, and the Central Bureau of Statistics. Secondary data included general conditions on HTR management in each province, data on wood-processing industries, which are potential market for HTR products.

Table 1. Collected Data and Information

No.	Benefit of Analysis/Collected Data	Data Source	Collection Method
<b>I.</b>	<b>Feasibility Analysis of HTR Business</b>		
	Data on costs and revenues of HTR management at HTR farmer level	HTR Farmers	Interview
<b>II</b>	<b>Market Channel Analysis of HTR Products</b>		
	Data on market channel models of HTR Products	HTR Farmers and Traders	Interview
<b>III</b>	<b>Standard Price Analysis of HTR Products</b>		
	Data on margin and cost expended by market actors	Traders	Interview
<b>IV.</b>	<b>Analysis of Policy Strategy and Market Development of HTR Products</b>		
	Secondary data related to HTR management		
	General condition on region, forest resource potential, data on allocated HTR areas (target and realization of HTR development in the study sites)	Director General of Forest Utilization and Regional Forestry Offices	Study Report
	Related regulations: - HTR establishment and development - HTR product marketing - Industries of HTR products	DG of Forest Utilization, DG of Planology, and Local Government	Study Report
	Data and information related to market and wood products		

### C. *Data Analysis*

Data analysis was done both qualitatively and quantitatively. Qualitative analysis was intended to explore both general and specific condition of the study sites. Quantitative analysis was intended to identify business feasibility and market variability using analysis of market margins.

In summary, the stages of analysis and analytical models used to answer the research questions were:

1. Cost analysis of HTR development. It was intended to determine all components of the costs and the amount of costs expended by producers / farmers in the production process of HTR timber.
2. Financial Analysis of HTR business, including analysis of BCR, NPV and IRR, to determine the feasibility of HTR business.
3. Analysis of trade system, to determine wood distribution flow from the manufacturer to end users.
4. Analysis of problems and obstacles in HTR development.

In order to research comprehensive measures of the feasibility of a project/ investment, a wide range of index called the investment criteria has been developed. Each index uses present value, which has been discounted on current benefits and costs over a project life-cycle.

Below is the investment criteria used in the study on the feasibility analysis of HTR business in North Sulawesi Province.

1. Net Present Value (NPV)
2. Benefit Cost Ratio (BCR)
3. Internal Rate of Return (IRR)

- NPV (Net Present Value)

NPV calculation in an investment appraisal is a practical way to determine whether a project is profitable or not. NPV is the difference between the Present Value of Benefit and the Present Value of Costs. A feasible project is identified by a positive value ( $NPV > 0$ ).

$$NPV = \sum_{t=1}^n \frac{Bt - Ct}{(1+i)^t}$$

Explanation:

Bt = Benefit at year - t

Ct = Cost at year- t

T = Investment period

i = interest rate

---

Criteria:

If NPV > 0, meaning positive, where benefits are higher than the total costs expended.

If NPV = 0, meaning a break- even point, where benefits are just enough to cover the total costs.

If NPV <0, meaning a loss, where the total costs expended are higher than the benefits received.

- Benefit Cost Ratio (BCR)

BCR is an assessment to investigate the efficiency level of a business. It is a comparison between the amount of positive net present value and the amount of negative net present value. A project is considered feasible and efficient if net value of B/C > 1. It means that benefits are higher than the costs expended and vice versa.

$$B/C = \frac{\sum_{t=1}^n \frac{B_t}{(1+i)^t}}{\sum_{t=1}^n \frac{C_t}{(1+i)^t}}$$

Explanation:

B<sub>t</sub> = Benefit at year- t

C<sub>t</sub> = Cost at year - t

i = prevailing interest rate

t = period of project/business

n = project/business age of operation

Criteria:

If B/C > 1 = profitable

If B/C < 1 = not profitable

- Internal Rate of Return (IRR)

IRR is the value of the discounted interest rate that results in the NPV of a project / investment = 0. IRR is an economic measure to identify of the ability of a business to manage the investments or to assess whether the investment is feasible or not.

$$IRR = i_1 + \frac{NPV_1}{NPV_1 - NPV_2} (i_2 - i_1)$$

Explanation:

- NPV<sub>1</sub> = NPV having the smallest positive value

- NPV<sub>2</sub> = NPV having the smallest negative value

- i<sub>1</sub> = interest rate resulting in the smallest positive NPV

- i<sub>2</sub> = interest rate resulting in the smallest negative NPV

---

Investment criteria:

- If  $IRR > i$ , investment is feasible
- If  $IRR = i$ , investment is at a break-even point
- If  $IRR < i$ , investment is not feasible

To determine a base price for HTR timber sales, three approaches can be used i.e. market price, stumpage price, and social / parity price (Irawati, et. al., 2008).

- The market price is established through market mechanism which is a bargaining between consumers with producers who meet in the market place. Data on HTR timber market prices at a farm level can be obtained from HTR farmers, traders at a village level and from industries which buy wood directly from farmers/ wood producers.
- Stumpage price is the price which indicates the value of the stand. HTR farmers expect to get benefit by selling wood. Costs expended on the HTR development cover all cost components ranging from the cost of seedling procurement, planting activity to the cost of tending trees ready to harvest /to be sold.
- Social / parity price is the best price, which produces the highest profit. Social price is calculated based on the basis of opportunity cost. The parity price is the most profitable alternative for HTR wood products. HTR social price of wood is obtained from the international market price.

#### **D. Assumptions in Financial Analysis**

In a HTR financial and marketing analysis, some basic assumptions in the calculation is used. The assumption is expected closer to the real situation. Assumptions used are as follows:

1. HTR analysis unit used is 1 (one) hectare.
2. It is assumed that the number of *Paraserianthes falcataria* trees which can survive until the end of the life-cycle is 400. This is in accordance with the minimum requirements regulated by the government in assessing the success of HTR.
3. Tree volume is calculated using the formula:  $V = \frac{1}{4} \times 22/7 \times D^2 \times T \times 0.7$
4. Interest rate (i) used is 10% per annum.

Some local assumptions in the North Sulawesi Province are:

1. The cost of HTR development of *Paraserianthes falcataria* cycle up to 8 years is Rp 8,531,900/ha. It is based on the Regulation of the Head of Centre for Forest Development Finance No. P.01/P2H-1/2010 of 21 January 2010.
-



2. An eight-year old *Paraserianthes falcataria* tree has an average diameter (D) of 37.6 cm; height of tree without branch (T) is 10 m. The average volume is 0.78 m<sup>3</sup>/tree.
3. Based on the result of market survey and interviews with FGD method with HTR farmers and wood traders, the market price of *Paraserianthes falcataria* (standing tree) each m<sup>3</sup> is Rp 150,000.

