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RAW WOOD DEMAND FOR PROCESSING WOOD PRODUCTS EXPORTED TO THE EU MARKET UNDER THE EU-VIETNAM FREE TRADE AGREEMENT

Nguyen Ba Ngai

Phenikaa University

ABSTRACT

The research aims to analyze the current situation of using raw wood and to forecast the raw wood demand for processing wood products (WPs) for export to the European Union (EU) market in the period of 2025 - 2030; to recommend preferential policies supporting processing enterprises to gradually reduce the use of imported raw wood, increase the use of domestically planted forest wood for processing, and exporting WPs to the EU market. The research analyzed secondary data, surveyed at 46 wood processing enterprises in 3 representative regions of the country, used statistical and regression analysis methods to forecast the raw wood demand for the period of 2025 - 2030. The results of the research identified 02 pairs of opposite trends, namely: i) the raw wood demand for processing WPs for export of the whole country is increased, while the raw wood demand for processing WPs exported to the EU market is decreased; ii) the demand on domestic raw wood tends to increase while the demand on imported raw wood tends to decrease. The causes of the above 02 pairs of trends, solutions and policy recommendations are also the results of research.

Keywords: Raw wood, raw wood demand, wood products (WPs), EU market

NHU CẦU GỖ NGUYÊN LIỆU CHO CHẾ BIẾN SẢN PHẨM GỖ XUẤT KHẨU SANG THỊ TRƯỜNG EU THEO HIỆP ĐỊNH THƯƠNG MẠI TỰ DO VIỆT NAM - EU

Nguyễn Bá Ngãi

Đại học Phenikaa

TÓM TẮT

Nghiên cứu nhằm phân tích thực trạng sử dụng gỗ nguyên liệu và dự báo nhu cầu gỗ nguyên liệu để chế biến sản phẩm gỗ xuất khẩu sang thị trường EU giai đoạn 2025 - 2030; đề xuất các chính sách ưu đãi hỗ trợ doanh nghiệp chế biến giảm dần việc sử dụng gỗ nguyên liệu nhập khẩu, tăng cường sử dụng gỗ rừng trồng trong nước để chế biến và xuất khẩu sản phẩm gỗ sang thị trường EU. Nghiên cứu phân tích số liệu thứ cấp, khảo sát tại 46 doanh nghiệp chế biến gỗ tại 3 vùng đại diện của cả nước, sử dụng các phương pháp phân tích thống kê và hồi quy để dự báo nhu cầu gỗ nguyên liệu giai đoạn 2025 - 2030. Kết quả nghiên cứu đã xác định 02 cặp xu hướng trái ngược, đó là: i) nhu cầu gỗ nguyên liệu phục vụ chế biến các sản phẩm gỗ xuất khẩu của cả nước tăng, trong khi nhu cầu gỗ nguyên liệu để chế biến các sản phẩm gỗ xuất khẩu sang thị trường EU giảm; ii) nhu cầu gỗ nguyên liệu trong nước có xu hướng tăng trong khi nhu cầu nhập khẩu gỗ nguyên liệu có xu hướng giảm. Nguyên nhân của 02 cặp xu hướng, giải pháp và khuyến nghị chính sách trên là những kết quả nghiên cứu chính.

Từ khóa: Gỗ nguyên liệu, nhu cầu gỗ nguyên liệu, sản phẩm gỗ, thị trường EU

I. INTRODUCTION

Vietnam's wood products export rankes at the first position in Southeast Asia, 2nd in Asia and 5th in the world wood market. The total export turnover in the last 5 years ranges from 12,372 to 16,013 billion USD/year, of which the EU market is from 455.52 to 645.71 million USD/year (Cao Thi Cam, Tran Huy Le, 2025). In 2024, the country had 4,478 enterprises producing, trading and exporting WPs, of these, currently are over 300 enterprises that process WPs to the EU market. The EU market has strict requirements on quality standards as well as the legal origin of raw wood for processing WPs exported to the EU market.

On March 30, 2020, the Council of European Union approved the new generation Free Trade Agreement between Vietnam and European Union member states (EVFTA). In the Agreement, there are strict regulations on legality of raw wood for processing WPs exported to European Union countries.

