FOREST PLANT INDUSTRY (HTI) IN EAST KALIMANTAN (THE ECONOMIC OUTLOOK)

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ABSTRACT

Essentially, the implication of HTI in Indonesia and East Kalimantan province has a benefit to the front (forward) and backward for the economy. The impact to the front with the HTI will provide the raw material for the timber industry developments that affect the competitiveness the national timber industry through superior products from the industry are like pulp, plywood, and furniture. This paper attempts to provide information on the contribution by the forestry sector toward GDRP in the province of East Kalimantan. It also tries to see the plantation development and determine its direct influence of investment on the economic growth as well as the implication of the development. Correlation and regression analysis is adopted in analysis that is the path analysis called path coefficient. The results show that the production of forest industry is still prospective for further development. Besides that, HTI is considered productive, and in the next program, it is expected that in the future this can increase or improve the economy growth of the people in the area. Therefore, HTI development should be pursued so that the East Kalimantan province can focus on the development of forestry sector. This can also in the form of encouraging the investment in such development.

Key words: Forestry, GDRP, Prospect Industrial Forest Plantation (HTI).

INTRODUCTION

Since 1990, the demand for raw material timber industry has declined due to the decreasing supply of natural forest timber. For example, in the era of Pelita I to IV, the production of natural forest timber to supply the demand of industry reached 40 million cubic meters per year. However, in Pelita V only 31.4 million cubic meters per year, and in Pelita VI decreased, which only reached 22.5 million cubic meters per year. In the era of reform, even the wood supply from natural forests continues gradually to decline (Astana, Poernama, and Sinaga, 2002).

It is a fact that the principle of natural forest management in a sustainable manner has impact, which is an excessive exploitation of natural forests without forest regeneration (Astana, Poernama, and Sinaga, 2002). To minimize this problem, in 2000 the government through the Department of Forestry (Dephut) began to establish a mora-

torium on logging of natural forests (Dephut, 2008). Indications of the decline prompted the government to promote development of industrial plantation forest (HTI). For example, the government has issued state regulation (PP) No.7/ 1990 as the legal basis of HTI development program. Actually, the government policies to increase the productivity of production forests through development of timber and has started since 1990.

Furthermore, HTI is considered an attempt to increase the potential for forest plantations and forest quality by applying cultural production in accordance with the tread of (one or more of the cultural system) in order to meet the needs of industrial forest products-timber and non timber raw materials (PP No. 7 of 1990). The purpose of development is to increase the productivity of forest production, in order to meet the needs of raw material supply of timber industry and business field (economic growth / pro-

growth), employment (pro-job), economic empowerment of forest communities (pro-poor) and improving environmental quality of life (pro-Environment).

Such an effort is indeed an integral part of policy of national revitalization of the forestry sector in which it is also associated with three agendas called "Triple Track Strategy" of the Kabinet Indonesia Bersatu (the government-united cabinet). In addition, its development is also based on the reasons for encouraging the competitiveness of the timber industry (sawmills, plywood, pulp & paper, furniture, etc.) to meet domestic demand and exports (Dephut, 2008).

In general, economic growth agenda (pro-growth) in the forestry sector is targeted to increase exports of forest products and new investment in forestry proportionally among large, medium and small employers, in both upstream and downstream sectors. Employment agenda (pro-jobs) is intended to drive the urban economy (real sector) in the form of the timber industry in order to absorb labors. On the contrary, to alleviating the poverty (pro-poor) is aimed at providing legal recognition of access and utilization of forest production via Forest Plantation. This is intended to reduce poverty and unemployment in rural areas around the forest.

Utilization of forest production in addition to natural forests is also performed by optimizing the role of forest plantation. Wood commodities, non-wood, and services for the welfare and improvement of the environment are cultivated with the principle of sustainable and equitable. This was stated as mandated in the state law on it (Undang-Undang No. 41/1999). In the implementation of Forestry Sector Revitalization policy framework covers the upstream sub-sector (related to raw materials), the downstream sub-sector (industry related) and supporting policy. Policy forestry upstream sub-sector includes forest production utilization (in this case forest concessions (HPH) in natural and plantation forests for plantations) as a raw material source development effort. Government efforts to accelerate the granting of

licenses (HPH / HTI / HTR) in areas in which, currently, there is no management / utilization (open access) covering about 20 million acres (ha); including in it for Production Forest ecosystem restoration efforts.

The downstream of sub-sector policies is aimed at boosting forestry plant utilization of public forests, plantations, rejuvenating garden in order to out-sourcing of raw materials so that the people's economy can moving. Supporting policies for the second sub-sector (upstream and downstream) include the facilitation of financing, improving quality of care, institutional strengthening of the forestry business, and facilitation to forest product markets.

The province of East Kalimantan (East Kalimantan) is one of several provinces in Indonesia, which has an area of forest, reaching 69.29 percent of the total area. Forest area reaches 14.65 million acres from 21.14 million acres of Kalimantan. Borneo Island is the widest one, reaching 40.78 percent of the total area of forest on the island. Forests in this province are divided into several functions. Widest, forests become sources of raw material of wood or the forest industry production reached 66.45 percent or 9.7 million ha of forest.

Forest productions were exploited by a number of companies, both private and public companies, by cutting the plants. These companies are supposed to have permission for cutting down the trees. They also got permission in the utilization of forest wood products (IUPHHK) which is divided into two types, the form of HTI and HPH. HTI and HPH are in different bases. In theory, more emphasis is on HTI plantings, while the form of logging concessions in conducted by way of selective logging and rotation of the cutting location. The area of forest concession in East Kalimantan reached 8.65 million acres and this is managed by 73 companies, and active 54 companies. Conditions are more and more than shrink drastically.

Since the era of regional autonomy implemented in 2000, emerging small-scale

concessions is called with the permission of HPH and wood utilization permit (IPK) issued by the regents. More than 200 permits issued with a pretext to empower the community. This "small scale" of HPH makes the forest more destroyed (Boenyamin, 1994). According to the Secretary of the Association of Forest Concessionaires, small-scale permits, it has an impact on the destruction of the concession business.

