# TECHNICAL REPORT: ECONOMIC STUDY AND STANDAR PRICE OF COMMUNITY BASED PLANTATION FOREST (HTR) PRODUCTS
## Case Study in West Nusa Tenggara province

**By: Subarudi**

**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:**
**The Ministry of Forestry of Indonesia and International Tropical Timber Organization (ITTO)**
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# PROJECT TECHNICAL REPORT

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

***Case Study in West Nusa Tenggara Province***

**Subarudi**

**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

# EXECUTIVE SUMMARY

Policy on Community Based Plantation Forest (Hutan Tanaman Rakyat-HTR) is principally to give a chance to communities in forest plantation development. The communities are given: (1) legal access, (2) access to financial institutions, and (3) access to market. There are several schemes in HTR development which are: (1) Self Sufficient (Independent) scheme, (2) Partnership scheme, and (3) Developer scheme. The choice of HTR scheme is determined by the conditions, the situation and the capability of each region that proposes a HTR license. Various efforts have been done by the Ministry of Forestry to support HTR programme in order to be successful. However, HTR management still face many constraints. The low achievement of HTR establishment and development is influenced by economic, market and socio cultural aspects. Economic problem arises when HTR area size managed by community is 15 hectares or more than 15 hectares. The question is the feasibilty of HTR business at a household scale to enable HTR business as a main source of income to enhance the prosperity of the family. Market problem is also a big issue relating to how to sell HTR`timber products after harvesting time. The next question is that whether HTR has a strong bargaining position when the owner negotiates with timber industries as buyers. Social and culture aspects are still main problems relating to the changing mindset of HTR farmers from subsistence farmers into entrepreneurs in managing HTR credit which should be paid at the first harvesting time. Social, economic, and market problems in HTR development should be further explored so that HTR can be socially acceptable, economically viable, and marketly saleable. The objectives of the research on HTR economic and price standard are: (1) to identify and to analyse financial and economic feasibility of HTR management; (2) to invent market and marketing system in HTR management with an exploration of social, culture, economic, educational background, and the relationship among communities and other agencies; (3) to analyse standard price HTR timber products based on communities' and other agencies' perception, and data from relevant institutions; (4) and to formulate HTR policy on development strategies and HTR timber product market strategies (access to market and market opportunity). Method of cost benefit analysis (CBA) is used to assess economic and financial issues on HTR management. Three approaches used for standard price of HTR timber selling are market price, stumpage price, and social price. West Tenggara Barat (NTB) province has allocated HTR areas of 4,396 hectares and 1,665.81 hectares or 38% from the total areas have been granted for HTR license. The data on the realization of HTR license in five districts in West Nusa Tenggara province is: Sumbawa (40.4%), Central Lombok (76.4%), West Lombok (28.7%), Dompu (100%), and West Sumbawa (0%). The five districts have not proposed loan scheme yet to date, except Dompu district. This is resulted from farmers' capacity, low working productivity, and the subsistence mindset. Therefore, the priority of activities which should be done by District Forestry Office is to strengthen the capacity of group members to be more active and motivated to manage HTR areas. Financial Analysis in cost-benefit evaluation referring to expenditures and revenues that reflect the actual market price received or paid by farmers for *Paraserianthes falcataria* trees. The result of analysis indicates that the NPV value is Rp 20,054,791, BCR is 3.31, and IRR is 28%. Based on the interview results with a number of farmer respondents through Focus Group Discussion (FGD) in Central Lombok, West Lombok, Sumbawa, and Dompu districts, HTR development costs are

difficult to be assessed, because all seedlings and planting materials (*Paraserianthes falcataria*, *Gmelina arborea*, and *Tectona grandis*) were received from government programme (the Ministry of the Acceleration of Undeveloped Villages or PDT) or free of charge. Therefore, the study adopted the costs determined by the Ministry of Forestry Decree. All respondents in the sample districts agree to apply the standard price of HTR timber products. However, none of respondents know exactly how to determine the price standard of HTR timber products. Respondents stated that they were uncertain whether the government would be able to control the price of HTR timber products because of the complexity and many variables needed in the determination of timber price, such as: (1) timber species, (2) end use of the wood, and (3) tree rotation. Market in HTR development is timber industries in sample districts i.e. sawmills and furniture industries. District Forestry Office have no sawmill database. Therefore, the capacity of the existing sawmills was not able to be assessed. Marketing pattern applied in West Nusa Tenggara is as follows: (1) timber owner sells timber directly to the sawmill, (2) timber owner sells timber to middleman trader and then the trader sells the timber to sawmill, and (3) sawmill owner acts as timber traders. Results of Paraserianthes falcataria timber price calculation based on stumpage value/price, market price and parity/social price are: (i) stumpage value/price is around Rp 164,593 per m3, (ii) market price is Rp 400,000 per m3, and (iii) parity/social cost is Rp 270,000 per m3..

# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES



# APPENDIX

# I. INTRODUCTION

## 1.1. Background

Community Based Plantation Forest (HTR) is a production forest plantations established by individuals or cooperatives to improve the potentials and the quality of production forests by applying silvicultural systems in order to ensure the sustainability of forest resources.

The utilization license for wood products in plantation forest hereinafter abbreviated as IUPHHK-HTR is a business license to utilize forest products such as timber from production forest plantations established by individuals or cooperatives.

HTR development policy essentially provides opportunities to communities in forest plantation development activities, of having: (1) legal access, which is manifested in the provision of HTR license approved by the District Head/ Mayor on behalf of the Minister of Forestry, (2) access to financial institutions, which is manifested in the form of a revolving loan fund that is facilitated by the Centre for Plantation Forest Development Funding (P2H), (3) access to market, which is manifested in the form of basic pricing mechanisms for the sale of timber or wood base price by the Minister of Forestry to maintain stability of timber prices from smallholder plantations.

HTR development can be implemented through several scheme, namely: (1) Independent scheme: HTR established by households as HTR license holders, (2) Partnership scheme: HTR established by households as HTR license holders in collaboration with partners based on a mutual agreement and facilitated by the Government in establishing partnerships that benefit both parties, (3) Developer scheme: HTR established by state-owned or private enterprises and then is handed over by the Government to the households who propose HTR license. The establishment costs become the responsibility of HTR license holders and the money is returned in installments after the HTR license is issued.

HTR license is granted to: (1) individuals, (2) cooperatives (micro, small, medium, scale and established by communities who live in or around forest areas). The maximum area size is 15 (fifteen) ha for each household or for each cooperative of maximum of 700 hectares. HTR license is granted for a period of 60 (sixty) years and may be extended for one period of 35 (thirty five) years.

With HTR development programme that opens access to the community in the management of production forests, it is expected to reduce conflicts on forest land with forest communities, to alleviate poverty, to improve environmental quality, and to support economic growth.

Wood industry can be a major market share for timber produced from HTR due to the current needs for industrial raw materials that have not been fulfilled from natural forests between 18-20 million cubic meters annually. To support timber marketing from HTR,, the Ministry of Forestry (MoF) encourages the timber industry to relocate their factories closer to the people forest, smallholder plantations, and industrial tree plantations or open a branch of semi-finished wood processing industry around forest areas in order to facilitate the supply of raw materials of sawn and other semi-finished wood products (Santoso, 2011).

In connection to HTR timber market, Subarudi (2007) stated that in order to support the economic feasibility of HTR, government should not only establish a small scale HTR (15 ha/ household), but also establish HTR at an economic scale as well as wood industries in these locations. It is in accordance to the results of various studies on HTR that for wood products, the highest profit margin is derived from wood industries.

## 1.2 Problem Formulation

The Ministry of Forestry has provided various facilities to support the success of HTR programme. However, HTR management is still facing many obstacles. The issues cannot be separated from economic issues, market and socio-cultural aspects of society.

The economic issue relates to the economic feasibility of HTR managed by local communities with an area of around hectares 15 or more? Another question relates to the business feasibility of HTR managed at a household level in order to be the main source of income to ensure the welfare of the household.

Market issue also remains a big question relating to marketing HTR timber products. Another question relates to the strong bagrgaining position of farmers when dealing with wood industries as the buyers of HTR.

Social and cultural issues remain major obstacles associated with changing mindset of communities from subsistence farmers into business actors or entrepreneurs, especially in managing HTR loan or credit which must be returned at the time of first the HTR timber harvest.

Those issues need to be further studied to enable HTR business socially acceptable, economically viable, and profitable for the market of its products.

## 1.3. Hypothesis

A good understanding on business feasibility and market opportunities of timber is one of the critical success factors for smallholder plantations. This study aims to answer some fundamental questions related to the feasibility of HTR business. The main problems to be answered in this study are:

a. Is HTR business financially feasible?

b. How are the timber marketing channels and how is the margin distributed?

c. How to determine the optimal price for HTR products?

d. What are the problems faced by farmers / HTR actors and what are the HTR management strategies in order to improve?

## 1.4. Purpose and Objective

Economic study and standard price is intended to provide data and related information on management strategies of smallholder plantations. Objectives to be achieved from economic study and standard price are:

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

## 1.5. Outcome and Impact

Economic study and standard price of HTR products will result in the following outcomes:

1. Data and information on financial feasibility of HTR management.
2. Data and information systems on market and marketing.
3. Data and information standard price of HTR timber.
4. Data and information on HTR management conditions and strategy formulation on HTR management policies.

The expected impact of this study is the establishment of Plantation Forest business system that is beneficial to all parties concerned and HTR development of as a main business for farmers

as HTR license holders, as well as the development of business activities on the production and marketing of products produced from wood industries processing HTR products.

### 1.6. Scope

The scope of economic study and standard price of HTR products is financial feasibility study on HTR at a household scale, study on market potential and market chain of products derived from HTR, the determination of standard price of HTR products, analysis of problems that occur in HTR management, and government policy recommendations for HTR management and the regulation on HTR product marketing.

# II. RESEARCH METHOD

## 2.1. Location and Research Respondents

The study was conducted in West Nusa Tenggara province (NTB) in January-March 2013. Site selection is done intentionally (purposive sampling) that is at the site of ITTO project CFM-PD 001/10 Rev.2 (F): "Strengthening the Capacity of Stakeholders for the Development of Community-Based Plantation Forest at Three Selected Areas in Indonesia".

In West Nusa Tenggara province, HTR programme has been implemented in West Lombok, Central Lombok, Sumbawa, Dompu, and West Sumbawa districts. All HTR activities in the districts have been done, except in West Sumbawa district.

Respondents were cooperative management and relevant government officials, HTR facilitators at the District, where HTR is implemented. The number of respondents from the cooperative management and members were 8-12 person in each district.

HTR product marketing study was conducted through surveys and interviews with market actors. The determination of respondents involved in marketing was done through snowballs sampling, which is based on information from the farmer on wood buyers to whom timber is sold. The informants as the source of data were timber traders involved in marketing activities, including farmers having experiences in selling timber, village-level buyers or middlemen, sawmill owner, *panglong* (wood depot) owner, and wood depot owners at a district and a provincial levels. The number of research informants for wood marketing activities was 20 person.

Other respondents were local government and the Technical Unit of the Ministry of Forestry in West Nusa Tenggara province. They were: 1) BP2HP Region IX Denpasar, 2) Provincial Forestry Office, 3) Provincial Office of the Department of Cooperative, Small and Medium Enterprise, District Forestry Office in Central Lombok, East Lombok, Dompu and Sumbawa, and 5) District Office of the Department of Industry and Trade in Central Lombok and East Lombok.

## 2.2. Data Collection Techniques

Data was collected in three ways:

1. Observation: by conducting direct observation of biophysical conditions in the field related to the implementation of HTR activities in four districts with HTR license holders, activities carried out, cooperative management and members.

2. Literature study is a data collection technique by reviewing literature and reports from relevant agencies in the implementation of HTR activities in West Nusa Tenggara province.
3. In-depth interviews and Focus Group Discussions (FGDs).

Primary data included data on HTR management costs and revenues, data on HTR product marketing channel, data on margin distribution for each marketing actor, and data on the problems faced in HTR management. Primary data were collected by survey method, observation or structured interviews, questionnaires, discussions and interviews with farmers as HTR license holders, collector traders and wholesalers. The list of questions is attached in Appendix 1. In-depth interviews were also conducted on local government officials to explore information on local government programmes in HTR management and HTR product marketing activities.

Secondary data included general conditions of HTR management in West Nusa Tenggara province, data on wood processing industries which are a potential market for HTR products. Secondary data was collected through literature study or reports from relevant agencies such as the Department of Forestry and Agriculture, the Department of Industry and Trade, and the Central Bureau of Statistics.