In May 2023, the European Parliament issued EU Regulation 2023/115 for *Deforestation-Free Products*, abbreviated EUDR. The goal of the EUDR is to guarantee that the products EU citizens consume do not contribute to deforestation or forest degradation worldwide. According to this regulation, WPs exported to the EU market must ensure that the raw wood used for processing WPs do not cause deforestation and degradation of natural forests.

To produce WPs for export with the above legal timber requirements, including not causing deforestation, Vietnam's wood processing industry has not yet clearly identified the demand for quantity and quality as well as meeting the requirements for legality of raw wood. This is one of the gaps that need to be researched. Therefore, two research questions are:

- How is the demand on the quantity and quality of raw wood, ensuring their legalities under the EVFTA implemetation and forecast of this demand in the period of 2025 - 2030?

- How are the policies on supporting WPs processing enterprises to gradually reduce imported wood and increase the use of raw wood from domestically planted forest timber for processing and exporting WPs to the EU market?

The research aims to analyze the current situation of using raw wood and to forecast the demand for raw wood for processing WP for export to the EU market in the period of 2025 - 2030; to recommend preferential policies supporting processing enterprises to gradually reduce the use of imported raw wood, increase the use of domestically planted forest wood for processing, and exporting WP to the EU market.

II. LITERATURE REVIEW

The requirements for legal raw wood used for processing WPs for export to the EU market have been collected and analyzed. These requirements are stipulated in the Document of the EVFTA, specifically in Article 13.8 on timber derived from sustainably managed forests; Article 13.7 on timber must ensure the conservation of biodiversity; Article 13.7 on timber that does not emit greenhouse gases; Article 13.4 on timber that must be legally guaranteed for legal activities and work (EVFTA, 2020). In addition, the regulatory requirements for raw wood that do not cause natural forest deforestation and forest degradation are also studied and analyzed by the authors of the EUDR regulations (EU, 2020). The regulations of the EVFTA as well as those of the EUDR are major barriers that Vietnam must overcome, which itself is also one of the needs of raw wood that needs to be researched.

Articles by Tran Huy Le and Cao Thi Cam (2025) published in Viet Wood Magazine in March 2025 showed that the picture of wood exports to markets, including the EU market,

must meet the requirements for raw wood for processing specified in the EVFTA and EUDR Agreements. These articles indicate the requirements for the quantity and quality of raw wood. The quantity and quality of raw wood are always difficulties and challenges in processing WPs for export to the EU market (Cao Thi Cam, Tran Huy Le, 2025).

Nguyen Ba Ngai and Le Trong Hung (2024) researched the supply of domestically produced forest timber for processing WPs in the context of the implementation of the EVFTA and legal timber in Vietnam published in the Journal Agriculture and Rural Development (Nguyen Ba Ngai, Le Trong Hung, 2024). Research on solutions for the development of large timber plantation forests by authors Nguyen Ba Ngai and Le Trong Hung published in the Journal of Forests and Environment (Nguyen Ba Ngai, Le Trong Hung, 2024). This research identified the supply chain of domestic raw wood for processing WPs for export to the EU market.

The forecast of the export value of PWs from 2021 - 2030 in the Vietnam Forestry Development Strategy for the period 2021 - 2030 , with a vision to 2050 has been reviewed and analyzed. In which, each year in the segment from 2021 - 2024 has an actual value to compare with the forecast value in the Strategy (Prime Minister, 2021) to find the difference between the forecast value and the actual value. The review results show that the forecast of the 2021 - 2024 segment is close to reality at a high level.

The legal framework, mechanisms and policies have been reviewed and analyzed by the research team in terms of developing domestic timber supply such as the Timber Strategy Project, the Planning of Timber Areas (Prime Minister, 2022), the Policy on the Development of Large Timber Plantations and the Regulation on Ensuring Legal Timber of Vietnam (VNTLAS) (the Government, 2020).