The assumption used in Lampung and West Nusa Tenggara provinces for volume increment is 25 m<sup>3</sup> per hectare per year. This study result is based on Soerianegara dan Lemmens (1993). *Paraserianthes falcataria* is a fast growing tree species with a high volume. Average annual volume increment is around 10 – 40 m<sup>3</sup>. The lowest rate is used in this study to obtain the most conservative result of financial analysis. This means that if at the minimal growth rate the financial analysis indicates profit, the higher increment will result in a higher level of profit.

### III. THE DEVELOPMENT OF HTR PROGRAMME IN THREE PROVINCES

#### A. *HTR Development in Lampung Province*

Based on the Minister of Forestry decree regarding allocated-HTR areas No. HTR. 47/Menhut-II/20120 dated 15 January 2010, total area allocated for HTR in Lampung province is 24,835 ha. In 2010, West Lampung District has issued HTR license for two cooperatives, three cooperatives in 2011 and one cooperative in 2012. Figure 1 shows the HTR areas managed by each cooperative in Lampung Province.

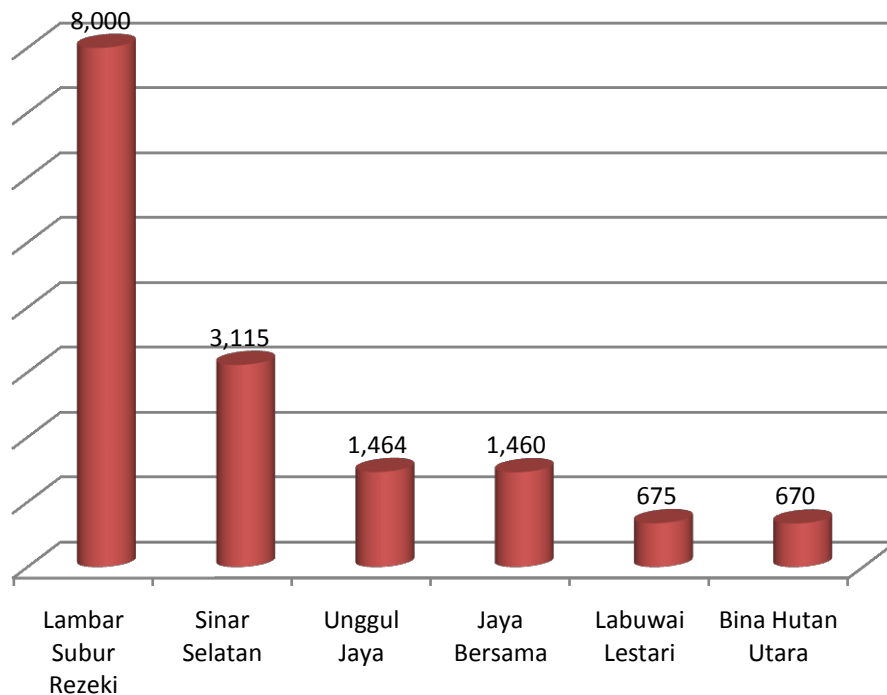


Figure 1. HTR area managed by HTR cooperatives in Lampung Province

Based on the progress, HTR management can be divided into three groups that are:

- Progressive cooperative groups: cooperatives that can autonomously perform HTR management activities. This condition can be observed in Lambar Subur Rezeki Cooperative, which is already on the implementation stage of planting in the field. This cooperative is the first cooperative to propose the General Management Plan (RKU) and

Annual Work Plan (RKT). This cooperative is relatively advanced compared to other cooperatives in Lampung province. This Cooperative is managed by a strong capital owner, who is also able to establish a processing mill by his own.

- Progressing cooperative groups; cooperatives which have started their activities i. e. the formulation of RKU and RKT, planting. The cooperatives are Bina Hutan Utara (BHU) and Jaya Bersama. BHU cooperative is the ITTO project site. The ITTO project facilitation includes stand inventory, boundary marking, Technical Guidance, extension on HTR business, the preparation of RKU and RKT documents. In some locations, planting activities have started with *Anthocephalus cadamba* and *Michelia champaca*. Meanwhile, Jaya Bersama cooperative is run by local community. It was initially established not by local community, however. After the initiators decided not to continue their cooperation, the cooperative management who are local community members started to continue the management through self-sustain capital rising.
- Cooperative groups whose activities are stagnant; cooperatives which have not started the activities after the HTR license has been issued. They are: Sinar Selatan, Unggul Jaya and Labuwai Lestari cooperatives. The situation occurred after the partners decided not to continue their cooperation.

The progress of activities of each cooperative is shown in Table 2 below:

Table 2. The progress of activities of each cooperative in Lampung Province

No	Cooperative	IUPHHK	Stage of Activity			
			Inventory	RKU/RKT	Planting	Industry establishment
1	Lambar Subur Rezeki	21 October 2010	Completed	In process of validation	Initial stage	Initial stage
2	Bina Hutan Utara	23 March 2011	Completed	Completed	Initial stage	
3	Jaya Bersama	30 June 2010	Initial stage			
4	Sinar Selatan	16 Nov 2010				
5	Unggul Jaya	30 June 2010				
6	Labuwai Lestari	7 March 2012				

**B. HTR development in West Nusa Tenggara (NTB) Province**

In West Nusa Tenggara province, a total area of 4,396 ha (10% of total production forest ) is allocated for HTR development. Meanwhile, an area of 1,728.81 ha has been issued for HTR license as shown in Table 3.

Table 3. Target and realization of allocated HTR areas in West Nusa Tenggara Province

<b>No.</b>	<b>District</b>	<b>Allocated HTR areas (ha)</b>	<b>Area with HTR license</b>	<b>Percentage (%)</b>
1.	Sumbawa	491.00	198.19	40.36
2.	West Lombok	1,495.00	492.27	32.93
3.	Central Lombok	895.00	683.35	76.35
4.	Dompu	355.00	355.00	100.00
5.	West Sumbawa	1,160.00	-	-
	<b>Total</b>	<b>4,396.00</b>	<b>1,728.81</b>	<b>39.33</b>

Source: Provincial Forestry Office of West Nusa Tenggara (2013)

Table 3 shows that the realization of HTR license in West Nusa Tenggara province was very low which was around 1,728.81 ha or 39% of the allocated HTR areas (4,396 ha). District with the highest realization of HTR license in 2013 was Dompu district (100%). It was followed by Central Lombok (76.35%), Sumbawa (40.36%), and West Lombok (28.71%).