Table 1. Data and information collected

| No. | Benefit analysis / Data Collected | Data Source | Collection Method |
|---|---|---|---|
| **I.** | **HTR Business Feasibility Analysis** | | |
| | Cost and Income Data of HTR manage-ment activity at farmer's level | HTR farmers | Interview, field visit and reports |
| **II** | **Analysis of HTR Product Market Channel** | | |
| | Data on models of market channel of HTR products | HTR farmers<br>Traders | Interview, field visit and reports |
| **III** | **Analysis on base price of HTR products** | | |
| | Data on margin and cost expended by market actors | Traders | Interview, field visit and reports |
| **IV.** | **Analysis of policy strategy and market development of HTR products** | | |
| | Secondary Data related to HTR management | | |
| | General condition of area, forest resource potential, data on allocated HTR areas (target and realization of HTR develop-ment in the study sites) | DG of Forest Utilization and Forestry Regional Office | study report |
| . | Related Regulations:<br>- HTR establishment and development<br>- marketing of HTR products<br>- industries which buy HTR products | DG of , DG of Forest Utilization, DG of Plannology, and Local Government | study report |
| | Data and information related to market and marketing of wood products | | Interview, field visit and reports |

## 2.3. Data Analysis

Data were analyzed qualitatively and quantitatively. Qualitative analysis was done to identify general and specific characteristics of the study sites, marketing channels, and market structure. Quantitative analysis aimed to explore business feasibility, and market variability by analyzing marketing margin. The stages of analysis and analytical models used to answer the research objectives are:

1. HTR development cost analysis is intended to determine all components of the cost and 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 from the manufacturer to end users.
4. Analysis of marketing margin and profit margin to identify the benefits received by each business actors.

## 2.4. Financial Feasibility Analysis

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

The following are the investment criteria used in the feasibility analysis of HTR in West Nusa Tenggara as done by Sukito (2008).

- Net Present Value (NPV).
- Benefit Cost Ratio (BCR).
- 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 flow of Benefit and Present Value of flow of Costs. The project is profitable if it has a positive value of NPV (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 = length of investment

i = interest rate

Criteria:

If NPV > 0, meaning profitable, where the benefit received by the project is higher than total cost expended.

If NPV = 0, meaning break even point, where the benefit received is only enough to cover total cost expended.

If NPV < 0, meaning loss, where total cost expended is higher than benefit received.

- *Benefit Cost Ratio* (BCR)

BCR is an assessment done to identify the level of efficiency of the use of a cost which is a comparison between the positive net present value and the negative net present value. A project is feasible and efficient to be implemented if the value of the Net B/C is > 1, meaning that the benefits outweigh the costs expended and the opposite applies.

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

Explanation:

Bt = Benefit at year t

Ct = Cost at year t

i = prevailing interest rate

t = HTR project period

n = HTR project age

Criteria:

If B/C>1 = profitable

if B/C<1 = loss

- *Internal Rate of Return (IRR)*

IRR is the value of the discounted interest rate that makes the NPV of a project/investment = 0. IRR is used to determine economic ability of a business unit whether the investment can be done or not.

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

Explanation:

- $NPV_1$ = NPV with the lowest positive value
- $NPV_2$ = NPV with the lowest negative value
- $i_1$ = Interest rate producing the lowest positive value of NPV
- $i_2$ = Interest rate producing lthe owest negative value of NPV

Investment criteria:

- If IRR > i ; meaning investment is feasible
- If IRR = i ; meaning investment is on a break-even point
- If IRR < i ; meaning investment is not feasible

### 2.5. Base Price Analysis

To set a base price of HTR timber sales, three approaches, namely the calculation of market price, stumpage price, and social/parity price can be applied (Irawati, et al., 2008)

- The market price is the price established through market mechanisms, where there is a bargaining process between consumers and producers who meet in the HTR market. Data on HTR timber market price at a farm level can be obtained from HTR farmers, traders at the village level and the industries that directly buy wood from farmers / wood producers.
- Stumpage price is the price that reflects the value of the stand. HTR farmers expect that they are able to cover all costs required to produce wood and expect to get profit from his efforts. Costs expended in HTR development are all cost components ranging from the cost of seed procurement, planting activities, costs of stand maintenance until the trees are ready for harvesting and selling.
- The social / parity price is the price that produces the best allocation of resources so it will produce the highest profit. Social price is calculated on the basis of opportunity cost that will give the most profitable alternative for HTR wood products by using parity price approach. HTR social price of wood is derived from the international market price.

### 2.6. HTR Tree Species and Assumption

The analysis of standard price of HTR relates to the tree species planted. In accordance with the HTR concept, the tree species are fast growing species with a six to eight year life cycle. Based on interviews and field observations, the tree species selected for HTR were *Paraserianthes falcataria, Gmelina arborea*, and *Tectona grandis*. All three tree species have good market potential. *Paraserianthes falcataria* is accepted by wood processing industries in four districts. Meanwhile, *Gmelina arborea* starts to attract many people, although market for *Gmelina arborea* is not certain yet. Empirical data on *Gmelina arborea* market is continued to be studied. Thus, in this analysis *Paraserianthes falcataria* was chosen as a potential tree species for HTR.

In financial and marketing analysis of HTR, some assumptions are needed as the basis in the calculation. The assumption was obtained from the analysis of the conditions in the field and it is required in the economic calculation. The assumptions used are as follows:

1. *Paraserianthes falcataria* trees are harvested at a life cycle of eight years with an increment of 20 m3 per hectare.
2. Based on the results of market surveys and interviews using FGD method with farmers and HTR timber merchants, market price of standing *Paraserianthes falcataria* tree per cubic meter is Rp 400,000.
3. The number of trees that grow until the end of *Paraserianthes falcataria* life cycle (8 years) are as many as 400 trees. This is in accordance with the minimum requirements set by the government in assessing the success of HTR.
4. Interest rate (i) used is 10% per year.
5. HTR analysis unit used is one hectare.

# III. GENERAL PICTURE OF NTB PROVINCE

There are some general description of West Nusa Tenggara province, which are general aspects of West Nusa Tenggara province, forest conditions and HTR development and problems associated with HTR programme in West Nusa Tenggara.

## 3.1. General Condition of West Nusa Tenggara Province

### Extent and Geographical Location

West Nusa Tenggara consists of two large islands, namely Lombok island and Sumbawa island. In addition, there are around 332 small islands with a coastline along 2,333 kilometres. Two hundred and eight two islands out of the 332 islands have their own respective names. Administratively, the province covers an area of 50,000 square kilometres which is divided into land area of 20,000 square kilometres and sea area of 30,000 square kilometres. The area is located between East Longitude $115^0$46'- $119^0$5' and South Latitude $8^0$10'- $9^0$5'.

The boundaries of West Nusa Tenggara province are:

- Northern Side : Java Sea and Flores Sea
- Southern Side : Hindia Ocean
- Western Side : Lombok Strait
- Eastern Side : Sape Strait

### Adminstrative Area

Administratively, the land area of West Nusa Tenggara covers a total of around 20,153.15 km2 or 2,015,315 hectares, which is divided into 8 districts i.e. Central Lombok, East Lombok, West Lombok, North Lombok, Sumbawa, West Sumbawa, Bima, Dompu, and 2 cities (Mataram and Bima) with a number of 116 sub-districts and 1,117 villages (BPS NTB Province, 2012). Total area of each District/City is shown in Table 2.

Table 2. The total area of the Districts in NTB

| Kabupaten / Kota *Regency / Municipality* | Luas *Area* ( km²/ *sq.km* ) | Persentase *Percentage* (%) |
|---|---|---|
| (1) | (2) | (3) |
| 1. Lombok Barat | 1 053.92 | 5.23 |
| 2. Lombok Tengah | 1 208.40 | 6.00 |
| 3. Lombok Timur | 1 605.55 | 7.97 |
| 4. Sumbawa | 6 643.98 | 32.97 |
| 5. Dompu | 2 324.60 | 11.53 |
| 6. Bima | 4 389.40 | 21.78 |
| 7. Sumbawa Barat | 1 849.02 | 9.17 |
| 8. Lombok Utara | 809.53 | 4.02 |
| 9. Kota Mataram | 61.30 | 0.30 |
| 10. Kota Bima | 207.50 | 1.03 |
| *Jumlah / Total* | 20 153.20 | 100.00 |

Source: BPS NTB Province (2012)

Table 2 shows that largest area is Sumbawa (664,398 ha), Bima (438,940 ha), and Dompu (232,460 ha), while the smallest area are North Lombok (80,953 ha), West Lombok (105,392 ha), and Central Lombok (120,840 ha).

**Topography and Climate Condition**

The topography of the island of Lombok and Sumbawa varies in altitude from zero to 3,726 m above sea level (asl) with physiographic classification of flat, sloping, undulating and mountainous.

Statistical data of Meteorology, Climatology and Geophysics Agency (BMKG) shows that West Nusa Tenggara has the highest rainfall in the month of March-April at 13.8 to 15.2 millimeters, which is scattered in 50% area of West Lombok and northern Central Lombok. The highest rainfall also occurs in the month of September to May which covers 50% area of North Lombok, Sumbawa, Dompu, and Bima. The average temperature ranges between 21.60 C to 31.70 C and the highest temperature occurs in September-October. West Nusa Tenggara region has a relatively high humidity, which is between 89-94%.

**Population and Main Livelihoods**

The population of West Nusa Tenggara in 2011 was approximately 3,805,537 inhabitants, made up of 1,866,051 male and 1,939,485 female. Most people lived as farmers with a relatively low education level on the average. The population of West Nusa Tenggara increased in the last five years (2007-2011) with the approximate number of 4,292,491 inhabitants in 2007; 4,363,756 in 2008; 4,434,012 in 2009; 4,500,212 in 2010, and up to 4,545,650 inhabitants in 2011 with a growth rate of around 1.01% -1.66% per year (BPS NTB, 2012).

The poverty rate in West Nusa Tenggara decreased in the last 3 years with figures of 23.40% (2008), 22.78% (2009) and 21.55% (2010). This suggests that there is a trend of declining percentage

of poor people in all districts which is arround 1.85% with the largest decrease occurring in West Lombok (4.38%) and the smallest decrease in the poverty rate in East Lombok (1.61%). Poverty reduction in West Lombok district is resulted from the development of the area as a tourism centre which is suported with the construction of hotels and restaurants that provide employment opportunities for communities (BPS NTB, 2012).

**The Development Policy in West Nusa Tenggara**

West Nusa Tenggara development policy formulated in RPJPD (Long Term Regional Development Plan) 2005-2025 is to encourage self-sustain and competitiveness of the region, namely: (1) the capabilities for self-development and professionalism of the society supported by the preservation and the sustainable management of natural resources and environment, the development of local knowledge, and the ability to utilize the capability more than other regions, and (2) the fulfilment of sustainable development i.e. the management and utilization of resources for the successful development for current generation by taking into account and being responsible for the future generations.

Medium-term development plan of the area (RPJMD) 2009-2013 are firstly to accelerate the economy growth based on local resources and to encourage investment by promoting sustainable developmen. Secondly, to accelerate the development of strategic infrastructures and the application of science and technology.

Policy in provincial spatial plan (RTRWP) is promoting the efforts to estabish West Nusa Tenggara as agribusiness and tourism cente. West Nusa Teggara RTRWP policy is the establishment of the region as the centre of agribusiness, tourism, marine and fisheries, as well as the establishment of a regional, national, and international transpotation connection.

HTR policies in West Nusa Tenggara is in line with the policy of RPJP (2005-2025). Associated, which is the capabilities for self-development and professionalism of the society supported by the preservation and the sustainable management of natural resources and environment, the development of local knowledge, and the ability to utilize the capability more than other regions.

**Land Use in West Nusa Tenggara**

The majority of land in NTB is still forested, moor, scrub, grassland, mixed farms, plantations, other land use, settlement/residential, farm land, land use for fishing, reed, reservoirs/ponds, and swamps. Analysis of land use in the last ten years (2005-2015) showed that land use continues to change. Only swamp is relatively unchanged. Land use change is dominated by the decrease of forests and paddy fields. Meanwhile, moor and village / settlement continue to increase (Kamil, 2002).

**Applied Agroforestry System**

Agroforestry system applied in West Nusa Tenggara is generally integrated dryland farming systems. It is also called sustainable agriculture system. This agroforestry system refers to the activities of soil and water conservation, business diversification, diversification of plants and the control of pests and diseases in an integrated manner (Kamil, 2002).

For soil and water conservation, terracing system is applied, in holes and rows. Each terrace is planted with plant species which is resistant to water shortage conditions, able to grow with main tree, and have a conservation characteristics such *Gliricedia sepium*, *Sesbania grandiflora*, *Leucaena leucocephala*, and others (Kamil, 2002).

**Tree species used**

Tree species selected to support sustainable agro-forestry programme (Kamil, 2002) are among others:

a. *Gliricedia sepium* is planted to protect terrace and used as forage, green manure, fuel wood for own consumption or for sale.
b. *Sesbania grandiflora* is planted to protect terrace and used as fodder and fuel wood.
c. Fruit trees (mango, papaya, guava, banana, pineapple, orange, melinjo, and others) are usually planted with a distance of 1-2 meters from the terrace to protect it. Pineapple is planted inbetween trees to produce fruits for daily needs and also for sale.
d. Seasonal crops (rice, beans, corn, soybean and vegetables) are expected to produce food for own needs as well as for sale.
e. Timber plants (*Paraserianthes falcataria*, *Tectona grandis*, *Swietenia mahogany*) are expected to produce timber for house construction, equipments, both for own use or for sale.