III. RESEARCH METHODS

3.1. Research sites

The following three regions are representatives of the North, Central and South of the contry selected for research. In each region, several provinces[1] were selected as research sites, specifically:

- The Northern Midlands and Mountainous Regions (representing the North) meet the criteria for processing WPs for export on a small scale, including export to the European market. Hanoi, Viet Tri and Nam Dinh cities have been selected for investigation and research.

- The South - Central region (representative of the Central region) meets the criteria for processing WPs for export on a medium scale, including exports to the European market. The provinces of Quang Nam and Binh Dinh have been selected to conduct investigation and research.

- The Southeast region (representative of the South) has WPs processing enterprises exporting to the European market on a large scale. Binh Duong province has been selected, investigated and researched.

3.2. Collecting, compiling and analyzing secondary data

Secondary data of provinces with processing WPs for export such as Phu Tho, Hanoi, Nam Dinh, Quang Nam, Binh Dinh, Binh Duong have been collected from the web portals of the provinces and the Resolutions of the Provincial Party Committee and the People's Council; reports of the Provincial People's Committee on contents related to forestry and planting forests, forest product processing.

Preferential policies and support for wood processing have been synthesized and analyzed such as mechanisms and policies to encourage

[1] Names of provinces and cities are used in the article before the merger according to the Law on Organization of Local Governments 2025 and Resolution 1211/2016/UBTVQH13

enterprises to invest in agriculture and rural areas, regulations on wood processing systems, raw material areas, policies on legal timber.

3.3. Survey at enterprises

In Vietnam there are about 300 WPs processing enterprises for exporting to the EU market, of which, the South accounts for 60%; the Central region accounts for 30% and the North accounts for 10%. The questionnaires were sent to 130 enterprises according to the above ratio and received 46 enterprises responding to the questionnaire. The questionnaire sent to businesses is designed to answer via the KoboToolbox tool.

The research team conducted in-depth interviews using the Semi-Structure Interview (SSI) with 16 wood processing enterprises, of which: the North with 5 enterprises, the Central with 7 enterprises and the South with 4 enterprises.

3.4. Processing data

The data is rendered from KoboToolbox via MS. Excel software that has been reviewed, cleaned, encoded... then use IBM SPSS Statistics 22 software to analyze descriptive statistical indicators, chart and explore the relationships between indicators.

3.5. Forecast of raw wood demand

Using the linear regression analysis method of 2 variables, in which Y is the variable dependent on the raw wood demand (million m^3/year), X is the independent variable of WP export value ($ million/year) consisting of 03 steps, including: Step 1: Estimate the regression coefficients that explain the actual raw wood demand from 2016 to 2024 through the export value; Step 2: Make a regression equation Y = a + bX, where: Y is the raw wood demand to be forecasted; X is the export value; a is the intercept factor; b is the slop coefficient that represents the degree of change of Y as X changes; Step 3: Forecast the raw wood demand for the years in the period 2025 - 2030 according to the regression equation.

IV. RESULTS AND DISCUSSION

4.1. Raw wood for processing WPs exported to the market EU

4.1.1. Imported raw wood

The results of the survey of 46 enterprises showed that the percentage of enterprises using imported raw wood to produce WPs for export accounts for 87%, while 13% is the number of enterprises that do not use imported raw wood. This result shows that the majority of enterpises have a need to use imported raw wood for production. The case studies at 16 enterprises also showed the same results, 16/16 enterprises all imported raw wood for processing export WPs in general and exported to the EU market in particular.

The survey results showed that the average annual imported raw wood for each enterprise ranges from 17,000m^3 to over 33,000m^3. This result is consistent with the results of the case studies at 16 enterprises. Consumer tastes in the European market have influenced the imported raw wood demand, that WPs must be produced from imported raw wood with strict control of the origin of the wood.

The results of the assessment on the advantages of raw wood imported into Vietnam presented in Figure 01 showing that the most appreciated criteria, accounting for 82% of enterprises agree that the advantage of imported wood is to have full wood certificates according to Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC) for WPs exported to the EU market. This is a mandatory condition to produce export items to this market.