The number of cooperatives engaged in HTR activities in each district varies and it is determined by the area size being managed as shown in Table 4.

Table 4. Number and name of cooperative involved in implementation of HTR activities in West Nusa Tenggara Province

<b>No.</b>	<b>District</b>	<b>Number of cooperatives (unit)</b>	<b>Name of Cooperative (Number of Members)</b>	<b>Average Land Area (ha)</b>
1.	Dompu	1	KSU LPMP Dompu (355 individual)	1.00
2.	Sumbawa	1	KSU KH Uma Dane (77 individual)	2.57
3.	Central Lombok	4	KSU Tekad Lestari (158 individual)	0.46
			KU Karya Utama (247 individual)	0.50
			KSU Makmur Bersama (582 individual)	0.61
			KU Maju Bersama (147 individual)	0.88
4.	West Lombok	1	KSU Dhama Lestari (478 individual)	1.03
	<b>Total</b>	<b>7</b>		

Source: Provincial Forestry Office of West Nusa Tenggara (2012)

Table 4 shows that in 2012, the largest number of cooperative units which were involved in the HTR programme was in Central Lombok with four units of cooperatives. Meanwhile, in Dompu, Sumbawa and West Lombok Districts there was only one cooperative in each District. The average size of area managed by each farmer varied from the smallest (0.46 ha) located in KSU Tekad Lestari, Central Lombok District and the largest (2.57 ha) located in KSU Hutan Uma Dane, Sumbawa District.

Cooperatives which participate in HTR programme in West Nusa Tenggara adopt “independent or self-sustain scheme”. The process of requesting HTR license is as follows: (i) Local community forms a group, (ii) the government allocates production forest areas to be managed by the community and issues HTR license for each group and the individuals in the group, (iii) each group is responsible for HTR implementation as well as proposing (if they wish) and returning loans they borrow. Meanwhile, market opportunity and facilitation are initiated by the central/local government (Sumarlin, 2011).

In general, almost all of the HTR cooperatives have been supported by various programmes, activities and trainings to support HTR implementation. Among others are: (1) facilitation by HTR facilitators supported by the Technical Unit of Directorate General of Forest Utilization (BP2HP Region IX Denpasar) from the year 2011 up to date, (2) Technical Guidance on HTR by Provincial Forestry Office of West Nusa Tenggara (2010 and 2011), (3) Comparative study in Gunung Kidul, Yogyakarta and Magelang (in 2011), (4) Facilitation on capacity building by the ITTO Project CFM-PD 001/10 Rev. 2 (F), and (5) The distribution of polybags and seedlings from District Priority Program (PRUKAB) by The Ministry for Accelerating Under-developed Villages in 2011 (DFS NTB, 2012).

The decision to choose self-sustain/independent scheme by cooperatives among three options is determined by several factors as follows: (i) the allocated HTR areas have been occupied by community for a long time where the individual area size managed and inner boundaries are clearly identified in the field, (ii) the area has been cultivated as agriculture land, (iii) they are willing to join a cooperative, and (iv) funding for planting is supported by the Ministry for Accelerating Under-developed Villages (KNPDT).

### ***C. HTR Development in North Sulawesi Province***

The socialization on HTR programme to communities in North Sulawesi has started in 2007/2008. With frequent socialization and guidance from various agencies, since 2009 many forest farmer groups have proposed HTR license to the Ministry of Forestry.

---

The following data shows the applicants for HTR license (Table5).

Table 5 shows that from 145 HTR proposals, 30 HTR proposals were approved for the HTR license. They were: 11 in North Minahasa District, 18 proposals in South Minahasa District, and one proposal from East Bolaang Mongondow District. Meanwhile, from the number, only 24 Forest Farmer Groups were approved for a loan scheme in 2010.

Table 5. Data on HTR proposals in North Sulawesi Province

No	District	Applicants		
		Number of HTR Proposal	Area Size (Ha)	Total Cost (Rp)
1	North Minahasa	31	5,189.81	44,278,939,939
2	South Minahasa	39	8,222.67	70,154,998,173
3	East Bolaang Mongondow	11	2,255	19,243,700,450
4	Bolaang Mongondow	14	2,948	25,154,430,132
5	South Bolaang Mongondow	12	3,076.13	26,245,233,547
6	South East Minahasa	38	6,042.07	70,956,650,194
Total		145	27,733.68	256,033,952,435

Source: Rahmadi (2013), Kapus P2H.

From 321 HTR license holders, who have signed loan agreement in 2010, only 277 HTR license holders who have received loan up to January 2013. Forty four HTR license holders have not received loan due to their resignation as HTR group members or the compromise among the group members has not been achieved.

Table 6 below shows the realization on loan disbursement (first period) up to January 2013.

Table 6. The realization of loan disbursement (first period) up to January 2013

No	District	Disbursement		
		Number of KTH/ Debtor	HTR Area size (Ha)	Total (Rp)
1	North Minahasa	10 / 101	1,232.10	1,000,725,918.75
2	South Minahasa*)	11 / 162	1,997.00	2,608,531,200.00
3	Boltim	1 / 14	140.00	175,938,000.00
Total		22 / 227	3,349.10	3,785,195,118.75

Source: Processed fom Rahmadi (2013), Kapus P2H.

Note: \*) 2 Forest Famer Groups (KTH) have signed loan agreement but the loan has not yet disbursed.

*Paraserianthes falcataria* is planted monoculture in HTR areas in North Sulawesi. In case other trees have been growing in HTR areas, trees will be left growing with *Paraserianthes falcataria* and cut in the same time with *Paraserianthes falcataria* at the end of the *Paraserianthes falcataria* cycle. The minimal number of *Paraserianthes falcataria* which will survive up to the harvesting time is assumed 400 trees per hectare. This assumption is used as a parameter of success for the evaluation conducted by a team of assessors from the BLU-P3H (Public Service Centre – Centre for Forest Development Funding). Based on that assumption, farmers will plant between 500 and 600 trees with a spacing of 4 x 4 meters. However, in practice farmers adapt to field condition, depending on the number of trees that grow in the area and the landscape. When the area has been occupied by more trees, a spacing of 3x4 or 3x3 meter is applied to achieve the planting target of 500-600 trees per hectare.

---





## **A.2. Components of Cost of HTR Business**

Components of cost of HTR business were assessed through interviews with farmers.