### 3.2. Forest Condition and HTR Development in West Nusa Tenggara

Total forest area in West Nusa Tenggara is around 1,035,838 hectares as defined in the Ministry of Forestry decree No.598/2009 as shown in Table 3. West Nusa Tenggara Forest Service utilizes around 1,071,000 hectares of forest area, where the boundary has been delineated. The forest area is lager compared to the aleady defined forest area in the above mentioned decree, which is 1,035,838 ha (NTB Provincial Forestry Office, 2012).

Table 3. Forest area and its function in West Nusa Tenggara Province

| No. | Forest Function | Area Size (ha) | Percentage (%) |
|---|---|---|---|
| 1. | Conservation Forest | 168,044 | 16.22 |
| 2. | Protection Forest | 430,485 | 41.56 |
| 3. | Permanent Production Forest | 150,609 | 14.54 |
| 4. | Limited Production Forest | 286,700 | 27.68 |
| 5. | Conversion Forest | - | - |
| | Total | 1,035,838 | 100.00 |

Source: the Minister of Forestry Decree No. 598/Menhut-II/2009

Lombok Island has one third of forest area in West Nusa Tenggara province. However, its population is almost two thirds of the total population of West Nusa Tenggara. Population density in Lombok island is higher than that of Sumbawa island. Therefore, forests in both Lombok and Sumbawa Islands needs to be protect in terms of quality and quantity as population is increasing and the need for land to support the population.

West Nusa Tenggara has been allocated for HTR area as 4,396 hectares or 10% of total production forest area. Meanwhile, 1,665.81 hectares have been issued for HTR license as shown in Table 4.

Table 4. Target and realization of HTR backup area in NTB Province

| No. | District | Allocated HTR area (ha) | The realization of HTR license (ha) | Percentage (%) |
|---|---|---|---|---|
| 1. | Sumbawa | 491.00 | 198.19 | 40.36 |
| 2. | West Lombok | 1,495.00 | 492,27 | 32.93 |
| 3. | Centra Lombok | 895.00 | 683.35 | 76.35 |
| 4. | Dompu | 355.00 | 355.00 | 100.00 |
| 5. | West Sumbawa | 1,160.00 | - | - |
| | Total | 4,396.00 | 1,728.81 | 39.33 |

Source: West Nusa Tenggara Provincial Forestry Office (2013)

Table 4 shows that the realization of HTR license in West Nusa Tenggara is very low, which is around 1,728.81 hectares or 39% of the total allocated HTR area (4,396 hectares). Districts with the highest realization of HTR license compared to allocated HTR area are Dompu (100%), Central Lombok (76.35%), Sumbawa (40.36%), and West Lombok (28.71%).

The number of cooperatives engaged in HTR activities in each district varies. It depends on the area size managed as shown in Table 5.

Table 5. Number and name of cooperatives involved in HTR programme in West Nusa Tenggara Province

| *No.* | *District* | *Number of Cooperatives (unit)* | *Name of Cooperatives (Number of Members)* | *Area Size (ha)* |
|---|---|---|---|---|
| 1. | Dompu | 1 | KSU LPMP Dompu (355) | 1.00 |
| 2. | Sumbawa | 1 | KSU KH Uma Dane (77) | 2.57 |
| 3. | Lombok Tengah | 4 | KSU Tekad Lestari (158) | 0.46 |
| | | | KU Karya Utama (247) | 0.50 |
| | | | KSU Makmur Bersama (582) | 0.61 |
| | | | KU Maju Bersama (147) | 0.88 |
| 4. | West Lombok | 1 | KSU Dharma Lestari (478) | 1.03 |
| | Total | 7 | 2,044 | |

Source: West Nusa Tenggara Provincial Forestry Office (2012)

Table 5 shows that in 2012, the largest number of cooperatives involved in the HTR programme was in Central Lombok (4 cooperatives). Meanwhile, in Dompu, Sumbawa, and West Lombok there was only 1 cooperative each. Area size managed by a farmer varies from the smallest (0.46 ha) located in the KSU Tekad Lestari of Central Lombok District and the largest (2.57 ha) located in KSU Hutan Uma Dane of Sumbawa District.

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 the 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).

**Central Lombok District**

Central Lombok District covers an area of approximately 120,839 hectares, with forest area of around 23,726.39 hectares (19.63%). Forest area is divided into conservation forest of 8,973.29 hectares (37.82%), protection forest of 11,453.10 hectares (48.27 %), and production forest of 3,300.00 hectares (13.91%).

The allocated HTR area in Central Lombok was issued by the Ministry of Forestry Decree No. SK.454/Menhut-II/2009 of 4 August 2009 and covers an area of 895.00 hectares. Of the total area allocated for HTR, 683.35 ha (76.4%) has been granted HTR license by the Central Lombok District. The area is distributed in the four villages as shown in Table 6.

Table 6. The distribution of HTR license in Central Lombok District

| *No.* | *Name of Village/ Sub-District* | *HTR area (ha)* | *Name of Group* | *Number of members (person)* |
|---|---|---|---|---|
| **1.** | Mangkung, S-D Praya Barat (3 groups) | 72.99 | Patre | 57 |
| | | | Lendang Andus | 43 |
| | | | Pelas | 58 |
| **2.** | Pandan Indah, S-D Praya Barat Daya (4 groups) | 124.03 | Nangker | 70 |
| | | | Rege | 65 |
| | | | Aik Kerit | 40 |
| | | | Sukalalem | 72 |
| **3.** | Batu Jangkih, S-D Praya Barat Daya (4 groups) | 130.22 | Bunga Hijau | 38 |
| | | | Lendek Johar | 40 |
| | | | Lendang saleh | 41 |
| | | | Perendek Owah | 28 |
| **4.** | Kabol, S-D Proya Barat Daya (9 groups) | 356.11 | Kending Sampi | 54 |
| | | | Lender | 51 |
| | | | Kangas | 82 |
| | | | Pampang | 50 |
| | | | Kabul I | 83 |
| | | | Kabul II | 43 |
| | | | Kabul III | 96 |
| | | | Kabul IV | 40 |
| | | | Kabul V | 83 |
| | Jumlah | 683.35 | 20 Groups | 1.134 |

Source: DisHutBun, Central Lombok District (2012)

The rest of allocated HTR of 211.65 ha is facilitated by the ITTO project starting from making proposals and boundary mapping. Up to 2013, HTR proposal is still in the process of verification at District Forestry Office related with checking maps by involving cooperative members.

HTR license holders have not proposed any HTR loan scheme due to the capability of farmers, low productivity of labour, and subsistence mindset. Therefore, the priority of activities carried

out by the District Forestry Office in Central Lombok is strengthening the capacity and capability of group members in order that the group could become more active and enthusiasm to manage HTR land.

The presence and the role of Bonga Mareje Association (AMB) is very important in the HTR development in Central Lombok. AMB is an association of community groups living around forest areas (13 villages). It was intiated in year 2001 and was established in 2003. Field sites of AMB has become a location and a laboratory of NGO Mitra Samia which was separated from an institution namely LP3ES in year 2001.

**West Lombok District**

In general, the area of West Lombok District is approximately 105,392 ha with forest area of around 65,543.2 ha (62.19%) comprising of 3,043.70 ha of conservation forest (4.64%), 29,893.50 ha of protection forest (45.61 %), 12 982 ha of production forest (19.81%), and 19,624 ha of limited production forest (29.94%).

Allocated HTR area in West Lombok District was issued by the Ministry of Forestry Decree No. SK.116/Menhut-II/2008 of 21 April 2008. It covers an area of 1,495.00 ha. Of the total area, West Lombok District has issued HTR license covering an area of 492.27 ha (32.9%) which is distributed in four villages as shown in Table 7.

Table 7. The distribution of HTR license in West Lombok District

| *No.* | *Name of village / Sub-District* | *Name of Group* | *HTR area size (ha)* | *Number of Members (prsn)* |
|---|---|---|---|---|
| **1.** | Kedaro, Sub-District Sekotong (3 groups) | Wanabhakti<br>Merta Sari<br>Mekar Jaya | 128.00<br>16427<br>200.00 | 153<br>134<br>191 |
| | Total | 3 | 492.27 | 478 |

Source: Forestry Office, West Lombok District (2012)

In West Lombok District, Dharma Lestari cooperative has already proposed a HTR license for an area of 508 hectares and has received technical verification from BP2HP Region IX Denpasar suggesting an area of 492.27 ha. At the moment, HTR license approval from the West Lombok District is on process (DFS NTB, 2012).

HTR license holders have not proposed HTR loan scheme due to absence of the facilitator supposing to facilitate the process. After his resignation in September 2012, no new assignment was made. The reason dealt with an administrative matter, where BP2HP will not appoint a new facilitator before the resignation letter of from West Lombok District is written . District Forestry Office requested the BP2HP to write a letter to the Head of District for the assignment a new facilitator and to end the contract of the previous one.

**Sumbawa District**

Sumbawa District covers an area of around 664,398 ha with a forest cover of around 45,994.62 ha (6.92%). From the total forest area, 28,537.90 ha is conservation forest (62.05%), 5751.71 ha is protection forest (12.50%), and 11,705.01 ha is production forest (25.45%).

The allocated HTR area was issued by the Ministry of Forestry Decree No. SK.115/Menhut-II/2008 of 21 April 2008 covering an area of 491 ha. Of the total area, the Head Sumbawa District has issued HTR license covering an area of 198.19 ha (40.36%). The HTR license is granted to Cooperative Uma Dene Forest Group, established by the Letter of Establishment No. 07/2009 of 6 August 2009 (DFS NTB, 2012).

HTR license holders have not proposed for any HTR loan scheme due to the capability of farmers, low productivity of labour, and subsistence mindset. Therefore, the priority of activities done by District Forestry Office in Sumbawa is strengthening the capacity and the capability of the group members to become more active and enthusiasm to manage HTR land.

**Dompu District**

The allocated HTR area in Dompu was issued by the Ministry of Forestry Decree No. SK.509/ Menhut-II/2009 of 4 September 2009 covering an area of 355 ha. Of the total area, the Head of Doumpu District has issued HTR license in the Pajo Production Forest RTK 42, covering an area of 355 ha (100%), which is distributed in two villages as shown in Table 8.

The LPMP Dompu cooperative is managing the area of 355 ha (100% of the target). LPMP Dompu Cooperative is the only cooperative that has received a loan scheme from BLU P2PHT MoF in the first term amounting to of Rp. 2,559,570,000. The loan will be paid in 10 payments stage (DFS NTB, 2012).

From the review done on the ground regarding farmers' participation in the Cooperative LPMP Dompu, it shows that there are still constraints in terms of management arrangements in the field. During the field visit, there was a debate between the cooperative management and cooperative members regarding seedling distribution. On the one hand, the cooperative claimed that it has distributed around 1000 seedlings. However, three farmers stated that they received only around 200 seedlings, while they did not the rest. This indicated that the management and administration of seedling distribution process was not well documented on the responsible person who deliver the seedlings, who receive and verify the quantity and quality of seedlings, and who distribute seedlings to farmers and to provide receipts from the farmers who receive the seedlings.

Table 8. HTR license distribution in Dompu District

| *No.* | *Name of village/ Sub-District* | *HTR area size (ha)* | *Name of Group* | *Number of members (prsn)* |
|---|---|---|---|---|
| **1.** | Jambu, S-D Pajo (3 groups) | 150 | Mori Sama | 21 |
| | | | Nggaro Uma | 24 |
| | | | Fo'o Mpoa | 23 |
| | | | Maju Bersama | 18 |
| | | | Sambi Nae | 25 |
| | | | Felo Janga I | 25 |
| | | | Sinar Baru | 22 |
| | | | Sama Ade | 25 |
| **2.** | Cempi Jaya, S-D Hu'u (4 groups) | 205 | Hutan Jati | 21 |
| | | | Balumba Ngampa | 16 |
| | | | Sori Moro | 21 |
| | | | Foto Mare | 24 |
| | | | Cempi Makmur | 24 |
| | | | Sama Kai | 23 |
| | Total | 355 | 14 | 312 |

Source: DisHutBun, Dompu District (2012)

### 3.3. Problems in HTR Development in West Nusa Tenggara

Common problems encountered in HTR development in West Nusa Tenggara are: (i) a a legalization of non-procedural forest management through HTR programme, (ii) HTR management in the field, (iii) the composition of HTR plants in the field, (iv) instant institutional system needed by HTR programme, and (v) the absence of performance measures for HTR facilitators.