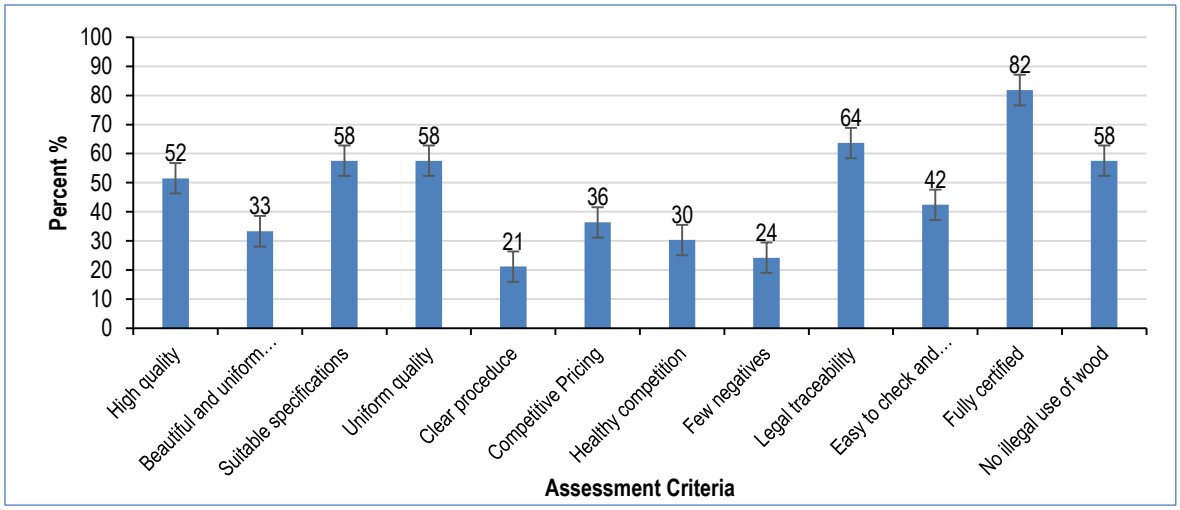

Figure 1. Assessment of the advantages of imported raw wood

(Source: Author's survey results)

Besides the advantages, the imported raw wood faces many difficulties, such as high prices, precarious markets, unstable supply, very difficult in transportation to Vietnam, long transportation time, high costs. The results of case studies at 16 enterpises showed that, when WPs are exported to the EU market and other markets in general, customers will periodically hire a 3rd party to independently assess WPs in terms of content such as quality, wood physical structure, chemical safety and records to ensure the origin of wood. This is a very strict process, mandatory for enterpises to comply to avoid nuisances and economic losses when one of the inspection criteria is not guaranteed, the goods will be returned. Therefore, enterpises now must pay high prices for raw wood to ensure legality and have full certificates as required. Therefore, some enterprises with a high rate of using imported raw wood are facing many difficulties. Some enterprises are gradually switching to using domestic raw wood as a substitute. These are the reasons for reducing the demand for imported raw wood.

Key findings for imported raw wood:

- The amount of imported raw wood used to produce WPs exported to the EU market accounts for about 37% of the total amount of raw wood. This amount of imported raw wood is certainly not enough due to the increasing export of Vietnam's wood products.

- The amount of imported raw wood is not much, but it is mandatory to import because many items, especially outdoor wood products, require very high quality or require imported raw wood according to the orders of some EU countries. This is a difference compared to other markets, so it is difficult to use domestic raw wood as a substitute.

- The trend of importing raw wood for processing WPs exported to the EU market will still increase in the coming years due to the increasing quality of raw wood and the legality of wood according to the agreements signed with the EU (EVFTA, VPA/FLEGT) and the implementation of EUDR commitments.

- Due to the influence of unstable factors in the world, European consumers have made many changes in the direction of switching to using imported products produced with domestic alternative raw materials to reduce product costs and expenditure. These are factors that facilitate the use of raw wood in the country, reducing the demand for imported raw wood.

- Although imported raw wood has many advantages, the above factors lead to processing

enterprises facing a lot of difficulties if using imported raw wood. Therefore, processing enterprises tend to use domestic raw wood, so the imported raw wood demand tends to decrease in the near future.