HTI areas in East Kalimantan are not comparable with the concessionaires. Plantation in East Kalimantan areas only reaches approximately 1.04 million acres, thus smaller than the concessions, which reached 8.6 million acres. HTI is owned by 22 companies. From HTI license area, the realization of new plantings reach 42 percent or about 440,228 ha. As a result, some industries rely on pulpwood shortage of raw materials.

Problem Formulation

The formulation of the problem as in this research can be posed as follows:
How is the over view of sub-sector of forestry and its contribution to GDP in East Kalimantan province?
How is the development of plantation area in the district / city in East Kalimantan?
What is the direct influence of plantation investment on economic growth and employment in the province of East Kalimantan?
To what extent have the implications of development and economic benefits of HTI been reviewed?; and
How is the strategy development and prospects of the plantation?

Objectives of the Research

It attempts to provide:
Information about the general picture of the forestry sector and its contribution to GDRP in the province of East Kalimantan;
To see the development of plantation area in the district/city in the province of East Kalimantan;
To determine the direct influence of planta-tion investment on economic growth and employment in the province of East Kalimantan; and
To reveal the implications of development and economic benefits of HTI reviewed and also HTI development strategy and prospects.

THEORITICAL FRAMEWORK AND HYPOTHESIS
Economic Growth

Economic growth is defined as an increase in production (GDP / GNP) regardless of whether the increase is greater or smaller than the rate of population growth, or whether changes in economic structures occur (Arsyad, 1997). In a production process, an industry or enterprise require input in the production of micro-economic theory is often called the factors of production (factors of production). Production factor, if viewed as a whole consists of labor (labor), materials (raw materials), and capital investment (capital). Labor unions or factors can be identified as skilled labor (skilled labor) and who did not (unskilled labor).

The natural resources of an area affect economic growth. However, Kuznets (1955) states economic growth is limited by the absolute lack of natural resources. Kuznets implies that countries with poor natural resources will hamper its economic growth. Yet, other economists think the wealth of a country with natural resources is not related at all with economic growth. Countries such as Japan and Switzerland can grow rapidly despite having very little natural resources. This confirms the opinion that the national production and growth does not depend by how much a nation has with its natural resources, but it is more dependent on the readiness of resources in production process. In this case for countries that do not have a wealth of resources, the readiness is manifested in the form of purchases of resources from the resource-rich countries (Nafziger in Reksohadiprodjo and Pradono, 1998).

There are several factors that influence the growth and economic development, but

in essence these factors can be grouped into two categories, namely economic and non economic factors. Economic factors affecting growth and economic development include natural resources, human resources, capital resources, and expertise or entrepreneurship. Natural resources, including land and natural resources such as soil fertility, the climate/weather, forest products, mining, and seafood, greatly affect the growth of industrial countries, especially in terms of providing raw material for production. Meanwhile, the expertise and entrepreneurship needed to process raw materials from nature, becomes something that has a higher value (also known as the production process). Human resources also determine the success of national development through the number and quality of the population. Large population is a potential market to market production results, while the quality of the population determines how large the existing productivity.

Meanwhile, human capital resources needed to process these raw materials. Capital formation and investment is directed to explore and cultivate wealth. Capital resources in the form of capital goods are very important for the development and facilitation of economic development because of capital goods may increase productivity. Non-economic factors include socio-cultural conditions that exist in society, the political situation, and develop and apply systems.

Production

Production is a process of transformation from input to output. Inputs are resources used in producing output. The output itself can be a commodity or commodity end of which become inputs for other sectors (Salvatore, 2001). According Rekso Hadiprodjo and Pradono (1998), aggregate economic growth is often interpreted as an increase in national production. For that, we need to see what factors are necessary for growth. This can be seen through the production function, which shows the relationship between output (output) and total input (input).

Written:

$$Y = f(TK, K, N, E, T)$$

The production function above is defined as output/national production (Y) during a period depends on the flow of labor input (TK), capital (K), natural resources (N), entrepreneurships (E) and technology.

The production function over natural resources together with other inputs drives them into economic growth. In simple terms, we can say that the users' resource growth of output / results can also be improved. Natural resources are referred to all kinds of resources that are heterogeneous and complex and certainly, that has tangible resources ready to use instead that is still stored in nature. One of the weaknesses of the management of natural resources in developing countries is perhaps the pursuit of economic growth by way of large-scale exploitation without regard to side effects (externalities). Consequently, they must pay dearly in the further degradation of the environment.

Investment

According to Sukirno (1994), the investment can be defined as expenditure growing because the investors or companies purchase capital goods and production tools they need to add the ability to produce goods and services available in the economy. Investment to encourage growth is not only from domestic. Investment from overseas can also affect GDP and GNP in different ways (Mankiw, 2003).

Foreign investment is one way that can be exploited by a country to grow and learn the latest technology that has been developed and used in rich countries. Although a number of benefits from this investment back to foreign investors, but these investments increase the capital stock, which raised productivity and wages. According to Pratiwi (2005), investments that have a multiplier effect of an impact on improving welfare, as measured by increases in income. This means that if income increases, the

amount of goods and services to be consumed will increase as well. If the demand for goods and services increases, it will increase employment opportunities. This will reduce the unemployment rate. Finally, reduced unemployment is caused by the absorption of labor force in investment projects.

Forest Production and its Role

State regulation (UU No. 41/1999) on Forestry states that forest production is one of the functions set by the government related to forest and land use in Indonesia. Furthermore, in the government decree (PP No.6/1999) it is stated that the forest production is a forest area to be treated for production of forest products to meet the needs of society in general and especially for the construction, industrial, and export. Forest products are the biological objects, non-biological, and their children, as well as services.

One of the forest products in the form of biological objects is still the main product that is wood. Wood is the raw material for forest industries in which it can generate foreign exchange for Indonesia, although its role progressively decreases when compared to the 1970's. At the beginning of Long-Term Development Phase I (PJPT I) production of primary commodities contributed 60% of GDP and primary commodity exports reached 94% of total exports. At that time the fishery and forestry sector contribution of 50%. In early 1993, the contribution of primary commodities to GDP decline, which only reached 39% of GDP, while the contribution of exports to 60%. On the other hand, the benefit of primary commodities grew more than 2-fold, from 21.3 trillion rupiah in 1970 to 44.3 trillion rupiah in 1993. In that period, the increase for renewable sectors such as forestry, agriculture and fisheries amounted to 91% (Kartodihardjo, 1994).