HTR programme in West Nusa Tenggara is still interpreted as the legalization of a non - procedural occupation of forest areas by communities. Therefore, HTR programme is welcomed by communities who are not willing to claim state forest land as their own, rather just to be involved in managing the forest land as their farm land. This conditonfirmed by Technical Unit of DG of Forest Utilization (BP2HP) staff who daid that not all people have understood the objectives of HTR programme. Farmers consider HTR programme as simply a legalization of forest land they have occupied for a long time because of the scarcity of farming lands in both Lombok and Sumbawa islands. This issue also occurs in other provinces. Febriani ( 2012) stated that the same case occurs in Jambi Province particularly in Muaro Jambi district. Farmers do not care about loan scheme which can be proposed to the BLU - P2PH. For them, the access right to manage state forest land is the most important thing.

The Minister of Forestry Regulation No. P.55/2008 regulates HTR scheme, which is : independendent, partnerships, and developer scheme. HTR license holders prefer Independent scheme. However, in practice the scheme is not implemented as what it should be done which is trust

given by the government to communities to manage their HTR areas. In fact, LPM Dompu is the only cooperative which received revolving loan from BLU.

In HTR programme, communities are allowed to plant various main tree species in a combination with other perennial crops. The examples are wood for construction and carpentry such as *Shorea spp, Tectona grandis, Paraserianthes falcataria*, *Swietenia mahogany,* and others, fibre wood producing trees such as *Gmelina arborea*, *Acasia spp.,* and others. Meanwhile, multi purpose tree species (MPTS) include rubber tree, jackfruit, rambutan, hazelnut, mango, and others. The percentage composition of tree species is around 70% and perennial crops is around 30%. This composition does not include intercropping . However, in reality farmers mostly apply agro-forestry system, where the main trees are combined with seasonal crops such as rice, corn and others. This was confirmed by the BP2HP staff that farmers tend to maintain seasonal crops instead the trees since farmers do not fully understand the objectives of HTR programme.

HTR development aims to provide jobs and to enhance people's income as to alleviate poverty. Therefore, HTR development activities need to be supported and funded by the government in this case the Ministry of Forestry ( Subarudi and Sidabutar , 2002). However, over time, the implementation of HTR development is almost the same as other policy implementation i.e. KUHR (People's Forest Business Credit), Gerhan (National Movement for Forest and Land Rehabilitation), KUK - DAS (Conservation and Watershed Business Credit), and HPH - Bina Desa and PHBM programme (Forest Management by involving Communities). Those programmes do not prepare communities with institutional capacity building prior to the the programme implementation. HTR programme is not formulated by learning from the failure of the previous programmes above. The implementation of forestry programmes ignores the need to facilitate farmers to enhance their institutional capacity prior to the programme implementation, instead to implement the programme immediately without preparation.

The roles of facilitators in HTR programme implementation are very important and strategic for the success of HTR programme. Facilitators may come from the communities, extension workers, NGOs, and universities. They are recruited by the Region IX BP2HP Denpasar. The facilitators are the assigned by a Decree issued by the District Head. Table 9 shows the difference of the facilitators' roles and responsibilities between in West Lombok District (Decree no. 44 in 2011) and in Dompu District (The Head of Dompu District Decree No. 66 in 2011).

Table 9. The differences of the roles and responsibilities of HTR facilitators in West Lombok and Dompu Districts

| No. | Main duties of HTR facilitators at District | |
|---|---|---|
| | West Lombok | Dompu |
| 1. | Institutional development of community groups | Facilitating technical activities of HTR development |
| 2. | Facilitating the application for HTR license | Facilitating farmer groups in HTR activities |
| 3. | Preparing HTR work plan | Preparing reports on the progress of facilitation activities |
| 4. | Facilitating access to capital market | Facilitating loan distribution to farmers and payment to BLU |
| 5. | Establishing business | Facilitating other HTR related activities. |

Source: Decree of West Lombok and Dompu Districts

Table 9 shows that performance criteria and indicators has not been formulated. Facilitators' roles and responsibility vary from one District to another. Since there is no standardized criteria and indicators, it is difficult to measure the performance. Another issue relates to the continuation of salary payment for the facilitators. BP2HP is responsible for the salary payment and other operational cost for facilitators for 3 years. After the period, the District Forestry Office is expected to continue the salary payment and other associated operational cost for facilitators until the HTR plantation has been harvested and the revolving loan has been returned to BLU.

Specific problems that are often faced by HTR farmers are: (i) small land management right, (ii) inability to work as a group, (iii) not optimal land use, (iv) difficulty in managing group administration system, (v) incapability of HTR cooperative management, (vi) non conducive physical, weather, and climate condition for plant growth, and (vii) unmeasurable performance of HTR facilitators.

Small area of HTR management make farmers sceptic for their ability to return the loan to BLU. As stated by Nandini (2008), benefit received by HTR farmers is not sufficient to support their livelihoods due to a small area of HTR management. For Community Forestry initiated by OECF in West Lombok for example, the average arable land is around 0.7 ha for each farmer.

The difficulties for farmers to work in groups were also mentioned during the FGD in Bonga Mareje Association Office. A group leader complained that members work individually in their respective fields disregarding the direction from the cooperative leader. However, the cooperative leader does not dare to take action to the members who violate the collective agreement. According to Sukito (2008 ), farmers in West Nusa Tenggara have not been able to organize the farmer groups. Farmer groups were formed just to get the legalization of their activities to manage state forest land. After farmers were given a legal access to state forest land, they work individually not as a group, however. Muktasam and Nurjannah ( 2011) gave a similar result. The limiting factor for the performance of local institutions in the management of its natural resources is the limited capacity of

local institutions as expressed in FGD and by the key informant who stated that "the vision and mission of the group is not clear" and that "the capacity of both cooperative management and members is relatively low". Meanwhile, external factor which contributed to such condition was the the lack of guidance by the relevant institutions.

Land utilization through HTR programme has not been optimal. It can be observed from the main trees which were not well maintained, the presence of weeds and shrubs, and unused land. Sukito (2008 ) confirms that farmers involved in Community Forestry in West Nusa Tenggara have not optimally managed their land by planting various crops and by planting prospective medicinal plants to increase their income .

The difficulty in managing the administrative system was indicated by the debate occurring during the field visit at a HTR site visit in Dompu in relation to the allocation and the distribution of seedlings. They said that they did not use a proper administrative system and management when they were asked about the quantity and quality of seedlings being sent to the field, the person who check the quantity and quality of the seedlings, the person who receives the seedlings, and where the seedlings are planted.

The capability of cooperative management was characterized by not transparent and not accountable administration and financial management. It should be improved thrfocused training to change though trainings which focus on changing farmers' mindset from subsistence farmer to professional farmer who are business-oriented. According to Zainal (2007) in Nandini (2008), besides issue in small size of arable land, the failure of Community Forestry programme is caused by: (i) simple and subsistence farm system, (ii) the farmers' entrepreneuship capability where farmers are more interested in seasonal crops, (iii) no legal certainty, and (iv) still "on farm" management without paying attention to inputs, post-harvest and marketing causing a small added-value of products.

Non conducive physical, weather, and climate conditions for plant growth are also a common problem for farmers in West Nusa Tenggara. Nandini (2008) suggested that another factor that affects the successful implementation of Community Forestry is the physical condition of the land. Rainfall during the dry season is relatively low (an average of 900-1,500 mm per year, classified as E-F climate) and a long daylight where the sun shines for a long time in a day causing plants not survive. Therefore, communities manage land intensively only during the rainy season.

The performance of HTR facilitators is difficult to measure. Therefore, BP2HP should develop criteria and indicators to measure the performance of facilitators and therefore to make the operational cost expended effective. A standarized reporting system that emphasizes the learning process from any activities carried out by HTR facilitators should be formulated.

The concept of sustainable HTR programme in Dompu District was proposed proposed by Harris (2012):

1) The maintenance and protection of existing plants prior to granting HTR license are needed.
2) The utilization of land should be optimal through the development of business that provide added value to improve household income of communities.
3) There is the need to establish communication with the investor in relation to product marketing (joint efforts of all agencies) to build a lumber mill in West Nusa Tenggara.
4) There is the need to enhance the capacity of cooperative and farmers.
5) To apply the rules to the farmers and cooperatives on rights, responsibilities, and sanctions.
6) There is the need for periodic monitoring and evaluation by relevant agencies to identify problems and seek alternative solutions.

# IV. RESULT AND DISCUSSION

## 4.1. Financial and Economic Feasibility of HTR Management

The fundamental difference between financial analysis and economic analysis in the evaluation of the benefits and costs of agroforestry business activities are as follows: financial analysis in the evaluation of cost-benefit refers to the revenues and expenditures which reflect actual market price received or paid by the operators (farmers). Meanwhile, economic analysis refers to the comparative advantage or the efficiency of the use of goods and services in a productive activity. Efficiency in this case is defined as the allocation of economic resources that are used for activities that produce outputs with high economic value (Budidarsono, 2002).

### Financial Analysis of HTR Business

For HTR financial analysis, data analysis on the stages of HTR activities, the analysis of cost component and revenues from HTR business, as well as the feasibility analysis using the parameters NPV, BCR, and IRR are needed. Tree species used for the analysis is *Paraserianthes falcataria.*

The selection of *Paraserianthes falcataria* for the financial analysis is because *Paraserianthes falcataria* is planted by farmers in West Nusa Tenggara and the product is easily marketed. Besides, farmers mentioned that *Paraserianthes falcataria* grows well is fast in their yards as border plant. Meanwhile, regarding to *Paraserianthes falcataria* planted in the HTR areas, farmers mentioned that the seedlings quality is poor as well as the abilty to grow in the field. It is assumed that the low survival rate of sengon seedlings is due to inproper planting techniques, such as the size of the planting hole is slightly larger than the size of the polybags of sengon seedlings, planting holes are also not added with *bokasi* fertilizer or chemical fertilizer in advance, so it difficult for the roots of sengon seedlings to penetrate the clay soil without adequate nutrient intake. This results in a low survival rate of *Paraserianthes falcataria.*

### Stages in activities of HTR Business

Table 10 shows the stages of the activities performed during a single rotation of *Paraserianthes falcataria* crop.

Table 10. The stages of activities carried out every year in HTR business

| No | Activity Component | Year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | PLANTING | | | | | | | | | |
| 1 | Nursery and seedling | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| 2 | Land Preparation | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| 3 | Planting | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| B | TENDING | | | | | | | | | |
| 1 | Tending year 1 | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| 2 | Tending year 2 | | √ | √ | √ | √ | √ | √ | √ | √ |
| 3 | Tending year 3 | | | √ | √ | √ | √ | √ | √ | √ |
| 4 | Extended Tending 1 | | | | √ | √ | √ | √ | √ | √ |
| 5 | Extended Tending 2 | | | | √ | √ | √ | √ | √ | √ |
| C | FOREST PROTECTION | | | | | | | | | |
| 1 | Pest and disease control | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| 2 | Fire control | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| 3 | Forest safeguarding | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| D | HARVESTING/FELLING | | | | | | | | | √ |

***Cost Components in HTR Business***

Cost components were explored from the experiences on timber of farmers managing their private land (Table 11). The assumption used for the cost calculation is the planting cost of *Paraserianthes falcataria* per hectare.

Table 11. Cost components of HTR business per hectare

| No | Activity component | Unit (Ha) | HTR Unit Cost (Rp) |
|---|---|---|---|
| A | PLANTING | | |
| 1 | Nursery and seedling | Ha | 1,380,000 |
| 2 | Land preparation | Ha | 3,600,000 |
| 3 | Planting | Ha | 2,000,000 |
| | Total A | | 6,980,000 |
| B | TENDING and PROTECTION | | |
| 1 | Tending at year 1 | Ha | 475,000 |
| 2 | Tending at year 2 | Ha | 470,000 |
| 3 | Tending at year 3 | Ha | 400,000 |
| 4 | Extended Tending 1 | Ha | 400,000 |
| 5 | Extended Tending 2 | Ha | 400,000 |
| 6. | Extended Tending 3 | Ha | 400,000 |
| | Total B | | 2,550,000 |
| | **Total A + B** | **Ha** | **9,530,000** |

HTR cost components (Table 11) is used due to the difficulties to collect information related to the cost of seeding, land preparation, and planting since farmers usually get the seedlings from the government programme or for free.

**Income from HTR Business**

Cropping pattern in HTR sites in West Nusa Tenggara is monoculture, without any other plants, including food crops (without intercropping). Thus, the source of income for farmers is timber at the end of the *Paraserianthes falcataria* cycle which is at the 8th year after planting as shown in Table 12.

Table 12. Income of farmers from HTR business per hectare

| Planting cycle | 8 years |
|---|---|
| Minimum increment per hectare at the end of cycle | 70 m3/ha (annual increment of 10m3/ha) |
| Maximum increment per hectare at the end of cycle | 280 m3/ha (annual increment of 40m3/ha) |
| Market price of *Paraserianthes falcataria* wood | Rp 400,000/m3 |
| Minimum income per hectare | Rp 28,00,000.00 |
| Maximum income per hectare | Rp 84,000,000.00 |

The assumptions of minimum and maximum increment of *Paraserianthes falcataria* wood is based on research results by Lemmens (1993) which states that the average volume increment of *Paraserianthes falcataria* each year varies between minimum of 10-25 m3/ha and maximum of 30-40m3/ha. The average value of the smallest annual increment (a conservative calculation) is 20 m3/ha.