4.1.2. Domestic raw wood

The survey results of 46 enterprises showed that the proportion of enterprises using domestic raw wood is very large, accounting for 90%, only 10% of enterprises do not use domestic raw wood. This result completely coincides with the case studies at 16 enterprises. The average annual amount of domestic raw wood used by each small and medium enterprise is from 20,000m^3 to 40,000m^3. The case studies at 16 enterprises also showed that currently enterprises mainly use timber purchased domestically to produce export WPs.

Figure 02 shows that acacia wood is the most used in enterprises, accounting for 37%, followed by melaleuca wood accounting for 21%, rubber wood accounting for the 3rd most used rate accounting for 16%, the remaining types of wood such as pine, eucalyptus, teak and some other types of wood are less used to produce WPs exported to the market EU.

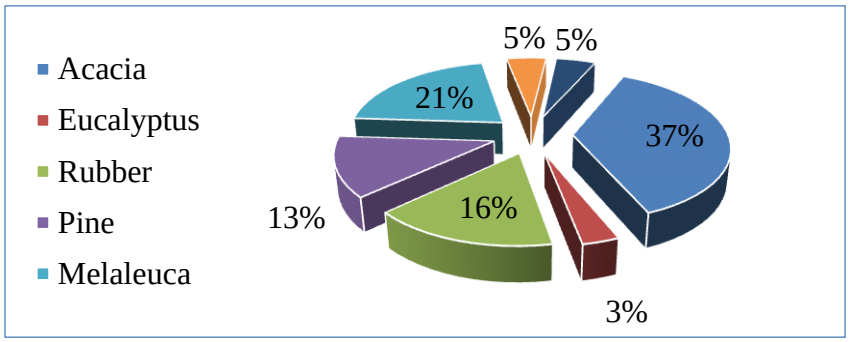

Figure 2. Structure of domestic raw wood for processing PWs exported to the EU market

(Source: Author's survey results)

The advantages of domestic raw wood are the availability, in line with the requirements of producing export products of enterprises, which are the two criteria that enterprises are interested in first when choosing domestic raw wood to produce export products. 22% of enterprises assessed domestic raw materials to meet the requirements, 26% of enterprises assessed the availability of domestic raw wood, 19% of enterprises said that domestic raw woods were cheaper than imported raw wood, 17% of enterprises assessed that domestic raw woood were stably supplied. The results of this assessment are completely consistent with the case studies at 16 enterprises, which means that the source of domestic raw wood, especially acacia wood, currently meets the production needs of wood processing enterprises, the wood source is relatively abundant, etc available, cheaper than imported acacia wood, so domestic acacia wood is currently a trend of using for wood processing.

The results of the investigation have clearly indicated some limitations of domestic raw wood.

The first limitation by enterprises (23%) is the lack of FSC or PEFC certificates. The second limitation of domestic raw wood is the low utilization rate of wood in processing, reaching about 60%, while this rate in some countries in the region reaches over 80%. The third limitation of domestic raw wood today is that the types of raw wood are few and not rich. Other limitations are the quality of the raw wood as well as the difficulty in their legal traceability.

Key findings for increasing domestic raw wood demand:

- The amount of domestic raw wood used to produce WPs exported to the EU market tends to increase over the years, currently about 63% of the amount of raw wood. This is a positive picture in the use of domestic raw wood.

- Acacia wood, rubber wood, pine wood and melaleuca wood are 4 types of wood that are highly appreciated by enterprises in terms of quality, quantity, and stability that can meet the domestic raw wood demand to produce export products in general and export to the EU market in particular. Especially acacia wood can completely replace imported wood. Melaleuca wood, pine wood and rubber wood can also replace imported wood if it is sufficient in quantity and has appropriate processing technology. This is also a positive signal for increasing demand for some types of domestic raw wood for processing export WPs.

- The price of imported raw wood has increased, the economy is difficult, so European consumers have also made many changes in the direction of switching to products produced with cheaper materials, so they accept domestic materials to reduce costs and product prices. These are the factors that facilitate the increase in the demand for domestic raw wood of in the production country.

- Analysis of influencing factors shows that the domestic raw wood demand for processing WPs for export will increase in the coming period.