Increasing the value added appears to be significantly associated with log export bans in the 1980s. Regulations require that the export of timber in the form of finished or semi-finished goods. However, at the same time, the ability of natural production forests are managed in the form of concession to supply raw materials for forest industry decreases. In Pelita I to IV, the production of natural forest timber can supply the industrial needs of 40 million cubic meters per year, but in Pelita V only 31.4 million cubic meters per year, and in Pelita VI decrease, which only reached 22.5 million cubic meters each year.

In the reform era, the supply of timber from natural forests decline (Astana, Poernama, and Sinaga, 2002). This is because the principles of sustainable natural forest production could not run well so that there is excessive exploitation of natural forests without followed the success of forest regeneration activities. So, in 2000, the government through the Department of Forestry began to establish a moratorium on logging of natural forests. Indications of decline is shown in the production capability of natural forests in supplying raw materials for forest industry prompted the government to promote the development of timber. The government issued a decree (PP No.7/1990) as the legal basis of HTI development program.

Development of HTI Program

HTI is a forest that was built in order to increase the potential and quality of forest production by applying a system of forest cultivation (silvi-culture) intensive. The main goal of development in forest industry is to rehabilitate the area of forest production that have been damaged and unproductive (Ulya, 2005). In addition, the Government also stated that the rehabilitation of wood must be processed by the plant (process value-added) and final goods result of factory production process must be able to generate foreign exchange. That is to say that building a forest does not mean rehabilitate degraded forest areas only, but towards the higher goal of building the forest products industry with raw materials derived from renewable sources.

According to the decree (PP No.7/1990) (Anjasari, 2009), regarding industrial forest concessions, timber plantations are forest plantations established in order to increase the potentiality and quality of production forests by applying intensive silviculture to meet the needs of the forest products industry materials. The purpose entrepreneur establishment HTI is supporting the development of domestic forest products industry to increase value added and foreign exchange, increase land productivity and environmental quality, and expand employment and business fields (PP No. 7/1990, article 2). The existence of HTI development is expected to save the natural forests from damage caused by HTI is a natural richness that can be refurbished, fully utilized and conserved for sustainable national development for the community welfare.

To attract investors in timber plantation activities, the government offered funding scheme in the form of government capital participation (PMP) and zero percent interest loans. Investment in Reforestation Fund to finance the development of timber that is set by the Decision made together or *Surat Keputusan Bersama* (SKB) between the Department of Forestry (No. 169/Kpts-II/90) and Department of Finance (No.456/KMK.013/90), dated April 13, 1990 (Iskandar, 2004).

From HTI development activities, the existing inventory (standing stock) is the ability to produce timber plantation is 20 to 25 cubic meters per year. While the installed capacity of forest-based industry requires raw materials reached 63.48 cubic meters per year. So HTI only able to generate 1/3 of industry needs. In fact, since 2000, the government has set a moratorium on logging of natural forests to supply the demands of forest-based industries. So to ensure the continuity of forest-based industries needed more than 6 million ha of new plantations to be met within a period of 25 years (Hartono, 2002).

On the contrary, if current conditions are observed, HTI is still able to survive and therefore making it supported by strong investors of hundreds thousands acres. In fact, if viewed from its history, administration area of HTI is very diverse, ranging from 1,500 acres to hundreds of thousands of acres. So that it can be said there has been little HTI mat roll phenomenon, whereas a large plantation that still survive continue to strive to expand the total area to produce timber as raw material for industry.

Actually the government has tried to overcome for this condition is not getting worse with the Decision Ministry of Forestry issued No.72/1998 which sought to limit the company's concession area of forest concession holders (HPH) and plantation companies in order to avoid the conglomeration and open access for investment.

HTI, Efficiency, and Industrial Needs
The ability of HTI to meet the needs of the industry is still low; it needs an effort of wide expansion of plantations in order to meet the needs of industry. Nevertheless, the real expansion of the concession area continuously at some time will also be faced with the constraints of "limited production forest area." In addition, in the end will have an impact on the conversion of forest conservation into the production forest area that can be a threat to forest sustainability.

The contradiction between the attempt to meet the needs of wood as raw material for forest industry and the efforts to preserve and forest plantations in general, requires a management that they consider the efficiency of timber plantations. The formula used to calculate the efficiency of business (Soekartawi, 1995) is the following:

$$\frac{R}{C} ratio = \frac{\text{Re} venue(R)}{Cost(C)}$$

Where R (revenue) is the value obtained by management of plantation production, namely the quantity produced multiplied by the price it receives. C (cost) is all that was sacrificed for the operational expenses of HTI. In this case, the efficiency that is intended mainly related to the use of resources

or factors of production land. Factor, in this case has a limited forest production. With the limited production, forest area is needed for efficient management in the long-term sustainability of the results achieved without threatening the conservation area.

Land, Preservation, and Estimated Value of Expectation
As mentioned above, that the ability of HTI to meet the needs of the industry is still low, and as the solution needs an effort plantation expansion in order to meet the needs of industry. However, the dilemma is, continuity expansion at some time will also be faced with the problem of "too limited production of forest area." And, in the end will have an impact on the conversion of forest conservation into the production forest area that can be a threat to forest sustainability.

Forest is a set of trees in an area with the natural environment and designated as a forest biodiversity and creating microclimate. In these definitions contained, the forests consist of a minimum of three main elements of land, crops and environment. As is known forestland managed for multipurpose with the main objective is timber production (production function). The main objective of forest management is to maintain the productivity of forestland. Sustainable productivity growth can be categorized as conservation and sustainable yields or harvest.

In forestry, land is one of the assets of companies that are permanent or "Land is the one asset of a permanent forest Enduring business" (Mathews 1935 in Davis, 1954). Land expectation value is a translation of Soil Expectation Value and abbreviated with SEV (Gregerson, 1980). Meanwhile, according to Davis (1954) the expected value of land is the Land Expectation Value is abbreviated with LeValue. The theory of expected value of this land was first put forward by Faustmann in 1825. Davis (1954) states, that the expected value of land is a value of the land as an asset or capital. Kindness to the calculation of the expected value of land as a measure of rotation is centered attention on the influence of time on the expenditure and revenue on the return of an investment.