**NPV, BCR, and IRR Analysis**

To calculate the financial analysis of HTR business, a discount rate of 10% is used (adjusted to deposit rates of State-owned Banks in 2012). Cost and benefits reduction at a certain discount rate is a calculation to determine the feasibility of the investment. Criteria used in the feasibility assessment of HTR business is NPV, BCR, and IRR (Andayani, 2008). The results of the HTR business financial analysis is shown in Table 13.

The assumptions for the calculation of income used in the financial analysis are by using the median value of harvesting revenue which is Rp 56,000,000. Financial feasibility parameters on the income level shows that HTR business is feasible with NPV: Rp 20,054,791; BCR: 3.31, and IRR: 28%.

Table 13. Financial analysis of HTR *Paraserianthes falcataria* plantation

| Year $n^{th}$ | Cost Component | Cost | Discounted Value (i=10%) | Income | Discounted Value |
|---|---|---|---|---|---|
| 1st | Land and Planting Preparation | 6,980,000 | 6,254,545 | - | |
| 2nd | Tending at 1st year | 475,000 | 392,562 | - | |
| 3rd | Tending at 2nd year | 475,000 | 356,875 | | |
| 4th | Tending at 3rd year | 400,000 | 273,205 | - | |
| 5th | Extended Tending 1 | 400,000 | 248,369 | - | |
| 6th | Extended Tending 2 | 400,000 | 225,790 | - | |
| 7th | Extended Tending 3 | 400,000 | 205,263 | | |
| 8th | Harvesting | - | | 56,000,000 | 28,736,855 |
| | **Financial Analysis** | **NPV (8 year)** | | **20,054,791** | |
| | | **BCR (8 year)** | | **3.31** | |
| | | **IRR (8 year)** | | **28.1%** | |

Based on the calculation of the feasibility criteria for an eight year cycle, a value of NPV is Rp 20,054,791. Therefore NPV> 0, meaning that the HTR business is profitable because the benefits received by the project is higher than the total costs expended. The result also shows that the present value of the net profits received by HTR farmers is positive for one rotation of *Paraserianthes falcataria.*

The calculation of B/C ratio is to determine whether a particular cost expended will give greater benefits. The result of the calculation of B/C indicates a positive value (3.31). This means that *Paraserianthes falcataria* HTR business is feasible. It also means that any expenditure of Rp 1 will give a benefit of Rp 3.31.

IRR calculation is the average rate of annual profits for companies that invest and it is expressed in percentage (Gittinger, 1986). Based on the calculation, the value of IRR (28%)> i value (10%). It means that the *Paraserianthes* falcataria HTR business is feasible because the value of the benefit is much higher than the current interest rate of the Bank.

Unlike HTR management in Central Lombok, West Lombok and Sumbawa, HTR management in Dompu applies Independent scheme and receives loans from BLU (Forest Development Funding Centre or P3H), worth of Rp 2,559,570,000. It will be paid in 10 stages with an interest rate of 7.25% per year (Table 14).

Table 14. P3H loan characteristics to KSU Swadaya LPMP Dompu

| No. | Loan charactristics | Description of Loan Information |
|---|---|---|
| 1. | Name of facility | Revolving loan to finance HTR development |
| 2. | Purpose of loan | Strengthen the capital of KSU Swadaya LPMP Dompu to support HTR development |
| 3. | Total loan | Rp 2,.559,570,000 |
| 4. | Loan period | Maximum 12 years after the first transfer of loan |
| 5. | Interest rate | 7.25% fixed rate per annum applied from the time loan was transfered |
| 6. | Payment scedule | The payment and the calculation of interest will be provided by the BLU-P3H to the Debtor after the disbursement of the revolving loan was recorded at the first time. |
| 7. | Provision cost | Povision cost refers to the Regulation of the Minister of Finance on BLU-P3H service cost |
| 8. | Administration cost | Administration cost refers to the Regulation of the Minister of Finance on BLU- P3H service cost |
| 9. | Collateral | Plantation financed by revolving loan as personal guarantee but has a joint consequence for the risk of payment.. |
| 10. | Area Site | Refers to the map as an Appendix of The Head of Dompu District Decree No. 158 of 2010 regarding HTR licence of KSU Swadaya LPMP Dompu |

Sumber: Adnan (2011)

Table 14 shows loan characteristics disbursed by P3H as a lender and KSU Swadaya LPMP Dompu as a loan recipient.

The issue complained by the cooperative leader is cost to register the loan document which cost around Rp 25 million. This cost had to be borne solely by the cooperative because the cost allocation is not listed in the HTR loan scheme. In the future, it is expected that the cost could be allocated from the P2H Centre. Registering the loan document is important as a legal base.

### 4.2. Market Analysis and Market Channel of HTR products

#### Market and Marketing of HTR wood in West Nusa Tenggara Province

To support the successful HTR management, there should be a guarantee for market for HTR products. Marketing activities of HTR timber production in West Nusa Tenggara province can not be identified because the HTR activities is in the early stages of planting. The tree age of trees is around 20-24 months (data from interview with the Leader of Maju Bersama cooperative). Therefore, the data on marketing activity was collected from timber market that had been done by the local people from their private land. Marketing analysis uses value chain concept , i.e. tracing products from one market actor to the next. This discussion is focused on market and marketing of HTR wood products.

Market of roundwood trade is primary wood industries such as sawmills, plywood industry, moulding industry, furniture industry, pulp and paper industry, and particle board industry. There are two wood industries, namely PT. Meiniwang and UD. H. Safei in West Sumbawa which has been

operating with a capacity below 2,000 m3 per year. Raw material is obtained from Wood Utilization license (IPK) of PT Newmont while operating mining activity in forest areas (NTB District Forestry Service, 2012).

Meanwhile, data from Statistical Centre of West Nusa Tenggara or BPS NTB (2012), showed that there were four units of wood and rattan processing industries with around 125 workforce, input of Rp 15.98 billions and output of Rp 22.98 billions. There were 3 industries i.e. wood moulding industry, bamboo and rattan industry, and wood carving. The total workforce is 125 people, input of approximately Rp 401 millions, and output of Rp 171 millions. Data on the number of wooden craft industries mentioned above is different from the data on the export volume of the products in the forms of: (i) wooden craft with a volume of 7,907 tons (U.S. $ 61,160,524), (ii) rattan with a volume of 27,501 tons (U.S. $ 75,232,809), and (iii) bamboo craft which a volume of 3,315 tons (U.S. $ 11,607,638) (BPS NTB, 2012).

Data related to the sale of various wood species (divided into two groups) and its production volume in the province of NTB in the last 10 years is shown in Table 15. Table 15 shows that in the last two years (2010-2011), the volume of timber production reached 16,528 m3 in (2010) and 24,509 m3 in (2011): (i) Teak which was around 1,503 m3 (2010) and 1,504 m3 (2011) and (ii) mixed wood of approximately 15,025 m3 (2010) and 23, 004 m3 (2011).

Table 15 Forest products based on wood species in the year 2000-2010

| Tahun / *Year* | Jati *Teak* ($m^3$) | Kayu Kebun *Garden Wood* ($m^3$) | Rimba Campuran *Jungle Wood* ($m^3$) | Rajumas *Dua Banga* ($m^3$) | Jumlah *Total* ($m^3$) |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 2000 | 122.26 | - | 1 807.11 | 41 203.40 | 43 132.77 |
| 2001 | - | - | 761.19 | 51 655.94 | 52 417.13 |
| 2002 | - | - | 19 004.37 | 43 737.70 | 62 742.07 |
| 2003 | - | - | 37 546.49 | 39 976.42 | 77 522.91 |
| 2004 | 64.65 | 5 546.69 | - | - | 5 611.34 |
| 2005 | 370.01 | 3 035.29 | 397.28 | 513.73 | 3 898.92 |
| 2006 | 620.85 | 5 266.72 | 10 093.69 | 17 137.80 | 33 119.06 |
| 2007 | 1 403.42 | 7 871.58 | 13 554.76 | 5 529.43 | 28 359.19 |
| 2008 | 2 022.42 | 13 106.59 | 6 225.49 | 2 673.16 | 24 027.66 |
| 2009 | - | 2 647.88 | 5 545.12 | 1 158.74 | 3 806.62 |
| 2010 | 1 503.00 | - | 15 025.38 | - | 16 528.38 |
| 2011 | 1 504.48 | - | 23 004.50 | - | 24 508.98 |

Source: BPS NTB Province (2012).

However, there was no record on Rajumas (*Duabanga* sp) timber production in 2010 and 2011. During the field visit, it was observed that *Duabanga sp.* was sold by merchants.

The results of the analysis of supply and demand of sawn timber in West Nusa Tenggara province in the year 2008-2011 is shown in Table 16.

Table 16. Production of logs and sawntimber in West Nusa Tenggara in the year 2008-2011

| No. | Wood production | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| 1. | Log ($m^3$) | 24,027 | 3,806 | 16,528 | 24,508 |
| 2. | Sawntimber ($m^3$)<br>(Log equivalent) | - | 12,270<br>(24,540) | 16,528<br>(33,056) | - |
| 3. | Sawntimber from outside West Nusa Tenggara ($m^3$) | 7,504 | 18,341 | 5,701 | 10,901 |
| | Total sawntimber ($m^3$) | 7,504 | 30,611 | 22,229 | 10,901 |

Source: BPS NTB Province (2012)

Table 16 shows three important points related to: (i) data on timber production, (ii) imbalance between supply and demand, and (iii) timber supply from outside West Nusa Tenggara. Production data on logs and sawn timber was not well documented by the Provincial Forestry Office since the Industrial licence is issued by the Department of Trade and Industry. However, since the establishment of Office for license process service, the industrial license is processed in this office. Based on the information, no permit has been issued for sawmills.

The production data on logs and sawntimber (already converted to the equivalent volume of logs with a yield of 50%) in West Nusa Tenggara (Table 16) showed a gap of timber supply of approximately 20,734 m3 (2009) and 16,528 m3 (2010). Sawn timber supply from outside West Nusa Tenggara in the last 5 years (2007-2011) showed that the highest proportion came from Southeast Sulawesi (18,288 m3), followed by South Kalimantan (10,886 m3), Central Kalimantan (9,688 m3), Central Sulawesi (8,076 m3), and East Nusa Tenggara (6,246 m3) (BPS NTB, 2012).

HTR plantation is still at the stage of plant maintenance since planting activities had just started in 2010. However, based on a survey on timber trade in the field, sawmills receive raw material from private lands. The marketing mechanism is as follows: (1) wood owner sell wood directry to sawmills, (2) wood owner sell wood to wood collectors and then wood collectors sell wood to sawmills, and (3) the owner of sawmill acted as wood collector as well.

**Analysis of Margin Distribution**

To determine the distribution of the benefits received by each business actor, the structure of the acquisition starting from the analysis of development cost of *Paraserianthes falcataria* plantation up to the determination of the product selling price is described.

*Paraserianthes falcataria Plantation*

a. Market price of *Paraserianthes falcataria* logs

*Paraserianthes falcataria* plantation is planted monoculture with an initial planting of 600-800 trees per hectare. It is by assuming that there will be at least 400 *Paraserianthes falcataria* trees survive until the end of planting cycle (harvested at year 8). Based on rmarket surveys and interviews using FGD method with farmers and HTR timber merchants, market price of standing *Paraserianthes falcataria* trees is Rp 400,000 per cubic meter.

b. Marketing cost analysis

Marketing costs include chainsaw cost (tree felling and bucking), minor transportation costs (from forest to log deck at forest edge) and major transporation (from log deck to market), loading and unloading costs, administrative cost, and other charges. The following is the recapitulation of marketing costs based on existing marketing patterns in West Nusa Tenggara province (Table 17).

Table 17. Marketing cost per $m^3$ of *Paraserianthes falcataria* logs in West Nusa Tenggara

| No | Cost types | Marketing cost (Rp/$m^3$) |
|---|---|---|
| 1 | Chainsawman fee (felling – bucking) | 400,000 |
| 2 | Minor transport to deck (manpower) | 10,000 |
| 3 | Major transport to factory (truck) | 50,000 |
| 4 | Load – unload (manpower) | 30,000 |
| 5 | Administrative cost (permit, retribution, tax, and others) | 10,000 |
| Total | | 500,000 |

c. Distribution of Profit and Margin

Value chain analysis distinguishes between profit and margin. Profit is profit for each market actor by considering all costs expended. In other words, profit is derived from the gap between total revenue and total cost expended by each actor. Meanwhile, the margin distribution in a value chain is derived from the difference of revenue between what is received by a market actor and other market actors in the previous chain.