The components of cost:

I. Planting activities include:

1. Land preparation (clearing, cutting shrubs, digging, soil aeration, burning litter and twigs).
2. Nursery or seedling preparation
3. Digging planting holes
4. Fertilization for land pre-condition treatment
5. Stake preparation
6. Planting
7. Enrichment planting

II. Tending and Protection

1. Tending year 1
2. Tending year 2
3. Tending year 3
4. Tending extension 1
5. Tending extension 2

The components of cost refer to the government guidelines regarding to the costs for HTR development through loan scheme. Loan scheme is provided to support HTR farmers to finance all HTR activities up to harvesting (end of cycle). The amount of loan is between Rp 8,531,900 and Rp 9,130,000 per hectare as regulated by the Head of Forest Development Funding Regulation No.P.01/P2H-1/2010 of 21 January 2010 regarding the Components of Cost financed by Financing Centre for Plantation Forest and Community-based Plantation Forest Development.

Total costs used for the calculation in North Sulawesi province is Rp 8,531,900 per hectare, Rp 9,530,000 per hectare in West Nusa Tenggara province, and Rp 9,105,000 in Lampung province. The cost variation is determined by the distinction of the components of cost in each region, particularly in association with the price of materials and labour. Thus, the financial analysis of a business is strongly influenced by location.

---

### A.3. Income from HTR Business

Cropping pattern in HTR location in North Sulawesi is monoculture. Thus, the only income expected is from the HTR plantation (*Paraserianthes falcataria*) which is harvested in the year 8. Unlike cropping pattern in North Sulawesi, both in West Nusa Tenggara (NTB) and Lampung agroforestry is applied in HTR areas to optimize the use of land areas. Since *Paraserianthes falcataria* in HTR areas was only one year old in 2012, farmers' income from HTR business is calculated by using the production approach. Approach to farmers' income is calculated based on the assumption of the study as mentioned in Chapter II point D. Based on that assumption, the income derived from HTR business of farmers in North Sulawesi, West Nusa Tenggara and Lampung provinces is as shown in Table 8 below.

Table 8. Income of farmer from HTR business in North Sulawesi, West Nusa Tenggara and Lampung provinces per hectare

No.	Province	Tree age	Volume (m3)	Wood Price (Rp/m3)	Income (Rp)
1.	North Sulawesi	8 years	312 m3/ha	150,000	46,800,000
2.	West Nusa Tenggara	8 years	20 m3/ha	400,000	56,000,000
3.	Lampung	8 years	25 m3/ha	200,000	40,000,000

Note: Wood price above is price of standing tree per m3, where harvesting costs are not included

### A.4. NPV, BCR, and IRR Analysis

Cost and benefits reduction at a certain discount rate is a calculation to determine investment feasibility. Criteria used to calculate the feasibility of HTR business is NPV, BCR, IRR (Andayani, 2008).

Calculation of the HTR business financial analysis uses a discount rate of 10% (by referring to deposit interest rate of State-owned Bank in 2012).

Result of financial feasibility analysis of HTR business is shown in Table 9.

Table 9. HTR financial analysis of *Paraserianthes falcataria* in the provinces of North Sulawesi, West Nusa Tenggara and Lampung

No.	Province	NPV (Rp)	BCR	IRR (%)	Remarks
1.	North Sulawesi	13.621.106	1,60	25	Feasible
2.	West Nusa Tenggara	20.054.791	3,31	28	Feasible
3.	Lampung	9.911.550	2,13	19	Feasible

Table 9 shows that HTR business in three provinces have financial feasibility indicators as follows: NPV> 0, BCR> 1, and IRR> 10% (referring to State-owned Bank loan interest).

Lessons learned from three study sites is that financial feasibility is highly dependent on HTR location, market availability, and HTR scheme implemented. HTR scheme in North Sulawesi is Developer Scheme, while in both West Nusa Tenggara and Lampung is Independent or Self-Sustain Scheme.

**B. Analysis of Market and Marketing Channel of HTR Products**

Marketing is a human activity aiming to fulfil the needs through a process of goods and or services exchange. To identify the efficiency of a business administration (marketing pattern) of certain products, profit margin, marketing margin, and the level of operational efficiency are used by using the parameters of mark-up on selling (Desai, 2001). For analysis purpose, information on HTR product marketing channel in North Sulawesi is first identified.

**B.1. Pattern of HTR product marketing channel**

Market actors in North Sulawesi, West Nusa Tenggara, and Lampung provinces participate in their marketing activities through various marketing pattern as shown in Table 10.

Table 10. Marketing channel pattern of HTR products

No.	Province	Marketing Channel Pattern of HTR Products			
		Pattern 1	Pattern 2	Pattern 3	Pattern 4
1.	North Sulawesi	√	√	√	√
2.	NTB	√	√	√	
3.	Lampung	√	√	√	√

Table 10 shows that marketing patterns of HTR products in three provinces consist of:

- (i) Pattern 1: Producers (farmers) - Consumers (Middlemen, households). In this case, after the timber is cut down, timber is sold directly by producers (farmers) to consumers,
- (ii) Pattern 2: Producers - Middlemen / Brokers - Consumers. Marketing activities are carried out by middlemen to consumers, while producers sell tree stands;
- (iii) Pattern 3: Producers - Wholesalers - Consumers. The wood products are sold by the merchants to the consumers, while producers sell tree stands;
- (iv) Pattern 4: Manufacturers - Middlemen - Wholesalers - Consumers. Marketing activities are done by middlemen and then from wholesalers to consumers. Meanwhile, producers sell tree stands.

In general, *Paraserianthes falcataria* and other wood species are sold by farmers in the form of tree stands. However, farmers also sell timber after the timber is cut down.

There are several methods used in the process of timber sales in three provinces, including:

1. Farmers offer the timber to the middlemen or processors by informing physical conditions of timber such as species, age, and volume.
2. Middlemen or processors observe the location. When they find the expected timber species and size, they will ask the farmers whether the farmers will sell the timber or not.
3. Middlemen and processors get information on timber availability from other parties. Based on the information, they will survey to the location. The informants usually get commission from the middlemen or processors.

## **B.2. Marketing Cost Analysis**

Marketing costs expended by each business actors include cost for operating chainsaw (felling and bucking), transportation cost (from forest to market), loading and unloading costs, administration cost and other charges. Table 11 below shows the recapitulation of marketing costs based on existing marketing patterns in North Sulawesi.