Land expectation value can be approximated by using the Faustmann formula. According to Soemitro (1978), Faustmann formula can be applied more widely in a variety of forestry projects. Gregersen (1980), and Hamzah (1985) states, that the Faustmann formula can be used to calculate the profitability that is the basis for consideration of an activity.

The general formula of Faustmann as follows (Davis, 1954).

$$L_{ie} = \frac{Y_r + T_a(1+i)^{r-a} + T_b(1-i)^{r-a} + I\left[\frac{(1+i)^r - 1}{i}\right] - C(1+i)^{r-a} - S(1+i)^{r-a} - e\left[\frac{(1+i)^r - 1}{i}\right]}{(1+i)^r - 1}$$

$$L_{ie} = \frac{Y_r + T_a(1+i)^{r-a} + T_b(1-i)^{r-a} + I\left[\frac{(1+i)^r - 1}{i}\right] - C(1+i)^{r-a} - S(1+i)^{r-a}}{(1+i)^r - 1} - E$$

Where,

L_{ie}	:	Land expectation value;
Y_r	:	Revenue from the final result at the age of recycled wood;
T_a	:	product during the cycle;
C	:	All costs incurred during the cycle;
E	:	Annual cost management;
I	:	interest rate used in the calculation of SEV is 12%, or interest rate that generally accepted today;
R	:	Cycle;
a	:	Net value received by the end of rotation;
r	:	The length of time in one crop cycle (year);
i	:	Interest rates;

The form of Faustmann formula for simplified LEV is as follows (Davis, 1954; Davis and Johnson, 1987; Buongiorno and Gilless, 2003):

$$LEV = -C + \frac{WV_R - C}{(1+r)^R - 1}$$

LEV = *Land Expectation Value;*
C = Cost for forest development per acress (Rp/ha);
W = The price of wood per unit volume, example per m^3 (Rp/m^3);
V_R = The volume of timber harvest per acres at the age of recycling plant (m^3/ha);
R = The length of time in one cycle plant (in year);
r = Interest rates (%/year);

Components in the formula above are the scale for the present value (present value) of net income per year that are constant **(WV$_R$ - C)** for each period of R, if not infinite number of replications period (infinite). Measurement of the condition of land/site, if necessary, to obtain the land value data collected includes (a) the net value received by the end of the rotation, (b) rotation age types, and (c) the interest rate. Land expectation value (SEV) can be calculated using the following formula:

$$SEV = \frac{a}{(1+i)^w - 1}$$

Where,
a : Net value received by the end of rotation (Rp / vol);
w : age rotation type (year);
i : Interest rates (%);

Path Analysis
Correlation and regression analysis is the foundation of the calculation of path analysis called path coefficient (Riduwan, 2007). The path coefficients are standardized regression coefficients (standardized path coefficients). This is used to explain the level of influence (not predict) exogenous variables on endogenous variables (Riduwan, 2007). The calculation of the path coefficient performed with SPSS for Windows 13:00.
The path model is used as follows:

Model of Substructure 1

$$Y_1 = {}_1X_1 + {}_2X_2 + {}_1$$

Model of Substructure 2

$$Y_2 = {}_1Y_2 + {}_1$$

Where,
Y_1 = Economic Growth
X_1 = Investment (Realization of Plantation HTI)
X_2 = GDRP of Forestry Sector
Y_2 = Labor
, = Path Coefficients
= Error

To see the influence of independent variables on the dependent variable using numbers Coefficient Determination/R square (R^2).Test of significance of each path model variables jointly and individually searched based on F test and t test by comparing the probability value of with probability Sig.

Hypotheses for substructure 1 read as follows:

H_o: There is no significant relationship between HTI investment and GDRP of forestry sub-sector to economic growth.

H_1: There is a significant relationship between HTI investment and GDRP of forestry sub-sector to economic growth.

Hypotheses for substructure 2 read as follows:

H_o: There is no significant relationship between economic growths to labor.

H_1: There is a significant relationship between economic growths to labor.

Decision-making is done by comparing the amount of numbers significant level (Sig.) research with significance level of 0.10.The criteria are:

If Sig. Research <0.10, then H_o is rejected and H_1 accepted

If Sig. Research > 0.10, then H_o is rejected and H_1 accepted

ANALYSIS AND DISCUSSION
Forestry Sub-Sector in East Kalimantan province and its contribution to GDRP
Before discussing the facts about the contribution of the forestry sector in East Kali-

mantan on Gross Domestic Regional Product (GDRP), it is worth describing the general conditions of production forests in Indonesia, which suffered degradation (damage). In general, based on data drawn from the Directorate General of Forestry Production (2005), production of degraded forest area is the largest on the island of Borneo. This can be seen from the table 1.

In 2006, forest area in East Kalimantan reached to 10.8 million acres consisting of six forest types, namely: 1) protection forest; 2) forest nature reserve and tourism; 3) limited production forests; 4) permanent production forests; 5) convertible production forest; 6) forest education / research. Permanent production forest, which covers 3.4 million acres of forestland, is the largest of the six types of forests in East Kalimantan All in all districts and cities that have the largest forest area is the Kutai Timur District with a total area reached 3,064,559 ha of forest.

In East Kalimantan, forestry industry has declined for seven years. In 2001, East Kalimantan forestry sector contribution to GDRP reached 3.40 percent. Then its contribution has declined from year to year. Finally, in 2006, East Kalimantan forestry sector contribution to GDRP is only 2.39 percent (see Table 2).

As shown in Table 2, it appears that the forestry sector's contribution is 3.40 percent, in 2006 to 2.39 percent, or in this case, there exists a decrease of 1.01 percent. Accordingly, extensive logging and timber production in East Kalimantan of 2001 to 2006 also experienced a downward trend. In 2001, the total harvest of 591 thousand acres is o f a production target of 2.77 million m^3 produced realization of production of 4.5 million m^3.While in 2006, with an area of 74 thousand acres yields only the realization of production is 1.04 million m^3 from the target at 2.46 million m^3 (see Table 3).