The results of the analysis of the level of profit margin of farmers and collector traders in the *Paraserianthes falcataria* sawmill industry is shown in Table 18.

Table 18. The calculation of profit margin among *Paraserianthes falcataria* market actors in Central Lombok

| ***No.*** | *Market chain actor* | *Sale price (Rp)* | *Profit margin (Rp)* | *Profit margin (%)* |
|---|---|---|---|---|
| 1. | HTR Farmers | 400,000-500,000 | 400,000-500,000 | 34.6-43.1 |
| 2. | Collector traders | 700,000-800,00 | 200,000-400,000 | 21.6-27.7 |
| 3. | Sawmill (recovery of 55%) | 1,272,727-1,454,545 | 327,273-545,455 | 35.3-37.7 |
| 4. | Sawntimber sale price | 1,800,000-2,000,000 | | |

Source: Primary Data (analysed)

Table 18 shows that the highest profit margin from community forests is received by wood industry with a profit margin of Rp 327,270-545,460 per m3 of wood (35-37%). The second highest profit is received by collector traders which is Rp 200,000-400,000 per m3. Traders' profit margin per unit time is higher than the profit margin for timber farmers/owners who receive Rp 400,000 after 8 years of planting. This indicates that within a chain of timber trade system, farmers are in the weakest position due to the lack of information on the wood price. So, the collector traders can take advantage of such situation. Profit margin of traders is even higher since based on the information from an interview with one of the owners of the sawmill traders add another profit margin of around 10% of the price received by farmers as a sales commission for selling wood to the sawmill.

Timber traders buy wood by an estimation mechanism. This results in a lower estimation of the actual wood volume. To reduce the loss of timber assessment, Akhmad (2012) have provided a measuring tape for *Paraserianthes falcataria* wood. The tool has been modified so when it wrapps the tree trunk, the cubic meter volume is automatically read as shown in Figure 1.

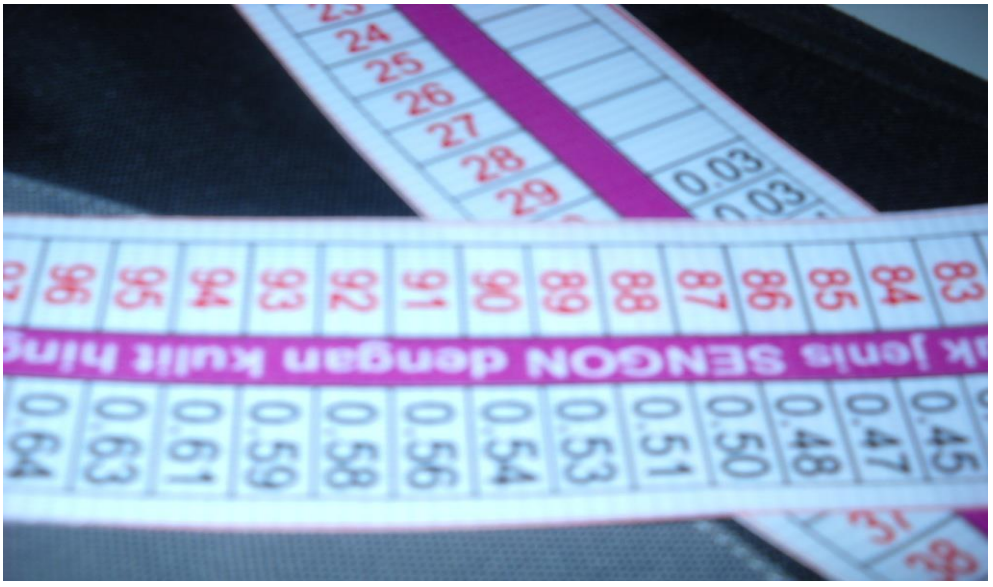


Figure 1. *Paraserianthes falcataria* wood volume measuring tape (Source: Akhmad, 2012)

Lesson learned from timber market produced by community forests is that there is no standard price. Profit for buyers/wood traders between Rp 200,000 – Rp 400,000/m3 should not been considered as a small value. The argument is that the tarders receive such profit in a relatively shorter time compared that of farmers who wait longer to get the benefit. In addition, the profit per transaction of timber can reach a minimum Rp 1 million or 5 m3 per transaction (interview data). Meanwhile, the profit received by tree owner is Rp 400,000/m3 and is received after waiting for a period of rotation age of trees or more than 5 years.

*Rajumas (Duabanga sp.), Mixed wood and Teak wood*

Interviews with Dompu Forest Service officials revealed that sawn timber price in the local market for Teak is around Rp 4-6 millions/m3, for *Duabanga sp.* timber is around Rp 2.8-3.0 millions per m3. Registered timber depot will use a sawmill vehicle when there are orders from buyers. Almost every registered owner of the timber depot has a truck or a pick up truck to deliver wood ordered by buyers.

Registered wood depot is not allowed to have a wood sawing machine. So, if it is needed the wood depot will ask the owner of a mobile sawmill to saw wood at the office of registered wood depot. UD.Tambora company in Sumbawa as one of the registered wood depot mentioned that: (i) its wood stock ranges between 50-400 m3 per month, (ii) UD. Tambora sometimes delivers *Duabanga sp.* to Lombok because there is still a profit margin, (iii) land is rented for Rp 10 millions per year (2012), whereas in 2006 the rent was Rp 6 millions per year. It means that land rent increases 11.1% per year, and (iv) UD. Tambora had experienced no stock of *Duabanga sp.* due to a long time of wood delivery waiting period.

The result of analysis of the level of profit margin received by farmers and collector traders in the timber trade system in Sumbawa is shown in Table 19. It shows that the selling price of *Paraserianthes falcataria* sawn timber, teak, and mixed wood varies at the level of farmers, collector traders, and sawn timber depot owners. Price at a farmer level plus harvesting cost and transportation cost are borne by traders. Meanwhile, the cost of sawing raw materials (with a recovery of 70%) and wage cost is expended by the depot owner. The highest profit margin is received by traders (36-63%). The second highest profit margin is received by the owner of timber depot (21-28%), profit margin received by farmers is 10-24 %, and profit margin received by sawmill service providers is 4-12%. This indicates that within the chain of timber trade system, farmers are in the weakest position due to a lack information .traders buy timber through an estimation mechanism. The estimated volume is often lower than the actul volume.

Table 19. the calculation of profit margin among market actors in Sumbawa District

| No. | Market Chain Actors | Sales price (Rp Million/$m^3$) | Cost (Rp Million /$m^3$) | Profit Margin (%) |
|---|---|---|---|---|
| 1. | HR farmer | | | |
| | - Rajumas (*Duabanga sp.* Wood) | 1.12 | 1.00 | 9.94 |
| | - Mixed wood | 1.20 | 1.00 | 23.93 |
| | - Teak wood | 1.80 | 1.50 | 11.89 |
| 2. | Collector trader | | | |
| | - *Duabanga sp* wood | 2.2 | 1.52 | 56.33 |
| | - Mixed wood | 1.9 | 1.60 | 35.89 |
| | - Teak wood | 3.8 | 2.20 | 63.45 |
| 3. | Mobile sawmill owner | | | |

| No. | Market Chain Actors | Sales price (Rp Million/$m^3$) | Cost (Rp Million /$m^3$) | Profit Margin (%) |
|---|---|---|---|---|
| | (recovery 70%) | | | |
| | - *Duabanga sp.* wood | 0.15 | 0.05 | 8.28 |
| | - Mixed wood | 0.15 | 0.05 | 11.96 |
| | - Teak wood | 0.15 | 0.05 | 3.97 |
| 4. | Sawnwood Depot Owner | | | |
| | - *Duabanga sp.* wood | 3.3 | 2.99 | 25.11 |
| | - Mixed wood | 2.8 | 2.56 | 28.20 |
| | - Teak wood | 5.8 | 5.28 | 20.68 |
| | Total Profit | | | |
| | - *Duabanga sp.* wood | | 1.21 | 100 |
| | - Mixed wood | | 0.83 | 100 |
| | - Teak wood | | 2.52 | 100 |

Source: Primary Data (analysed)

While the benefits received by middlemen and timber depot owners on *Duabanga sp*, Mixed wood, and Teak, it is suggested that HTR farmers in West Nusa Tenggara propose the three tree species as the priority tree species planted for HTR programme. In addition, HTR farmers should be equipped with sawmills so profit margins received will be higher because the profit margin of traders, sawmill service owner, and depot owners will switch into HTR farmers who are equipped with a simple sawing unit.

To encourage HTR wood business to be more attractive, it is necessary to study wood base price. Some basic pricing methods for HTR timber will be further discussed below.

### 4.3. Analysis on Base Price Determination of HTR Products

All respondents (officials and farmers) in Central Lombok, West Lombok, Sumbawa and Dompu agree that there is a need to determine a standard price for HTR products. They do not know how to determine the standard price, however. Almost all respondents expressed uncertainty whether the government is able to control the price of HTR wood products.

In general, there are three main factors that affect wood price. They are: (1) wood species. Price varies depending on wood species, (2) the specification of timber use. Wood for woodworking is more expensive than wood for pulp, and (3) planting cycle. Wood price varies depending on planting cycle. Trees produce different wood volume and quality which are determined by annual increment (Irawati, et al., 2008).

Irawati, et al. (2008) has conducted studies related to base price of HTR timber sales in Jambi and Riau by calculating: (i) market price, (ii) stumpage price, and (iii) social/parity price.

**Market Price**

According to Irawati, et al. (2008), market price is the price established by the market mechanism, which is a bargaining process between consumers and producers who meet in the HTR wood market. Data on HTR timber market price at a farm level can be obtained from HTR farmers, traders at a village level, or timber industry who buy wood directly from farmers.

Roshetko and Yuliyanti (2002) describe in detail the difference between market and marketing. Market is defined as total demand of a product at a specified place and time, in specific conditions. Marketing is an important component in tree domestication (the 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.

Market price identified during surveys to various community forest (HR) and HTR farmers, collectors and retailers in timber trade, timber industry, and service provider of mobile sawmill are shown in Table 20.

Table 20. Market price of sawn timber products in four districts in West Nusa Tenggara

| No. | Wood species at Local market | Sawntimber price (Rp 000 per m3) in District | | | |
|---|---|---|---|---|---|
| | | Central Lombok | West Lombok | Sumbawa | Dompu |
| 1. | *Duabanga sp.* | 3,500 | 3,500 | 3,300 | 3,000 |
| 2. | Mixed wood | | | 2,800 | |
| 3. | *Swietenia sp.* | | 3,500 | | |
| 4. | *Paraserianthes falcataria* | 2,000 | 1,500 | | |
| 5. | *Aleurites mollucana* | | 1,500 | | |
| 6. | *Tectona grandis* | | | 5,800 | 6,000 |
| 7. | *Shorea spp.* | | 3,000 | | |
| 8. | *Intsia spp.* | | 12,000 | | |
| 9. | *Barringtonia asiatica* | | 3,200 | | |

**Stumpage price**

Irawati et al. (2008) stated that the price which reflects the price level of the forest stand is called stumpage price or value of the stump. Stumpage price is based on the approach of production costs. HTR farmers expect that the timber price is able to cover all costs expended to manufacture wood and make a profit from their business. Costs expended in HTR development consist of planting cost in the first year (land preparation + seeding+ labour + seed transport, and others) and annual costs (weeding + fertilizer + labour + tax + other operating expenses). The calculation steps in determining the stumpage price are shown in Table 21.

Table 21. Method of calculating stumpage price of *Paraserianthes falcataria*

| No. | Calculation steps | Data needed | Data unit | Calculation result |
|---|---|---|---|---|
| 1. | Production Volume | -Increment<br>-Life cycle<br>-Production Volume | m3 per ha/yr<br>year<br>m3 per ha/yr | 20[1)]<br>8<br>160 |
| 2. | Compounding cost | -Planting cost<br>-Annual Cost<br>-Interest rate<br>-Planting compounding cost<br>-Annual compounding cost | Rp per ha<br>Rp per ha<br>%<br>Rp per ha<br>Rp per ha | 6,980,000<br>421,428<br>10<br>13,602,045<br>7,465,864 |
| 3. | Stumpage price | -Stumpage price / m3<br>-Profit<br>-Risk<br>-Stumpage price after profit<br>-Stumpage price after profit + risk | Rp per m3<br>%<br>%<br>Rp per m3<br>Rp per m3 | 131,674<br>15<br>10<br>151,425<br>164,593 |

Explanation: [1)] Source: Susila (2011).

Based on the results of the calculation, the stumpage price of *Paraserianthes falcataria* is Rp 164,593 per m3. This value is derived from stumpage price plus profit (15%) plus risk (10%). The calculating method of stumpage price is valid for all species of crop cultivated either by communities or by private companies.