---

Table 11. The specification of marketing cost for *Paraserianthes falcataria* logs

No	Cost Types	Marketing Cost (Rp/m <sup>3</sup> )			Remarks
		North Minahasa	West Nusa Tenggara	Lampung	
1	Chainsaw-man wage (felling and bucking)	65,000	400,000	400,000	North Sulawesi wage only
2	Minor transport to log deck (cattle or labourer)	45,000	10,000	10,000	
3	Major transport to users (truck)	55,000	50,000	50,000	
4	Load and unload (labourer)	20,000	30,000	30,000	
5	Administration costs (permit, retribution, taxes, etc)	30,000	10,000	10,000	
Total		215,000	500,000	500,000	

### B.3. Analysis on Marketing Margin and Profit Margin

One way to determine the level of marketing efficiency of *Paraserianthes falcataria* logs in North Sulawesi Province is to use marketing margin and profit margin analysis as shown in Table 12. Table 12 shows that the profit distribution of four market actors i.e. HTR farmers, brokers/middlemen, traders, and wholesalers (industry), is not evenly distributed. In North Sulawesi for example, the highest profit is received by traders, which is 27% (Rp 135,000/m<sup>3</sup>). Meanwhile, farmer/producer receives the second smallest profit distribution, which is 13% (Rp 55,000/m<sup>3</sup>).

Table 12. The distribution of marketing margin and profit margin of *Paraserianthes falcataria* logs based on marketing pattern

No.	Market Actors	North Sulawesi	West Nusa Tenggara	Lampung
1.	Production cost (Rp/m <sup>3</sup> )	150,000	400,000	200,000
	Marketing cost (Rp/m <sup>3</sup> )	225,000	400,000	500,000
	Sale price (Rp/m <sup>3</sup> )	430,000	900,000	750,000
	Profit Margin (Rp/m <sup>3</sup> )	55,000	100,000	50,000
2.	Farmer (%)	13	35-43	27
	Collector Trader (%)	27	22-28	73
	Wholesaler (%)	17		
	Industry (%)		35-38	

The same pattern also occurs in West Nusa Tenggara, where timber market actors from community forest receive the highest profit margin between Rp 327,270 and Rp 545,460 per m<sup>3</sup> of logs (35-40%). The profit goes to the industry. The second highest profit is received by collector trader, which is between Rp 300,000 and Rp 400,000 per m<sup>3</sup>. It is higher compared to that received by farmers. Similar to North Sulawesi and West Nusa Tenggara, there is a significant gap of margin distribution between buyers (27%) and farmers in Lampung (73%). The result shows that buyers receive the highest profit margin. In other words, farmers are at the least benefit in a timber business chain as a result of lack of information on timber price. Lack of information on timber price leads farmers to be often misinformed by collector traders. Profit margin received by traders even becomes higher since traders receive an additional profit margin (around 10%) from the income received by farmers as a commission fee to sell timber to a sawmill (based on an interview with a sawmill owner). It can be concluded that the trade system or log marketing system in North Sulawesi is not efficient due to imbalance profit distribution among market actors, in particular farmers.

To encourage HTR business, study on timber base price is needed. The next subsection will describe some methods to determine timber base price, produced from HTR areas.

### ***C. Basic Pricing Analysis of HTR Timber Products***

According to Irawati, et al. (2008), market price is established through market mechanism, where there is a bargain between consumers and producers who meet in the HTR timber market. Data on HTR timber market price at a farm level are obtained from HTR farmers, traders at a village level, or from wood industries that buy timber directly from farmers.

Roshetko and Yuliyanti (2002) describe in detail the difference between market and marketing. Market is often defined as total demand of a product at a specified place and time, in specific conditions. Marketing is an important component in tree domestication (an acceleration of planting tree species through a farmer- driven process and market-led). Marketing becomes important to farmers because the products they produce must be sold to improve their livelihoods and economic status.

In general, there are three main factors that determine the price of timber sales. They are: (1) timber species. Prices vary on timber species, (2) the specification of use. Timber for woodworking specification is more expensive than pulpwood, and (3) planting cycle. Timber price varies depending on planting cycle because the length of planting cycle determines timber volume and quality (Irawati, et al., 2008).

---

To determine a base price of HTR timber sales, three approaches are used. They are: the calculation of market price, stumpage price, and social / parity price (Irawati, et al., 2008). A base price is the price that reflects the value of standing stock where the price does not include marketing costs and exploitation costs.

### C.1. Market Price

Information on market price was collected during surveys from various Community-Forest (HR) and Community-based Plantation Forest (HTR) farmers, collectors and retailers of timber trade, wood industries and portable sawmill as shown in Table 13.

Table 13. Price of sawn timber in North Sulawesi, West Nusa Tenggara, and Lampung Provinces

No.	Marketed Timber Species	Price of sawn timber (Rp) in Province of			Remarks
		North Sulawesi	West Nusa Tenggara	Lampung	
1.	<i>Duabanga mollucana</i>	-	3,325,000	-	Average
2.	Mixed Timber Species	1,800,000	2,800,000	-	
3.	<i>Swietenia mahogany</i>	3,000,000	3,500,000	-	
4.	<i>Paraserianthes falcataria</i>	1,500,000	1,750,000	-	
5.	<i>Aleurites mollucana</i>	1,400,000	1,500,000	-	
6.	<i>Tectona grandis</i>	-	5,900,000	-	Average
7.	<i>Shorea spp.</i>	-	3,000,000	-	
8.	<i>Intsia spp.</i>	9,000,000	12,000,000	-	
9.	<i>Cratoxylum spp.</i> (Buton)	-	3,200,000	-	
10.	<i>Araucaria spp.</i>	-	-	1,850,000	Average
11.	<i>A high quality Racuk</i>	-	-	1,400,000	Average
12.	<i>A low quality Racuk</i>	-	-	1,250,000	Average
13.	<i>Michelia spp.</i>	3,500,000			

### C.2. Stumpage Price

Stumpage price is defined as a price which reflects the value of the stand. Stumpage price of *Paraserianthes falcataria* in North Sulawesi is between Rp 115, 270 and Rp 123,273 per m<sup>3</sup>, in West Nusa Tenggara Rp 164,593, and in Lampung Rp 121,984. The calculation is shown in Table 14 below.

Table 14. The calculation of stumpage price of *Paraserianthes falcataria*

No.	Cost Breakdown	North Sulawesi	West Nusa Tenggara	Lampung
1	Production cost at year 0	8,531,900	9,530,000	9,105,000
	Planting cycle (year)	8	8	8
	Annual bank interest rate (%)	8% - 10%	10	10
2	Value of stand at year- t (Rp/ha)	15,791,951 - 18,288,885	21,067,909	19,517,376
	Production (m <sup>3</sup> /ha)	312	160	200
3	Stand value (Rp/m <sup>3</sup> )	50,615 - 58,618	131,674	97,578
	Profit (15%)	8,793	19,751	14,638
	Risk (10%)	5,862	13,167	9,759
4	Stand value after profit (Rp/m <sup>3</sup> )	59,408 - 67,411	151,425	112,225
5	Stand value after profit + risk (Rp/m <sup>3</sup> )	65,270 - 73,273	164,593	121,984
6	Fee for land owner	50,000		
	<b>Stand value after profit + risk and fee for land owner</b>	<b>115,270 123,273</b>	<b>164,593</b>	<b>121,984</b>

### C.3. Social/Parity Price

Social / parity price is the price that produces the best allocation of resources to produce the highest profit. Social price is calculated on the basis of opportunity cost, which gives the most profitable alternative for HTR wood products. HTR wood social price is derived from the international market price.