Decline in the forestry sector's contribution to GDRP was caused by a decline in

Table 1
Production of Degraded Forest Area (1990 - 2000)
Based on the Indonesian Island

No	Island	Areas of Degraded (ha)
1	Kalimantan	10.622.400
2	Sumatera	4.485.200
3	Irian Jaya	2.030.400
4	Nusa Tenggara	1.012.400
5	Jawa	917.200
6	Sulawesi	867.200

Source: Directorate General of Forestry Production (2005)

Table 2
Forest Sector Contribution to GDRP
in East Kalimantan Province, Year 2001 – 2006

Year	GDRP East Kalimantan (million Rupiah)		Contribute (%)
	Forestry	Number of GDRP	
2001	2.933.492	86.348.105	3,40
2002	2.709.486	87.850.397	3,08
2003	2.597.267	89.483.540	2,90
2004	2.416.343	91.050.429	2,65
2005	2.358.084	93.938.002	2,51
2006	2.309.918	96.585.471	2,39

Source: BPS of East Kalimantan Province (2008)

timber production in East Kalimantan. The decline in timber production was due to decreased availability of wood raw material for industry. Then this issue led to the forestry industries in East Kalimantan to collapse. Unemployment increases more and more. Seeing this poor condition, some efforts should be made an action to prevent deterioration of the forest industry in East Kalimantan.

Trend of Companies and Regions plantation in East Kalimantan by Regency/City
Given the fact that the appalling conditions with the declining role of the forestry sector in the economy of East Kalimantan province, it calls for an action to prevent deterioration of the forest industry in East Kalimantan. One solution is to develop HTI. HTI is more productive in the wood supply for industrial processing compared with plantations. Average production reaches 30-70 m^3/acres/year of forest plantations, while only 0.5 to 3.0 m^3/ha/tahun natural forests. Plantation development in East Kalimantan can be summarized in Table 4. he area of plantation in East Kalimantan overall reached 1.9 million acres. With Tarakan District as an area has the largest plantation of 799 thousand acres. It is followed by Kutai

Table 3
Wide Cut and Round Wood Production in the Province of East Kalimantan

Year	Wide Cut (Ha)	Production (M^3)	
		Target	Realization
2001	591.312,40	2.772.775,00	4.509.928,90
2002	91.094,38	3.210.487,00	2.601.805,85
2003	93.021,38	2.522.725,00	1.162.777,54
2004	72.490,21	14.773.660,92	2.677.179,68
2005	72.490,21	14.773.660,93	2.677.179,69
2006	74.026,23	2.460.066,00	1.043.619,61

Source: East Kalimantan Provincial Forestry Office, 2008

Table 4
Number of Company and Regions plantation
in East Kalimantan by District / City, 2006

District/City	Number of Firms	Size (Ha)
Pasir	4	56,375
Kutai Barat	10	219,955
Kutai Kartanegara	67	483,531
Kutai Timur	8	185,230
Berau	5	22,400
Malinau	0	0
Bulungan	1	5,000
Nunukan	1	25,000
Penajam Paser Utara	2	83,134
Balikpapan	3	48,853
Samarinda	0	0
Tarakan	3	799,651
Bontang	0	0
Total	**104**	**1,929,129**

Source: East Kalimantan Provincial Forestry Office, 2008

Kartanegara of 483 thousand acres, then Kutai Timur of 219 thousand acres. The number of plantation companies in East Kalimantan reached 104 companies. The greatest number found in the District that is of 67 firms, (see Table 4).

As viewed from the number of companies that are listed in Forest IUPHHK plantation in East Kalimantan province, there are 33 companies operating. Some companies that manage forest plantations with large area are PT. Lester Hutani Adindo cover 201,821 acres in Bulungan District, PT.Hutani Surya Jaya area of 183,300 acres

in Kutai Kartanegara, PT. Cape Redeb Hutani 180,330 acres in the Berau area, and PT.I TCI Hutani Manunggal covering 161,127 acres in the Kutai Kartanegara.

Development of HTI area should be pursued seriously. The key to success lies in cost control, marketing, and product certification. Besides, the problem of illegal logging must be immediately eradicated. It is very detrimental to the country from both an economic perspective and point of view of environmental sustainability. HTI development must also be supported by all levels of society. That way East Kalimantan forestry

Table 5
List of Companies, Which Have IUPHHK at HTI
in East Kalimantan Province

No	Company Names	Area (acres)	Location
1	PT. Acasia Andalan Utama	39.620	Kutai Kartanegara
2	PT. Adindo Hutani Lestari	201.821	Bulungan
3	PT. Anangga Pundi Nusa	29.728	Kutai Barat
4	PT. Belantara Persada	17.150	Kutai Timur
5	PT. Belantara Pusaka	14.010	Berau
6	PT. Belantara Subur	16.475	Penajam Paser Utara
7	PT. Bhinneka Wana	9.945	Kutai Barat
8	PT. Fajar Surya Swadaya	66.659	Penajam Paser Utara
9	PT. Hutan Kusuma	13.325	Kutai Kartanegara
10	PT. Hutan Mahligai	11.275	Kutai Barat
11	PT. Inhutani I Batu Ampar-Mentawir	16.521	Penajam Paser Utara
12	PT. Inhutani I Long Nah PT.	50.259	Kutai Timur
13	Intraca Hutani Lestari PT.	42.050	Bulungan
14	ITCI Hutani Manunggal PT.	161.127	Kutai Kartanegara
15	Kelawit Hutani Lestari PT.	9.180	Kutai Barat
16	Kelawit Wana Lestari	22.065	Kutai Barat
17	PT. Rimba Raya Lestari PT.	17.330	Kutai
18	Sendawar Adhi Karya PT.	25.400	Kutai
19	Sumalindo Hutani Jaya I	10.000	Kutai
20	PT. Sumalindo Hutani Jaya II	70.300	Kutai Kartanegara
21	PT. Sumalindo Lestari Jaya I (Batu Putih)	32.550	Berau
22	PT. Sumalindo Lestari Jaya II (Sangkuliran)	24.500	Kutai Timur
23	PT. Surya Hutani Jaya	183.300	Kutai Kartanegara
24	PT. Sylvaduta Corporation	47.025	Kutai
25	PT. Taman Daulat Wananusa	13.400	Paser
26	PT. Tanjung Redeb Hutani	180.330	Berau
27	PT. Wana East Kalimantan Lestari	16.280	Kutai Timur
28	PT. Estetika Rimba	5.000	Bulungan
29	PT. Hutan Trans Kencana	9.300	Paser
30	PT. Inhutani I-Long Nah (Trans)	4.000	Paser Serigan
31	PT. Inhutani I-Melak	4.900	Kutai Barat
32	PT. Inhutani I-Prumpuk	10.000	Bulungan
33	PT. Inhutani II-Tanah Grogot	17.200	Paser