**Social/Parity Price**

Parity/Social price is the price that gives the best allocation of the resource and therefore will give the highest level of profit. Social price is calculated with the basis of the base price of opportunity cost, which is the most profitable alternative of wood produced from HTR and using the parity price approach. The social price of wood is derived from wood price at the international level, where social price of wholesalers and wood processing industries which is the closest price with that at a farmer level is equal to international price after the adjustment with the exchange rate, transportation cost, processing cost, and domestic marketing (Irawati et al., 2008).

Community timber is sold to factories that will process wood into export commodity. Social price is calculated based on the selling price at the door of wood processing industries. Parity price of *Paraserianthes falcatria* wood in West Nusa Tenggara is around Rp 250,000 to Rp 300,000 m3. The calculation is shown in Table 22.

Calculation of parity or social price (Table 22) is done by taking the median of the parity price of *Paraserianthes falcataria* logs, which is around Rp 275,000 per m3 or an average value of parity price (Rp 250,000 plus Rp 300,000, then divided by 2 ).

Table 22. Method of parity/social price calculation for *Paraserianthes falcataria* Logs

| No | Type of Cost | (Rp/m$^3$) |
|---|---|---|
| 1 | Log price at factory/industry door | 750,000 – 800,000 |
| 2 | Total cost | 500,000 |
| | 1. Chainsaw man fee (felling – bucking)<br>2. Transport to log deck (cattle or manpower)<br>3. Transport to factory (truck)<br>4. Load - unload (manpower)<br>5. Administrative cost (permit, retribution, tax, and others) | 400,000<br>10,000<br>50,000<br>30,000<br>10,000 |
| **Parity Price *Paraserianthes falcataria* Logs** | | **250,000 – 300,000** |

Based on the results of the calculation of base price of *Paraserianthes falcataria* wood in West Nusa Tenggara province, the market price, stumpage price, and social/parity are as follows: (i) the stumpage price is around Rp 164,593 per m3, (ii) the market price is Rp 400,000 per m3, and (iii) social/parity price is around Rp 275,000 per m3.

Based on the standar price calculation, the highest standard price is social price followed by market price, and stumpage price. Stumpage price is always lower because it is likely not include labour cost and time devoted by HR/HTR farners. Those costs are not recorded and are not included in production costs. The advantages and disadvantages between the determination of (1) stumpage price by using production costs, and (2) market price approach are shown in Table 23.

Stumpage price (Table 23) often makes farmers disadvantaged because farmers usually: (i) never record costs expended for planting and maintenance, and (ii) never calculate count labour cost as he does it by himself. Therefore, market price is the price which cover costs what are absent from the stumpage price. Farmers are more likely to accept the market price rather than stumpage price.

Policy formulation on the base price of HTR timber sales suggested by Irawati, et al. (2008) should also be considered. Among others are:

1. In order to HTR timber selling prices to cover all the costs of timber production at the farm level and the farmers can also earn a reasonable profit from their business, the price of HTR wood should be at least equal to stumpage price.
2. HTR farmers who want to expect the maximum profit from their HTR business can request the selling price as high as the social price.
3. Market price is the price in the field or actual price and the government cannot intervene with the market. The current market price is between stumpage price and social price.
4. Basic pricing of HTR timber sales can be determined within the range of market price to social price or at least between stumpage price and social price.

Table 23. The advantages and disadvantages of production cost approach and market approach in determining standard price of HTR wood products

| *No.* | *Comparison and Evaluation* | *Price Approach* | |
|---|---|---|---|
| | | Stand | Market |
| I. | **Disadvantages** | | |
| **1.** | Farmers do not record planting costs | √ | |
| **2.** | Farmers did not record maintenance cost | √ | |
| **3.** | Highest production cost is harvesting cost | √ | |
| **4.** | Farmers never calculated his own labour cost | √ | |
| **5.** | Market price often does not reflect the actual price | | √ |
| **6.** | Product has a quasi price if market is monopoly and oligopoly in nature | | √ |
| II. | **Advantages** | | |
| **1.** | Strategies to make farmers not disadvantaged | | √ |
| **2.** | Quicker product cost calculation in market | | √ |
| **3.** | Easier standard cost calculation (farmer's profit is 20%) | | √ |
| **4.** | This price needs no government intervention | | √ |
| **5.** | This price could be higher than that in other regions | | √ |

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 Decree No. 9 of 2006 regarding Warehouse Receipt. 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 Pro- duction. 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 duties 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.

In performing its duties: (i) the team is entitled to benefits in which the amount is determined by the Team and approved by the Head of Provincial Plantation Office Decree (ii) The Team should follow the regulations in undertaking their work. The Team has a responsibility to the Governor of East Kalimantan cq the Head of Provincial Plantation Office . The responsibility is formulated in monthly reports on the price determination of Oil Palm TBS and annual report of the Team activities.

Any cost expended in relation to the Decree is borne from indirect operational cost under the index column "K" which has been regulated in the Minister of Agriculture regulation No. 17 of 2010. The composition of the Team personel for determining Oil Palm TBS in East Kalimantan province is shown in Appendix 2.

Based on the three references of HTR product price, the most reasonable price is based on base price and the price of fresh fruit bunches (TBS) of oil palm because based on the discussion of HTR study results at a meeting dated 21 August 2013 in Bogor, it was concluded that pricing based on warehouse receipt system will cost the government with a very high cost if to build a logistic board for timber. In addition, the Director General of Forest Utilization has no sufficient HTR data and information. Therefore, DG of Forest Utilizaton will not suggest the use of warehouse receipts approach. Price determination mechanism of oil palm TBS pricing mechanism is adopted, where BP2HP as the UPT of the Directorate General of Forest Utilization could organize HTR farmers, the representatives of the Provincial and District Forestry Offices, representatives of the owners of the timber industry (sawntimber, moulding, plywood, pulp and paper) and the association board to make an agreement on wood price by taking into account the profit of each agency involved in the timber trade.

### 4.4. Market development strategy on HTR product

HTR product market development strategy will be discussed relating to the formulation of HTR management and marketing strategies.

**HTR Management Strategy**

There are several strategies for HTR management. They are:

a. Cooperatives need to be established at the early stage, not when the communities intend to propose loan from BLU.

b. Cooperatives need to be facilitated for market access to local timber industry. If possible, cooperatives can also be facilitated to process HTR wood products from raw material into semi-finished wood in the form of sawn timber.
c. To test farmers' motivation in joining HTR programme, farmer groups can be facilitated with seedlings through the provision of people seed nurseries (KBR).
d. Once seedlings from KBR has grown, the farmer groups will be given a priority for loan by taking into account the number of trees growing to determine the amount of loan approved. The loan should be frequently monitored to ensure that the loan is not misused, rather to increase the productivity of the HTR land.
e. Districts that still have allocated HTR areas should actively facilitate the HTR license before Plantation Forest Concession (HTI) propose HTI license. If this happens, the conflicts between communities and Plantation Forest Concession holders will get worse. There has not been conflict resolution to date.
f. HTR facilitators assigned by the Region IX BP2HP Denpasar should be more actively engaged in facilitating the process of HTR license proposal both individual and cooperative HTR license proposal.
g. Related District Forestry Offices should continuously provide guidance, supervision, and monitoring in the forms of technical guidance, training, monitoring and evaluation in order to achieve the objectives of HTR development.
h. Work plan and annual plan documents (RKU-RKT) are approved by the agencies dealing with forestry in the District, instead by the Head of District himself.
i. For farmer groups that have estabished HTR by their own efforts, loan from BLU should be approved based on the number of trees that have grown in their managed HTR land a warranty. It will become an incentive for farmers to maintain the growing trees as assets to propose a loan.

**Market Development Strategy for HTR Products**

To determine market development strategies for HTR products, the concept of market, marketing, and marketing channel should be understood. Market is defined as total demand of a product at a specified place and time, in specific conditions. Marketing is an important component in tree domestication (the 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. Marketing channel is a path or a relationship through which goods, events and information move from producer to consumers. Marketing channels do not have a standard form, exact number of market actors, and exact predictable pattern of relationships

or activities (Roshetko and Yuliyanti, 2002).

Marketing at a farm level receives less attention from agencies due to a lack of understanding to date. Yet by understanding the relationships and interactions of the market, the government may improve communities' livelihoods and direct smallholder agroforestry products to fulfil market opportunities (Roshetko and Yuliyanti, 2002) . Roshetko and Yuliyanti further stated that there are five important aspects that limit farmers' role in the marketing process. ( i ) farmers have limited availability of capital and labour, ( ii ) access to market information regarding prices and demand is limited, ( iii ) lack of knowledge on the specification of product quality and price, ( iv ) the relationships with market is limited and temporary (farmers may only know the collectors/local trader. Farmers only wait for traders to visit them) , and (v) there is no farmer groups or cooperatives which are eligible to run marketing activities.

Given the limited access of farmers to markets for his agricultural produce as experienced by HTR farmers in West Nusa Tenggara, there are four strategies for wood products and other HTR products to be accepted by the market at reasonable prices. Among them are:

1) To improve product quality and quantity through intensification or agroforestry system.
2) To improve product quality and value through product selection, classification, and packaging.
3) To process raw materials into semi-finished materials, and
4) To study market and to establish access to market.

Those four market strategies for wood products and other HTR products suggested by Roshetko and Yuliyanti (2002) to enhamce the farmers' role in marketing channels and to ensure a higher income for farmers need to be done.

Relating to marketing HTR timber in particular, Subarudi (2007) have proposed a small sawmill unit for HTR farmers to increase the added value of wood products. If HTR farmers are the timber supplier to wood industry, the price will be controlled by wood industries instead the farmers as experienced by farmers participating in community forest cooperative (KUHR). For the reason, as what it has been done in Lampung province by small-scale timber growers, farmers often processed fast growing trees into planks and are sold into local or provincial market to increase the added-value of wood products from community forests (Yuliyanti, 2000).

To avoid the failure in HTR business, HTR farmers in West Nusa Tenggara should begin to identify tree species and wood products which have already had market demand before they plant trees. Then, farmers decide to plant those tree species as a priority. In this case, the farmers need to provide sufficient resources and to establish networks to identify the market demand and market opportunities. Necessary information are number of local producers, collector traders, processors,

exporters, retailers, cooperatives, government agencies involved, and potential related industries. Other important information include product quality specifications, conditions of demand/supply, the amount requested by specific market and market actors, the correlation between price and product quality and quantity, consumption patterns, seasonal patterns, actors and marketing channels, costs including transportation costs, and others.

To assist HTR farmers in West Nusa Tenggara to identify market and product marketing opportunities in order to increase farmers' income through their increasing role in marketing, Roshetko and Yuliyanti (2002) provide a rapid market appraisal with the key characteristics of the survey as follows:

1) Focus on a single commodity or sub-commodity, wood or fruit for example.
2) Determine the geographical scope to local areas that serve sub-units of the market.
3) Determine the duration of survey for several weeks or months.
4) Carry out survey during appropriate season when targeted commodities are available and the information collected is updated and reliable.
5) It is impossible to observe all phases of marketing channels or to interview all market actors. Therefore, focus only on the key stages and actors.
6) Use secondary information to support data collection in the field as well as to validate the survey results and analysis.
7) Establish a small team of experts from various skills such as economics, development experts, foresters / horticulturist, person who is familiar with local language, and others.
8) To understand that this activity is the beginning. Make a plan to I dentify (i) constraints faced by small farmers, and (ii) an opportunity to increase farmers' role in regard to marketing.
9) Plan to develop follow-up activities that are organized based on survey activities.

Relating to HTR timber products West Nusa Tenggara, marketing analysis survey of wood by small farmers can be applied (Yuliyanti, 2000). The summary of the survey is as follows:

a) To identify tree species and agroforestry system applied by small farmers and the locations where are dominated by small-scale timber growers.
b) To identify commercial tree species for small farmers.
c) To know marketing channels used by small farmers.
d) To analyse the distribution of profit margin for small scale wood products.
e) To identify timber production problems faced by small-scale farmers.
f) To identify the problems faced by traders and other market actors when they interact with small-scale farmers.

By looking at HTR timber marketing strategy in West Nusa Tenggara, the strategy developed by Kotler (2005 ) can be adopted by using the 5 P approach, namely : ( i ) **Product**, which is in what forms the HTR wood products will be marketed . It can be in a form of l logs, sawn timber, veneer, moulding, or furniture components, (ii ) **Place,** which is the place or location where marketing of HTR wood products will be done and people can access the location of marketing, ( iii ) **Price,** which is the price of HTR wood products. It should take into account profit for farmers and market bargaining power, ( iv ) **Promotion**, which is strategy to use in promoting HTR wood products. So ,that people know better about the products and buy as what they need, ( v ) **People**, who are involved not only in the production process, but also in the promotion in strategic trade locations for marketing HTR wood products.

# V. CONCLUSIONS AND RECOMMENDATIONS

## 5.1. Conclusion

HTR development policy is in principle to provide opportunities for communities to participate in plantation forest development activities. They include: (1) legal access, (2) access to financial institutions, and (3) access to HTR development market is done through the following scheme: (1) Independent/self-sustain scheme, (2) Partnership scheme, and (3) Developer scheme. The selection of HTR scheme is determined by the conditions, circumstances, and capability of each HTR license applicant.