Timber from communities is sold to manufactures and to be processed for export commodity. Thus social price is calculated based on sales price at the door of processing industry. Parity price of *Paraserianthes falcataria* logs in North Sulawesi is around Rp 225,000 to Rp 240,000 per m<sup>3</sup>, in West Nusa Tenggara around Rp 250,000 to Rp 300,000 per m<sup>3</sup> and in Lampung around Rp. 200.000 to Rp. 250.000 per m<sup>3</sup>.



Table 15. Calculation of parity/social price (Rp/m<sup>3</sup>) of *Paraserianthes falcataria* logs

No.	Price Classification	North Sulawesi	West Nusa Tenggara	Lampung
1	Timber price at factory / industry door	470,000 – 500,000	750,000-800,000	700,000-750,000
2	Total cost	230,000 – 275,000	500,000	500,000
	Wage for chainsaw man (felling and bucking)	65,000 – 75,000	400,000	400,000
	Transport to log deck (cattle or labourer)	45,000 – 55,000	10,000	10,000
	Truck transportation	60,000 – 70,000	50,000	50,000
	Load - unload (labourer)	30,000 – 40,000	30,000	30,000
	Admin. cost (permit, retribution, tax, etc)	30,000 – 35,000	10,000	10,000
3	Parity price of <i>Paraserianthes falcataria</i> logs	240,000 – 225,000	250,000-300,000	200,000-250,000

**D. Policy in determining basic price for HTR products**

Based on the analysis of log standard price of *Paraserianthes falcataria* using three approaches i.e. market price, stumpage price and parity price, the result is various. In North Sulawesi province, stumpage price is between Rp 115,270 and Rp 123,273 per m<sup>3</sup>, market price is Rp 150,000/m<sup>3</sup> and parity/social price is between Rp 225,000 to Rp 240,000 per m<sup>3</sup>. In West Nusa Tenggara, stumpage price is Rp 189,462 per m<sup>3</sup>, market price is Rp 400,000/m<sup>3</sup> and parity/social price is between Rp 250,000 and Rp 300,000 per m<sup>3</sup>. In Lampung province, stumpage price is Rp 121,984 per m<sup>3</sup>, market price is Rp 200,000/m<sup>3</sup> and parity/social price is between Rp 200,000 and Rp 250,000 per m<sup>3</sup> (Table 16).

Table 16. Price comparison in each study site

	Stumpage Price (Rp/m <sup>3</sup> )	Market Price (Rp/m <sup>3</sup> )	Parity Price (Rp/m <sup>3</sup> )
<b>Lampung</b>	121,984	200,000	200,000-250,000
<b>West Nusa Tenggara</b>	189,462	400,000	250,000 – 300,000
<b>North Sulawesi</b>	151,270 – 123,273	150,000	225,000 – 240,000

Table 16 shows that stumpage price in each province is the lowest price compared to market price and parity price. The reason is that at stumpage price, farmers receive the lowest income which is derived from production costs and a profit margin.

Market price shows a higher price compared to stumpage price. At market price, HTR farmers receive additional income compared to stumpage price. Market price in Lampung and North Sulawesi is below parity price. In contrast, market price in West Nusa Tenggara is higher than parity price. This suggests that market price in West Nusa Tenggara is conducive. In these conditions, no government intervention is required. However, in Lampung and North Sulawesi provinces, government intervention is required to enable HTR farmers to receive a maximum benefit.

A base pricing can be determined based on parity/social price. At parity price, farmers will receive maximum benefit from HTR business. It is expected that HTR farmers will be more motivated in managing HTR because of the benefit. Furthermore, this leads to a higher realization of the target of HTR development and economy enhancement of communities living around forest areas.

---

## V. HTR DEVELOPMENT STRATEGY

### A. *General Strategy on HTR Management*

Based on problem analysis at each study site, there is the need from relevant institutions both the Technical Units of the Ministry of Forestry and Local Government in the efforts of HTR development. The efforts include:

#### 1. Strengthening Cooperative Institution

Coaching and capacity building of cooperatives and community groups. This activity is done through the reorganization of cooperative management, the preparation of work plan by the cooperative (in Lampung case), business institutional reform, and strengthening cooperative working capital.

#### 2. Facilitation

Capacity building and the improvements of facilitators' duties and responsibilities in the field. Technical Units of DG of Forest Utilization (BP2HP) need to develop criteria and indicators on facilitators' duties and responsibilities and reporting system. They are used as the evaluation system for facilitators' performance and thus for incentive payment.

#### 3. Strengthening capacity of HTR farmers

In some HTR cooperatives, farmers do not participate actively in HTR area management. The responsibility for land management activities is left entirely to the cooperative board. This condition is certainly not in line with the original purpose of HTR programme which aims to enhance community participation in forest management. Thus, strengthening the capacity of farmers is important to be done through intensive extension and facilitation.

HTR farmer capacity building strategy suggests that the role of the Agency for Extension and Forestry Human Resources Development becomes very important. Strengthening capacity of forestry extension workers and HTR farmers becomes a priority. However, the process is still under way. At a field level, strong cooperation and coordination need to be maintained. Coordination between Technical Units of DG of Forest Utilization (BP2HP), District Forestry Offices, Department of Cooperatives, Extension Agency, Department of Industry, and Regional Development Planning Board should not be just a formal coordination; instead it must be formulated in concrete programmes to enhance the capacity of HTR farmers as professional businessmen in plantation forests.

---

**B. *Basic pricing of HTR wood products***

Basic pricing of HTR wood products is determined to ensure minimum/realistic price the HTR farmers can receive. This policy will be a good incentive to increase the interest of farmers. Policy formulation on HTR timber sales base price suggested by Irawati, et al. (2008) may be considered. They include:

1. In order to HTR timber selling prices to cover all the costs of timber production at a farm level and farmers can also earn a reasonable profit from the business, the minimum price of HTR wood should be the same as stumpage price.
2. HTR farmers who want to receive a maximum benefit from their HTR business can request the selling price as high as social price.
3. The market price is the price in the field or actual price. Therefore, the government may not interfere with market. The existing market price is between stumpage price and social price.
4. Basic pricing of HTR timber sales can be determined within the range between market price and social price.