Source: Directorate of Territory Management and Preparation of Forest Utilization Area
(Calculated from BPK data and the East Kalimantan Provincial Forestry Service), Year 2009

industry is expected to be felt again the wealth as in the time before the monetary crisis in 1997. The complete description list of companies that have IUPHHK plantation in East Kalimantan Province can be seen in Table 5.

The realization of the development of HTI planting in East Kalimantan province is relative to fluctuate throughout the year 1999-2006. In 1999, the actual planting (crop area) HTI reached 37,245 ha, but decreased in 2000 amounted to 10,679 acres. In 2001 also decreased to 8393 ha and lowest in 2004, which only amounted to 3972 ha. Increasing realization of HTI plantings began to increase significantly in 2005 and 2006, respectively 26,764 ha and 42,038 ha (Table 6)

Effect of HTI and its Implication to Economic Growth and Employment

To determine the impact of timber plantations and its implications to economic growth and employment in the province of East Kalimantan, the authors use a model of path analysis. The variables used are HTI investment, the Gross Regional Domestic Product (GDRP) of forestry sector, economic growth (growth) and labor. Investments will approached by using actual data HTI planting, forestry sub-sector GDRP approached by the total value of forest production sub-sector that is still natural forest-based, economic growth approached by

GDRP at Constant Price (ADHK) in East Kalimantan, while Labor approached by the total workforce in the agricultural sector. The data used are time series data during the years 2001 until 2006.

The result of using SPSS software is the large number of coefficient of determination (R Square) is 0.823, which means that the influence of investment and GDP plantation forestry sub-sector towards economic growth of East Kalimantan Province in combination was 82,3 percent (0.823 X 100%). The remaining 17.7 percent (100% - 82.3% = 17.7%) affected by other variables outside the model.

It was found that the number of significance is of 0.044 <0.05, which means that there is a significant relationship jointly between HTI investment variables and GDRP of forestry sub-sector to economic growth.

It appears that the path coefficient value is the direct influence of variables on economic growth. It is also obtained the significance value (Sig.) of each variable. This can be explained as follows:

The number of investment influences HTI (X1) directly affect economic growth (Y1) is 0.813 (81.3 percent). The direction of influence is positive, which means increased investment in timber plantations will increase the rate of economic growth, while the value of Sig.0.049 <0.05, so the effect is significant.

Table 6
Actual HTI planting in East Kalimantan Province,
Year 1999-2006

Year	Realization in Plantation (Acre)
1999	37,245
2000	10,679
2001	8,393
2002	10,558
2003	4,415
2004	3,972
2005	26,764
2006	42,038

Source: East Kalimantan Provincial Forestry Office, 2008

The degrees of influence on GDRP of forestry sub-sector (X2), directly affects economic growth (Y1) is - 0.880 (88 percent). The direction of influence is negative, which means an increase GDP forestry sub-sector will lower the rate of economic growth. This negative effect was due to lower contribution of the sub-sector still dominated the forest for timber from natural forests. This situation needs to be substituted with the role of the plantation, because it proved a significant impact on economic growth. Value Sig.0.021 <0.05, so it can be said is a significant level of influence.

The value of coefficient of determina-

tion for the equation of sub-structure 2 is 0.558 or equal to 55.8 percent. A remains percentage are 44.2 percent, it means influenced other factors outside the model. Based on the calculation of path analysis substructure 2 as well, the path coefficient values obtained direct influence on the labor variable. It also found the level of influence economic growth (Y1) directly to labor (Y2) was 0.747 (74.7 percent). This influence is positive, indicating economic growth will increase employment opportunities. Significance value is 0.08 <0.10, so the magnitude of this effect was also significant.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.907[a]	.823	.705	.46569

a. Predictors: (Constant), PDRBkehutanan, Investasi

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.026	2	1.513	6.978	.044[a]
	Residual	.651	3	.217		
	Total	3.677	5			

a. Predictors: (Constant), PDRBkehutanan, Investasi

b. Dependent Variable: Growth

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.015	.426		2.379	.076
	Investasi	.053	.019	.813	2.790	.049
	PDRBkehutanan	-.315	.085	-.880	-3.714	.021

a. Dependent Variable: Growth

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.747[a]	.558	.447	2.37165

a. Predictors: (Constant), Growth

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	32.046	2.679		11.960	.000
	Growth	2.777	1.237	.747	2.245	.088

a. Dependent Variable: T_Kerja

Development Implications and Benefits of HTI in the Economy

The results imply that the implications of the development of timber in Indonesia and East Kalimantan province has its benefits in the future (forward) and backward for the economy. The impact to the forward with the existence of HTI can provide raw materials for industrial development per wood that has affected the competitiveness, national timber industry through superior products from the industry are like pulp, plywood, and furniture. The result will be useful to meet the supply and domestic demand and exported to other countries thereby increasing foreign exchange. The overall benefit of this chain of HTI development benefits, of course, will give a multiplier effect on the provision of employment and increase local economic growth.

For the impact on the backward with the development of these plantations, it can benefit the society as a micro-economic empowerment. This will provide a source of revenue to the society near the area so that it can improve their living standards and welfare. In addition, HTI also benefit the preservation of the environment is very important to do to create harmony between development and environmental sustainability.

According to government decree (PP No. 7/1990) Anjasari (2009), regarding industrial forest concessions, timber plantations are forest plantations established in order to increase the potential and quality of forests' products by applying intensive silviculture to meet the needs of the forest products industry materials. HTI concessions aim is to support the development of the domestic forest products industry to increase value added and foreign exchange, increase land productivity and environmental quality, and expand employment and business fields (PP No. 7/1990, article 2).