There are 4,396 hectares of allocated HTR areas in West Nusa Tenggara, where 1,665.81 hectares or 38% of total area has been granted for HTR license. Five districts in West Nusa Tenggara province have been granted for HTR license with the percentage in each district is as follows: Sumbawa (40.4%), Central Lombok (76.4%), West Lombok (28.7%), Dompu (100%) and West Sumbawa (0%).

The five districts have not proposed loan to date. The reason is the farmers' capability, low productivity of labour, and subsistence mindset. Therefore, the priority of activities carried out by the District Forestry Office is to strengthen the capacity and the capability of the group members to be more active and motivated to manage the HTR land.

Financial analysis in the evaluation of the benefit-cost refers to the revenues and expenditures. It reflects the actual market price actually received or paid by the farmers. The value of NVP is Rp 20,054,791, BCR is 3.31, and IRR is 28%.

Market in HTR activities is wood industry which consists of sawmills and furniture industries. However, the number of units and installed capacity of the industry cannot be assessed due to inavailability of database on existing timber industry at the District Forestry Office.

All farmers agree for the determination of standard price for HTR wood products. However, they are not sure whether the government can intervene the price of HTR wood products due to the complexity and considerable variables that determine wood price.

The results of the calculation of *Paraserianthes falcataria* wood price using stumpage price, market price, and parity price are:

i. Stumpage price is around Rp 164,593 per m3,
ii. Market price is around Rp 400,000 per m3, and
iii. Social/parity price is around Rp 275,000 per m3.

Marketing patterns that are generally done in West Nusa Tenggara are: (1) the wood owner sells wood directly to sawmill industry, (2) the wood owner sells wood to collector traders and collector traders then sell wood to sawmill industry, and (3) the owner of the sawmill industry also acts as collector traders.

### 5.2. Recommendation

In determining standard price of HTR wood products, the government should apply market price i.e. price agreed by seller and buyer. It is the actual price. The government cannot intervene market price since the price is agreed by seller and buyer.Current market price is between stumpage price and social price.

Basic pricing of HTR timber sales can also be determined in the range between market price and social price or minimum between stumpage price and social price. Market pricing should be established in each province by assessing market price information of HTR wood products at timber production centres in each district as what have been done for agricultural commodities.

In order to the central government (cq. Ministry of Forestry) can control the price of HTR timber, the central government can work with local governments to adopt the mechanism to determine oil palm TBS price which is more transparent and participative.

By considering the capability of HTR farmers in HTR business, the disbursement of loan from BLU should be based on the number and quality of HTR plants in a field managed by each HTR farmer. Those trees are used as asset for loan warranty. This will motivate farmers to maintain the trees since the trees are used as warranty for HTR loan disbursement.

The "cash" loans disbursed by BLU should be converted by HTR farmers into productive assets, i.e. buying livestocks or wood processing machinery and equipments for HTR products to increase the added-value of the products. It will increase the income of farmers and enhance economic development in HTR areas.

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**Appendix 1.**

**LIST OF QUESTIONS**

**RESPONDENTS : HTR FARMERS**

**Number of Respondents: 30 farmers, HTR license holders**

(In case the HTR license has not been issued, farmers who become respondents are farmers already active in community forest with experience in marketing wood products**)**

| No | Purpose/ Inquiry point | | Remarks |
|---|---|---|---|
| **I** | **Financial analysis of HTR activities** | | |
| | 1. | Costs needed for planting establishment<br>- Land preparation<br>- Land clearing<br>- Seedling preparation<br>- Planting hole digging<br>- Planting<br>- Tending<br>- Pest and disease control<br>- Harvesting | |
| | 2. | Sale of HTR Products<br>- Wood (species, volume, harvesting span period, price)<br>- Non wood (type, volume, harvesting span period, price) | |
| **II.** | **Anlysis of Market Channel** | | |
| | 1. | To whom is HTR products sold? | |
| | 2. | Is there any alternative to sell to others? | Social cultural aspects in marketing HTR products |
| | 3. | Reason to sell to certain party (because of highest price, good relationship, or because of other reasons?) | |
| | 4. | How does negotiation process occur? | |
| | 5. | How is the mechanism of payment done (cash at the time product is harvested, postponed until wood is sold to next merchant or *ijon*)* system?) | |
| | 6. | Is the price at the transaction satisfactory? | |
| | 7. | Is there any other marketing mechanism that has the potential of increasing profit / income of farmers? | |
| **III.** | **Analysis of standard price of HTR Products** | | |
| | 1. | How is the perception of farmers on current wood price? (too cheap or reasonable) | |
| | 2. | If price is too low, what is the reason (weak bargaining power of farmers, no information on standard price, or there is no other choices when the need for cash is urgent)? | |
| | 3. | If price is too cheap, what is the reasonable price according to farmers' perception? | |
| | ***)** selling as standing tree before harvesting time | | |

| No | Purpose/ Inquiry point | | Remarks |
|---|---|---|---|
| **IV** | **Analysis on Marketing Strategy of HTR Products** | | |
| | 1. | How is the experience of farmers in requesting HTR license (from where was the first information on HTR was received, who supported the process of license application, how is license processed, and others)? | |
| | 2. | How is the response/opinion of farmers after becoming a HTR license holder (what is the benefit felt as a HTR license holder)? | |
| | 3. | What problems are faced as HTR license holder?<br>- Problems in permit processing<br>- Problems in cultivation technology<br>- Problems in financial capital<br>- Problems in marketing, and others | |
| | 4. | What is farmers' expectation in order for HTR business to be more developed? | |
| | 5. | Is there any proposal/suggestion/solution from farmers on problems faced? | |

**RESPONDENTS: TRADERS (Collector, wholesaler, and others in the market chain of HTR products)**

**Number of respondents: depending on field condition**

Method used is snowball sampling, where respondents to whom farmers sell their HTR products are selected based on initial information of HTR farmers

| No | Purpose/ Inquiry Point | | Remarks |
|---|---|---|---|
| **I.** | **Market Channel Analysis** | | |
| | 1. | Source of wood bought | |
| | 2. | Volume of wood bought every month (on average) | |
| | 3. | What is the base price of wood bought from farmers?<br>Rp/m3 or Rp/stem? | |
| | 4. | What standard is used in determining purchase price of wood from farmers (species, location, quality, volume?). Please explain | |
| | 5. | How does negotiaton occur? | |
| | 6. | How is the price mechanism done (cash at time product is harvested, postponed until wood is sold to subsequent buyer, or *ijon**) system? | |
| | 7. | How is felling process done?<br>-how much is the cost expended?<br>-how is felling permit processed (cost spent for permit)? | |
| | 8. | What processing on tree trunk is done by intermediary merchants?<br>- What is the specification of the products (sawntimer, square logs, and others)?<br>- How much cost must be expended to convert logs into sawntimber?<br>- What is the yield? | |
| | 9. | Where is the market destination of the processed wood?<br>What is the sales price?<br>How much is the margin received? | |
| | 10 | Are they satisfied with the price they receive from the transaction? | |
| **II.** | **Base Price Analysis of HTR products** | | |

| No | Purpose/ Inquiry Point | | Remarks |
|---|---|---|---|
| | 1. | What is the perception of middlemen on standard price of tree bought from farmers (too cheap, fair, too high)<br>What are the reasons? | |
| | 2. | How is the perception of middlemen on standard price of processed wood/sawntimber which they sell to the next trader?<br>(too cheap, fair, too high?) What are the reasons? | |
| **III.** | **Analysis on marketing strategy of HTR products** | | |
| | 1. | What is the experience of wood buyers in doing sales transaction (how long has it been done, is this adequately profitable, can it become a source of income, and others)? | |
| | 2. | What are the problems faced while doing business as collector merchant for community produced wood<br>- Problems in permit processing<br>- Problems in cultivation technology<br>- Problems in capital<br>- Problems in marketing, and others | |
| | 3. | What is the farmers' expectation for HTR business to become more developed? | |
| | 4. | Are there any proposal/suggestion/solution from farmers on problems faced? | |

**RESPONDENTS: Regional Forestry Office, Technical Unit (UPT) of DG of Forest Utilization of the Ministry of Forestry (BP2HP)**

| No | | Purpose/ Inquiry Point | Remarks |
|---|---|---|---|
| **I.** | **Market Analysis** | | |
| | 1. | Data base related to HTR areas (allocated HTR areas, HTR definitive areas, license holder, and others) | |
| | 2. | Secondary data on wood processing industries | |
| | 3. | Secondary data on community wood felling | |
| | 4. | Regulation related to trade of community wood | |
| **II.** | **Strategy analysis on HTR products** | | |
| | 1. | Perception of local government related to HTR programme | |
| | 2. | Problems, constraints or obstacles in implementation of HTR programme | |
| | 3. | How is the function of regional office in the development of HTR programmes (what programmes have been or will be done)? | |
| | 4. | What are suggestions and recommendations of local government to develop HTR programme | |

**Appendix 2.**

Team Personnel of Price Fixing of TBS oil palm in the East Kalimantan:

| | | | |
|---|---|---|---|
| A.<br>1. | Steering Committee<br>Chairman | :<br>: | <br>Regional Secretary of East Kalimantan province |
| 2. | Vice Chairman | : | Assistant of Economy and Development of Regional Secretary of east Kalimantan province |
| 3. | Daily Chairman | : | The Head of Provincial Plantation Office of East Kalimantan |
| 4. | Secretary | : | The Head of Bureau of Economy – Reginal Secretary of Esat Kalimantan province |
| 5. | Members | : | 1. The Head of Provincial Industry, Trade, Cooperative, and Small-Medium Business Office<br>2. The Head of Transportation Office<br>3. The Head of Regional Research and Development Office<br>4. The Head of Research Centre, the University of Mulawarman in Samarinda |
| B.<br>6. | Implementation Team<br>Chairman | :<br>: | <br>The Head of Division of Business – Provincial Plantation Office |
| 7. | Vice Chairman | : | The Head of Division of Development – Provincial Plantation Office |
| 8. | Secretary | : | The Head of Section of Quality Standarisation and Product Marketing – Provincial Plantation Office |
| 9. | Members | : | 1. The Head of Section of Permit Administration – Provincial Plantation Office<br>2. The Head of Section of Business Guidance – Provincial Plantation Office<br>3. The Head of Division of Plantation – District Plantation Office in West Kutai<br>4. The Head of Division - PUPPH of Plantation – District Agricultural and Plantation Office of Paser<br>5. The Head of Division of Plantation – District Plantation and Mining Office of Penajam<br>6. The Head of Division of Production and Post Harvesting – District Plantation Office of Kutai Kartanegara (Kukar)<br>7. The Head of Division of Plantation – District Plantation and Forestry Office in Samarinda<br>8. The Head of Divison of Agriculture Business – District Plantation Office of East Kutai (Kutim)<br>9. The Head of Division of Business Guidance – District Plantation Office of Berau<br>10. The Head of Division – District Agriculutural Office of Bulungan<br>11. The Head of Divison of Plantation – District Forestry and Plantation Office of Nunukan<br>12. The Head of *GAPKI* of East Kalimantan province<br>13. The Head of *APKASINDO* of East Kalimantan province<br>14. General Manager DKT PT Perkebunan Nusantara XIII of Paser District<br>15. The Head of Marketing Division PT Agro Inti Kencana Mas of Paser District<br>16. The Head of Marketing Division PT Waru Kaltim Plantation of Paser District<br>17. The Head of Marketing Division PT Lonsum of Kukar District |

| | | | | |
|---|---|---|---|---|
| | | | 18. | The Head of Marketing Division PT Rea Kaltim of Kukar District |
| | | | 19. | The Head of Marketing Division PT Swakarsa Sinar Sentosa of Kutim District |
| | | | 20. | The Head of Marketing Division PT Etam bersama Lestari of Kutim District |
| | | | 21. | The Head of Marketing Division PT Sinar Mas Group of Kutim District |
| | | | 22. | The Head of Marketing Division PT Gunta Samba of Kutim District |
| | | | 23. | The Head of Marketing Division PT Astra Group of Kutim District |
| | | | 24. | The Head of Marketing Division PT Telen of Kutim District |
| | | | 25. | The Head of Marketing Division PT Tanjung Buyu Plantation of Berau District |
| | | | 26. | The Head of Marketing Division PT Hutan Hijau Mas of Berau District |
| | | | 27. | The Head of Marketing Division PT Sanggam Kahuripan Indonesia of Berau District |
| | | | 28. | The Head of Marketing Division PT Nunukan Jaya Lestari of Nunukan District |
| | | | 29. | The Head of Marketing Division PT Karangjoang Hijau Lestari of Nunukan District |
| | | | 30. | The Head of Marketing Division - PT Comismar Wanamaja Agro of Nunukan District |