There is another method that can be used to determine the maximum base price for HTR wood. It is called the “warehouse receipt” scheme, which is developed by the Ministry of Commerce. Warehouse receipt is a trading method that payment of the products is determined by the amount and the quality of the products. Warehouse receipt is managed by a professional person with the principal task to guarantee that the quality of the products stored and managed in the warehouse fulfil market demand quality. The steps of the establishment of a warehouse receipt for wood products are as follows:

- 1) Government (represented by the Ministry of Forestry) provides service on permit for constructing warehouse receipts in coordination with local government and State-owned Banks as the financial guarantor.
  - 2) Government build lumberyard infrastructure for warehouse receipts in accordance to a feasible and a proper storage technical qualification.
  - 3) Wood warehouse receipt manager must be professional in the field of wood products and timber trade at a local, a national as well as at an international level.
  - 4) Wood products which are warranted by farmers should qualify with required qualities by presenting related certification on the amount and wood quality.
-

- 5) Farmers can bring product certificate received from the manager of warehouse receipts to a Bank appointed, to get bank loan with a warranty of wood products already collected to the manager of warehouse receipts by the farmers.
- 6) If the wood price has reached an expected market price, the manager of warehouse receipts will sell the warrant wood collected by farmers. The profit received from selling will be distributed, where: (i) the Bank will receive profit as much as predetermined loan interest, (ii) Business manager of warehouse receipts will receive approximately 17% of total profit, and (iii) Farmers receive the rest after the expense for Bank loan interest and the profit for warehouse receipts manager are deducted from the total profit.

HTR timber pricing system can adopt the pricing of fresh fruit bunches (TBS) of oil palm plantation which refers to the Regulation of the Minister of Agriculture No. 17/Permentan/OT.140/2/2010 on Guidelines in determination of TBS Oil Palm Plantation Production. Based on Permentan No. 17/2010, Governor (for example East Kalimantan) issued a Decree (SK) No. 525/K.402/2010 on the Formation of Team on Pricing of Oil Palm TBS in East Kalimantan Province. Pricing team has a duty as follows:

1. Arranging meetings as scheduled to determine the price of oil palm TBS.
2. Reviewing and evaluating the value of component "K", formulating the component "K" value of each company's data source.
3. Evaluating and analysing all components which contribute to the price of oil palm TBS. This aims to determine a more realistic price.
4. Facilitating all parties involved in buying and selling activities of oil palm TBS, in the relevancy with the determination and the application of oil palm TBF prices by Team.
5. Direct monitoring to the palm oil mills, oil palm plantations belonging to farmers and other places that are closely related to the process and the pricing mechanism of oil palm TBS.
6. Examining the validity of the data submitted by the company.
7. Presenting the results of a meeting on oil palm TBS pricing no later than the day after the meeting to all parties concerned with the outcomes of oil palm TBS pricing.
8. Reporting to the Governor of East Kalimantan and the Director General of Processing and Marketing of Agricultural Products - the Ministry of Agriculture in regard to the progress of determining oil palm TBS price by the Team.

In regard to the duties and responsibilities, the Team is required to: (i) be neutral, not to hold a position in the institution, (ii) support shared values and obey the regulations, and (iii) be

professional and have an ability to analyse and to evaluate current issues relating to oil palm business and all palm oil derivative products as inputs to the Governor of East Kalimantan. The inputs are used for the improvement of pricing system of oil palm TBS which is more realistic and equitable to all parties.

Another policy alternative is by developing a community timber market through opening the widest market channel. This will provide an opportunity to increase market price for timber. Efforts to open up market channel are done among others by opening up wood exports. This will increase the demand for community wood. A high demand will result in a perfect competitive structure. Thus, farmers who produce good quality timber will receive a fair price in accordance to supply-demand balance point.

Learning from the management of community forests in Java, many authors state that the development of community forests in Java is driven more by the availability of timber market. Similarly, the same situation occurs in various parts of the world. Zhang and Owiredo (2007) reported that wood price is the driving factor for the development of community timber plants in Ghana. High demand for wood and limited supply of timber from natural forests has encouraged the development of forest plantations, including community planted teak in Laos (Midgley et al., 2007). Similarly in the Philippines, the development of community timber plants is fuelled by rising demand for timber and a promising timber price (Bertomeu 2006).

In a developed country such as Japan, to make community timber plantation attractive to farmers, government subsidies is sometimes necessary (Ota 2001). The forms of subsidy include establishing a partnership between farmers and wood-processing industries. The regulations which improve the partnership mechanism between the entrepreneurs and HTR cooperatives are needed.

Scope of activities of a partnership may include crop production activities to the product marketing. The policy on partnership should encourage the principles of norms and work standard in order to run partnership with the principle of equality, openness and non-binding, market-oriented, commitment to enhance forest land productivity, respect to each party's functions and roles, willingness to grow and move forward together, willingness to solve problems by consensus. Partnership principle that should be applied in marketing activities is a balance information and bargaining power between farmers and industry. Thus, the partnership will provide a fair price for both parties. To achieve equal partnership, HTR farmers should have price information and timber market. Similarly, in a perfect competitive market conditions, farmers are expected to have adequate capacity as plantation forest entrepreneurs. Therefore, capacity building of farmers needs a significant attention.

---

## VI. CONCLUSION AND RECOMMENDATION

### A. Conclusion

The results of the calculation of financial analysis of HTR businesses in North Sulawesi, West Nusa Tenggara and Lampung showed that HTR businesses are viable to run. Feasibility parameters are indicated by: 1) NPV (Net Present Value) which ranges from Rp 9,000,000 to Rp 20,000,000; 2) Value of BCR (Benefit Cost Ratio) is between 1.6 and 3.3, and IRR (Internal Rate of Return) is between 19% and 28%. The results of financial analysis are based on fast growing tree species with an eight-year planting cycle. It is in accordance with HTR policy which is based on fast growing tree species. The results of financial analysis are strongly influenced by location, the amount of component costs, as well as time. Therefore, these values will change dynamically.

Percentage of profit margin in the market channel of *Paraserianthes falcataria* in three provinces (North Sulawesi, West Nusa Tenggara and Lampung) received by farmers is around 13%-43%, profit margin of collector trader is around 22%-73%, and owner of wood industries is around 35%-38%. Policy on setting standard price for HTR stand is done when there is imbalance of margin distribution among market actors. Due to a weak bargaining position, incentive should be received by farmers. Basic pricing of HTR timber is required to protect HTR farmers.