The Indonesian government, through the Department of Forestry is committed to increasing the role of forestry in economic development through increased state revenue from forestry sector. The development of HTI focus targeted 5 million acres by the year 2009. HTI development is the management which has to keep the principle of sustainability, namely economically sustainability, ecological and social sustainability. Thereby not only ensuring the supply of sustainable wood raw materials but also should pay attention to the forest ecosystem in the long term social and community welfare.

Beside, the existence of HTI development is expected to save the natural forests from damage caused by HTI is a natural richness that can be refurbished, fully utilized and sustainable national development sustainability to the welfare population. Complete scheme is displayed in Figure 2.

HTI policy is indeed intended to prepare the raw material from which legal and sustainable sources. Thus, the use of natural forests is no longer the focus as a source of wood raw material supply. HTI Policy con-

Figure 1
Path Diagram
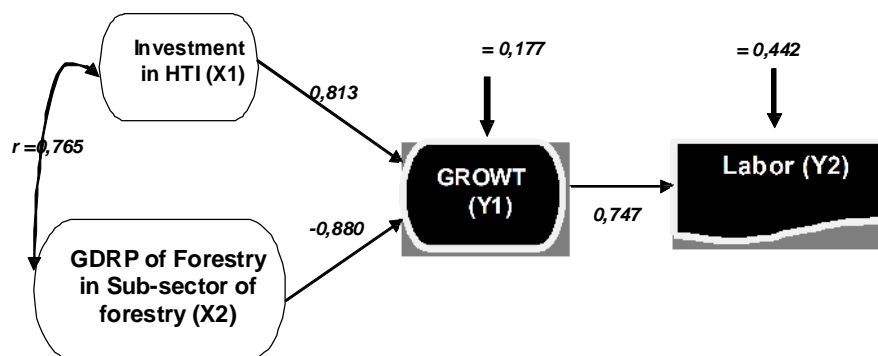
tributed greatly to local economies and this encourages the export of timber forest products and new investment. This HTI development in the prospect in forward will be able to provide employment, reduce poverty while maintaining sustainability and the environment.

Forest industry production capacity of more than 6,000 cubic meters per year is still prospective for further development. The problem of raw materials that exist begins to be addressed with wood supply from forest plantations, forest community forests, and cut production quota established by the Department of Forestry every year. The performance of the timber industry had fallen short not because of shortage of raw materials, but because it reduces the supply of illegal timber. With the growth of forests and forest plantations, timber industry still has a prospective business to be developed and not just a sunset industry (Greenomics Indonesia, 2008).

HTI development has three main goals: the economic, ecological and social targets (Iskandar, 2005). Based on these targets,

Figure 2
The Scheme of Forward and Backward Benefit in HTI
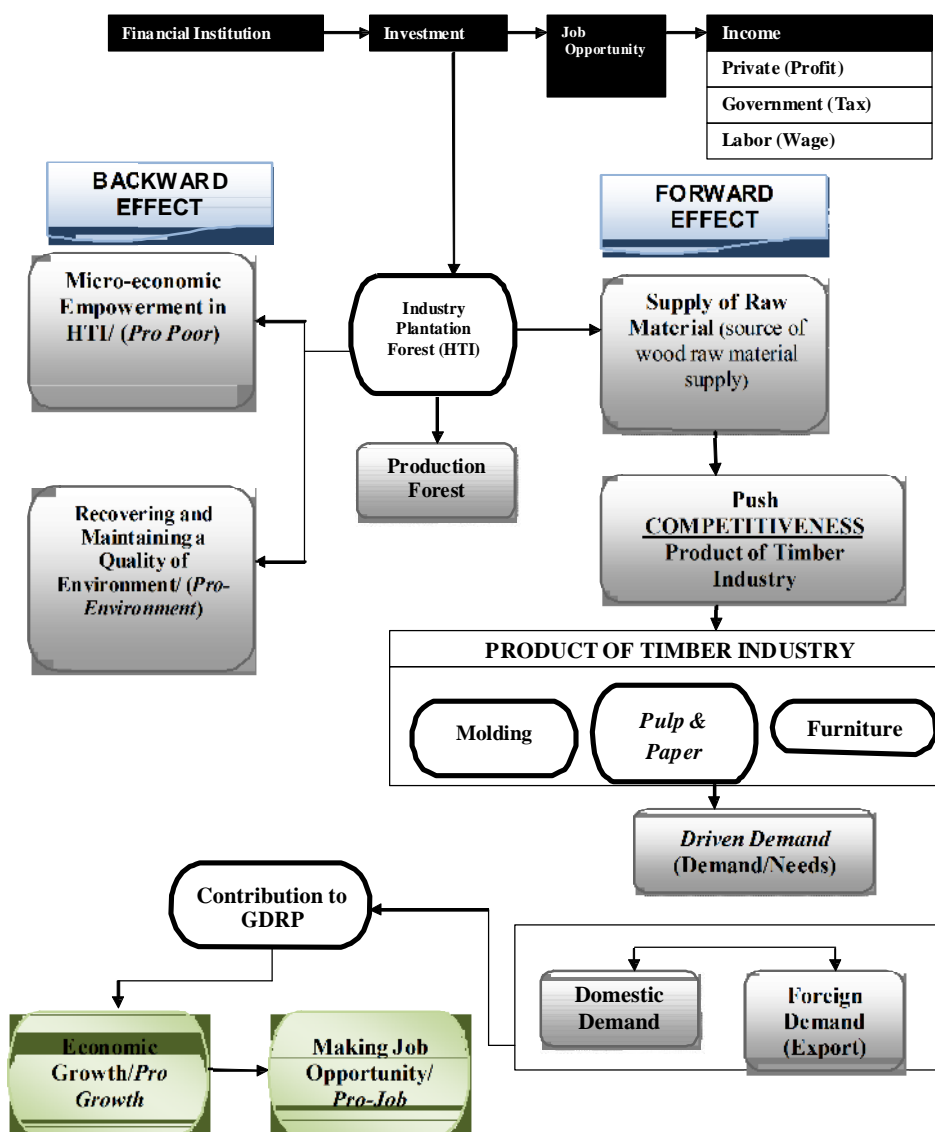
then the development of timber must have a positive influence on economic life, social, and environmental communities around the area of timber plantations. In realizing the development of timber, so many parties and stakeholders involved, one of which is precisely the communities around the forest area. The existence and the participatory role of local communities, in both material and nonmaterial support and cooperate with other parties involved to facilitate and accelerate the implementation of HTI development. Therefore, the communities surrounding the forest area would be exposed to the influence of HTI development both in terms of social or economic.