4.2. Forecast of raw wood demand for processing WPs for export

The actual export value of WPs and the actual amount of raw wood in the period 2016 - 2024 (in columns 2, 3 and 5) are collected and synthesized from the annual report of the General Department of Customs, the Scheme on sustainable and effective development of the wood processing industry in the period of 2021 - 2030 , the Scheme on the development of the sustainable wood processing industry, efficiency in the period of 2021 - 2030 . The export value of WPs of the country in the period 2025 - 2030 (column 2 of Table 1) is collected in the Vietnam Forestry Development Strategy for the period 2021 - 2030 , with a vision to 2050. This data is used to estimate regression coefficients through export value, to determine the regression equation for forecast of the demand for raw wood for the period 2025 - 2030.

Table 1. Export value of WPs and raw wood in the period of 2016 - 2024 and the period of 2025 - 2030

Year	For markets around the world			For the EU market		
	Nationwide export value (million USD)	Growth Rate (%)	Raw wood (million m^3)	Export value to the EU (million USD)	% of the country's export value	Raw wood (million m^3)
1	2	3	4	5	6	7
Export value and actual amount of raw wood for the period 2016 - 2024						
2016	6,900		31.60	740	10.77	3.40
2017	7,660	11.15	34.10	760	9.95	3.39
2018	8,480	10.68	35.90	850	10.03	3.60
2019	10,330	21.87	36.50	860	8.36	3.05
2020	12,010	16.30	38.50	540	4.47	1.72
2021	14,130	17.57	41.50	600	4.23	1.76
2022	15,670	10.94	41.70	650	4.12	1.72
2023	13,180	-15.89	39.40	460	3.46	1.36
2024	15,890	20.56	42.90	570	3.61	1.55
Export value and raw wood forecast for the period 2025 - 2030						

Year	For markets around the world			For the EU market		
	Nationwide export value (million USD)	Growth Rate (%)	Raw wood (million m^3)	Export value to the EU (million USD)	% of the country's export value	Raw wood (million m^3)
2025	20,011		47.18	440	2.19	1.03
2026	21,007	4.98	48.27	410	1.96	0.94
2027	22,009	4.77	49.36	380	1.74	0.86
2028	23,013	4.56	50.45	360	1.55	0.78
2029	24,012	4.34	51.54	330	1.37	0.70
2030	25,006	4.14	52.62	300	1.20	0.63

a. For markets around the world

Table 2. Linear regression between raw wood demand and export value to world markets in the period 2016 - 2024

Demand	Beta	St. Err.	t-value	p-value	[95% Conf	Interval]
Export value	1.088	.085	12.78	0.000	.887	1.29
Constant	25.408	1.024	24.82	0.000	22.987	27.828
Mean dependent var		38.011	SD dependent var			3.791
R-squared		0.959	Number of obs			9
F-test		163.327	Prob > F			0.000
Akaike crit. (AIC)		23.743	Bayesian crit. (BIC)			24.138
Heteroskedasticity		*0.1863*				
Autocorrelation test		*0.7266*				

**** p<.01, ** p<.05, * p<.1*

The heteroskedasticity test shows that the model has homokedasticity (White's test p-*value* = 0.1863 > 5% significance level). The autocorrelation test shows that the model has no autocorrelation (the p - value of the Breusch - Godfrey test LM = 0.7266 > a 5% significance level). With the regression model tests all satisfactory (*homokedasticity*, no autocorrelation), it can be concluded that the regression results are reliable. With 99% reliability, it shows that the export value has a positive correlation with the demand for raw wood (beta coefficient = 1,088 and p-value = 0.000). R2 = 0.959 shows that the export value can explain 95.9% of the fluctuation in demand. From this result, the regression equation calculated on the demand for raw wood is:

$$Y = 25.408 + 1.088^* X \quad [1]$$

in which: Y: Demand for raw wood in millions of m^3

X: Export value in millions USD

The annual export value of the period 2025 to 2030 in column 2 of Table 01 is based on the Vietnam Forestry Development Strategy for the period 2021 - 2030 and the vision to 2050. From the regression equation [1], the demand for raw wood (Y) is forecasted for each year from 2025 to 2030 in column 4 of Table 01 is: in 2025 it is 47.18 million m^3, corresponding to 2026; 2027; 2028; 2029 and 2030 are: 48.27; 49.36; 50.45; 51.54 and 52.62 million m^3.

b. For the EU market

- Export value to the EU market in the period of 2025 - 2030

The annual export value to the EU market in the period 2025 - 2030 is forecasted according to the correlation between the actual export value in the period 2016 - 2024 for markets around the world (column 2 of Table 01) and to the EU market (column 5 of Table 01).