This study uses three approaches to determine basic price, which are 1) stand value, 2) market price, and 3) parity price. Stumpage price for *Paraserianthes falcataria* in the study site is around Rp 115,270 – Rp 164,593 per m<sup>3</sup>. Market price at a farmer level is between Rp150,000 - Rp 400,000 per m<sup>3</sup> and parity/social price is between Rp 200,000 - Rp 300,000 per m<sup>3</sup>. Based on the above three values, standard price which contributes to a maximum profit for farmers is when standard price is determined based on parity/social price.

---

## **B. Recommendation**

Basic pricing of HTR timber products should be applied to ensure the minimum price the HTR farmer can receive. This policy will be a good incentive to increase farmers' interest in HTR business. The government can set prices based on the analysis of parity / social price.

Based on problem analysis at each study site, efforts from the relevant parties, both Technical Units of the Ministry of Forestry as well Local Government at both a Provincial and a District levels are required. General strategies are: 1) Institutional strengthening, 2) Facilitating, 3) Strengthening capacity of HTR farmers.

To develop strategies on marketing of HTR timber products, the following steps are needed:

1. The development of means and infrastructures such as roads to HTR sites to enable vehicles to transport HTR products from HTR sites. This will reduce trading/marketing costs, increase the basic price of HTR products and increase the benefit for market actors. Transportation cost component is the highest cost expended in the analysis of trading cost components.
  2. There is the need to construct wood industries close to HTR sites to absorb HTR wood products in the beginning of the second planting rotation.
-



## BIBLIOGRAPHY

- Andayani, W., 2008. Pemasaran Hasil Hutan. *Lecture Notes*. Jurusan manajemen Hutan. Fakultas Kehutanan, Universitas Gadjah Mada.
- Darusman D, Hardjanto. 2006. Tinjauan ekonomi hutan rakyat. Prosiding Seminar Hasil Penelitian Hasil Hutan. Bogor: Pusat Litbang Hasil Hutan. hlm: 4-13.
- Departemen Kehutanan. 2009. Potensi Sumber daya Hutan produksi Nusa Tenggara Barat. Direktorat Jenderal Bina Produksi Kehutanan. Jakarta.
- Dishut Provinsi NTB. 2012. Laporan Perkembangan Kegiatan Izin Usaha Pemanfaatan Hasil Hutan Kayu Hutan Tanaman Rakyat (IUPHHK-HTR) di Provinsi Nusa Tenggara Barat. Dinas Kehutanan Provinsi NTB, Mataram.
- Febriani, D., Darusman, D., Nurrochmat, D.R., Wijayanto, N. 2012. Strategi Implementasi Kebijakan Hutan Tanaman Rakyat di Kabupaten Sarolangun, Jambi. *Jurnal Analisis Kebijakan Kehutanan*. Vol.9 No. 2 Agustus 2012. Pusat Litbang Perubahan Iklim dan Kebijakan. Bogor.
- Gittinger, J. 1986. Analisis Proyek Pertanian. Jakarta: UI-Press
- Husnan, S dan Suwarsono. 1994 Studi Kelayakan Proyek. Edisi revisi 1. Yogyakarta UPP AMP YKPN.
- Irawati, S., Maryani, R., Effendi, R., Hakim, I., Dwiparabowo, H., 2008. Kebijakan Penetapan Harga Dasar Penjualan Kayu HTR Dalam Rangka Pengembangan HTR. *Jurnal Analisis Kebijakan*, Vol. 2. Pusat Penelitian Sosial Ekonomi dan Kebijakan Kehutanan. Bogor.
- Kadariah, Karlina, L dan Clive, G. 1978. Pengantar Evaluasi Proyek. Jakarta: Fakultas Ekonomi Universitas Indonesia.
- Kishor NM, Constantino LF. 1993. Forest management and competing land uses: An economic analysis for Costa Rica. LATEN Dissemination Note # 7. Washintgton: The World Bank Latin America Technical Department, Environment Division.
- Kohls, R.L. 1967. *Marketing of Agricultural Products*. The Macmillan Company. New York.
- Kotler, P. 1997. Manajemen Pemasaran. Edisi sembilan. Prentice–Hall Inc. New Jersey. Lubis SU. 2010. Manfaat Ekonomi Sistem Pengelolaan Hutan Rakyat di Sekitar Taman Nasional Batang Gadis (Studi Kasus: Desa Hutarimbaru Dan Desa Tolang, Kecamatan Ulu Pungkut, Kabupaten Mandailing Natal) [Skripsi]. Medan: Departemen Kehutanan, Fakultas Pertanian, Universitas Sumatera Utara.
- Ota I. 2001. The economic situation of small-scale forestry in Japan. Di dalam: Niskanen A, Väyrynen J, editors. *Economic Sustainability of Small-scale Forestry, International IUFRO 3.08.00 Symposium*; Joensuu-Finland, 20-26 March 2001. Finland: EFI. 29-39.
- Race D *et al.* 2009. Partnership for involving small-scale growers in commercial forestry: Lessons from Australia and Indonesia. *International Forestry Review* Vol. 11 (1).
- Rahmadi, A.I.,(2013). Progres pembangunan HTR Yang Dibiayai Pinjaman Dana Bergulir di Provinsi Sulawesi Utara. Makalah Kopus P2H Pada Seminar Evaluasi Kinerja Debitur HTR di Prov. Sulut.
- Siregar UJ, Rachmi A, Massijaya MY, Ishibashi N, Ando K. 2007. Economic analysis of sengon (*Paraserianthes falcataria*) community forest plantation, a fast growing species in East Java, Indonesia. *Forest Policy and Economics* 9: 822–829.

- Sitanggang PH. 2009. Manfaat Ekonomi Sistem Pengelolaan Hutan Rakyat (Studi Kasus: Dusun Marubun Pane Kecamatan Tigarunggu Kabupaten Simalungun) [Skripsi]. Medan: Fakultas Pertanian, Universitas Sumatera Utara.
- Sumarlin, D. 2011a. Laporan Tenaga Fasilitator/Pendamping Hutan Tanaman Rakyat (HTR) Pada Koperasi Uma Dene, Kabupaten Sumbawa. (Tidak Diterbitkan)
- Subarudi dan Sidabutar, H. 2008. Pengembangan Hutan Tanaman Rakyat (HTR) berbasis Agrobisnis. Tidak Diterbitkan.
- Van Bodegom AJ, van den Berg J, van der Meer P. 2008. *Forest plantations for sustainable production in the tropics: key issues for decision-makers*. The Netherlands: Wageningen University & Research Centre.
- Zhang D, Owiredu EA. 2007. Land tenure, market, and the establishment of forest plantations in Ghana. *Forest Policy and Economics* 9: 602– 610.
-