Development and management of large-scale timber plantations and the long term is one mechanism to improve the welfare of the community one of which is to provide employment. Community management focused on the ability of enterprises to provide employment opportunities and business opportunities for the community. According to Iskandar (2005), there are three primary elements of the provision of employment opportunities by the development of timber business entity that is, acts directly on the company, working on company business contractors, and work to serve the workers of the company. Reciprocal relationship between communities and forest resources prior to the plantation area is an integral ecosystem affect each other, it is necessary that the forest development model coupled with efforts to meet the needs, income and welfare of the community around the forest given the socio-economic condition of society is in general still low. One form of the approaches is aimed to increase public participation through the utilization of labor from surrounding communities HTI area.

Improvement Strategy and Prospects of HTI
For accelerating the growth of industrial forest plantations, several strategies can be undertaken. This can include (1) Mapping and offers locations that are economically feasi-

ble to establish forest plantations, (2) Removing the policies that attract investment capital for forest plants (remove the auction permits, reduce fees, minimize a social problems, term assurance business), (3) The long term forest plantations which is established by the state through state-owned companies or private entities with government equity participation, (4) alternative funding sources for long terms forest plantations. Permit immediate stop or divert forest plants that do not seriously develop forests, (5) Facilitate the construction of community forest or plantation forest peoples in the production of degraded forests or plantations abandoned by employers.

If HTI management is successful, it will be unlikely to have prospect of HTI in five or seven years for the future. This can be relied upon as a major supplier of industries' wood raw material to replace the role of natural forests. However, HTI development are facing some obstacles such as legal certainty to the status of land and lack of capital, some investors who are doubted about the certainty of the results and the certainty of their businesses. Therefore, there is a kind of a dilemma by the Department of Forestry. On the one hand, it is expected to be able to restore forest conditions that have been addicted. On the other hand, it can also provide the raw materials required for sustainable forestry industry in order to sustain economic growth.

HTI development is considered more advantageous in terms of forest conservation and long-term economic rather than shifting the former forest area timber companies and into oil palm plantations. The government will prioritize the development of timber and forest plants to improve the economy of the people because this promises a brighter outlook for the forestry industry in the future.

The results of forest plantations and crops of the people can boost the increase in foreign exchange in the future. This can be achieved through increased timber industry with raw materials of wood from plantations and plantations of the people. In addition,

the development of timber and forest planta-tions are very help people repair severe damage to forests, which until now could not be rehabilitated.

HTI business outlook is promising. This is evidenced by the many applications that have been processed by HTI since 2008. Foreign and local investors are still looking for HTI business since 2008, in the middle of the current world financial crisis with in-vestment funding from three investment worth Rp 24 trillion. Encouraging invest-ment in plantation forests also absorb more labor. HTI Investments does not only prom-ise the integrity of the forest after harvesting crops for industrial needs, but its activity is able to absorb labor in very large quantities.

CONCLUSIONS AND SUGGESTIONS
Conclusion
First, the capacity of forest industry produc-tion, of more than 6,000 cubic meters per year, is still prospective for further devel-opment. The costs of raw materials that are always a problem tends to be addressed with wood supply from forest plantations, com-munity forests, and cut production quota established by the Department of Forestry every year.

Second, the performance of the timber industry fell down which is not because of shortage of raw materials, but decreasing the supply of illegal timber. With the growth of forests and forest plantations, timber indus-try still has a promising business prospects for development and not a sunset industry.

Third, HTI is more productive in the wood supply for industrial processing com-pared with plantations. Average production reaches 30-70 m^3/acres/year of forest planta-tions, while only 0.5 to 3.0 m^3/acres/year of natural forest.

Fourth, HTI development, is considered more advantageous in terms of forest con-servation and long-term economic rather than shifting the former forest area of timber companies used as oil palm plantations. The government will prioritize the development of timber and forest plants to improve the

economy of the people because it is deemed to have a brighter outlook for the forestry industry in the future.

Fifth, the results of forest plantations and crops for the people can boost the in-crease in foreign exchange in the future. This can be achieved through increased tim-ber industry with raw materials of wood from plantations and plantations by the peo-ple. In addition, the development of timber and forest plantations can help people repair severe damage to forests, which until now could not be rehabilitated.

Sixth, the area of plantation in East Ka-limantan overall reached 1.9 million acres, with Tarakan District as an area that has the largest plantation area that is 799 thousand acres. Then it is followed by Kutai Kartane-gara of 483 thousand acres. It is then Kutai Timur of 219 thousand acres. The number of plantation companies in East Kalimantan reached 104 companies. The greatest num-ber is found in the district is 67 companies.

Seventh, the realization of HTI plantings began to increase significantly in 2005 and 2006, respectively 26,764 ha and 42,038 acres. This shows a very good climate to increase forestry's contribution to the econ-omy through the development of timber

Suggestion
First, the development of HTI area should be pursued seriously. The key to the success determined by cost control, marketing, and product certification. Besides that, the prob-lem of illegal logging must be immediately combated because this is very detrimental to the country both from an economic perspec-tive and point of view of environmental sus-tainability. HTI development must be sup-ported throughout stratum community. That way East Kalimantan forestry industry is expected to feel the return to glory as in the time before the monetary crisis in 1997.

Second, East Kalimantan provincial government should focus on the develop-ment of the forestry sector in an effort to increase the productivity of forests, because it is very beneficial for the regional economy

at the macro level. Such assistance can be in the form the needs of material raw timber industry and provide businesses (economic growth/pro-growth), employment (pro-job), economic empowerment of forest communities (pro-poor) and improving environmental quality of life (pro-Environment). Also encourage the competitiveness of the timber industry (sawmills, plywood, pulp & paper, furniture, etc.) to meet domestic demand and exports.

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