Table 3. Linear regression between the value of exports to world markets and the EU market in the period 2016 - 2024

Export Value to EU	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
X	-.028	.012	-2.38	.049	-.055	.000	.000
Constant	.989	.139	7.10	0	.659	1.318	.000
Mean dependent var		0.670	SD dependent var			0.140	
F-test		5.644	Prob > F			0.049	
Akaike crit. (AIC)		-12.173	Bayesian crit. (BIC)			-11.779	
Heteroskedasticity		*0.9348*					
Autocorrelation test		*0.4226*					

*** *p<.01*, ** *p<.05*, * *p<.1*

The *heteroskedasticity* test shows that the model has *homokedasticity* (the p-value of White's test = 0.9348 > the 5% significance level). The autocorrelation test shows that the model has no autocorrelation (the p-value of the Breusch-Godfrey test LM = 0.4226 > 5% significance level). With the regression model tests are satisfactory (*homokedasticity*, no autocorrelation), it can be concluded that the regression results are reliable. With 99% reliability, it is shown that export value to the EU market has a negative correlation with export value to markets around the world (beta coefficient = - 0.028 and p-value = 0.000). From this result, the regression equation for the value of exports to the EU market in the period 2025 - 2030 is:

$$Y = 0.989 - 0.028*X \quad [2]$$

In which: Y: Export value to EU market in million USD
X: Export value to world market in million USD

From the regression equation [2], the value of exports to the EU market (Y) is forecasted for each year from 2025 to 2030 in column 5 of Table 01: in 2025 is 440 million USD, respectively in 2026; 2027; 2028; 2029 and 2030 are: 410; 380; 360; 330 and 300 million USD.

The annual demand for raw wood for processing WPs exported to the EU market in the period of 2025 - 2030 (column 7 of Table 01) is forecasted according to the percentage of the value of exports to the EU market compared to the value of exports to markets around the world (column 6 of Table 1) and the demand for raw wood for processing WPs for export (column 4 of Table 01). Specifically, as follows: in 2025, the demand for wood for WP processing exported to the EU market is: 1.03 million m^3, corresponding to 2026; 2027; 2028; 2029 and 2030 are: 0.94; 0.86; 0.78; 0.70 and 0.63 million m^3.

4.3. Solutions to increase the domestic raw wood demand for processing WPs for export

4.3.1. Solutions to effectively manage domestic raw wood sources

To proactively have source of raw wood for processing enterprises and aim to build a domestic raw wood source for sufficient and sustainable supply to produce WPs for export, the Government must have a plan to create a concentrated and large enough raw wood area, associated with the planning of processing facilities.

Linking value chains, especially between wood processing enterprises and households, between processing enterprises and forestry companies, between processing enterprises and foreign enterprises in the form of high-quality investment, along the production chain has the potential to create breakthroughs in the processing industry and the forestry industry in general.

4.3.2. Solutions to improve the quality of domestic raw wood

Apply science and technology to the production of raw wood such as selecting and creating varieties and controlling them to ensure the quality of varieties; application of technical measures of intensive afforestation to increase the productivity and quality of planted forests.

Development of raw wood supply forests with sustainable forest management certificates. It is necessary to have a strategy to develop big timber plantation. The strategy includes diversifying planted forests with multiple species to meet the diverse demand for raw wood used in processing.

4.3.3. Solutions to improve and upgrade wood processing technology to suit domestic raw wood

Replace outdated technology with advanced, environmentally friendly technology, capable of using raw wood with different specifications and qualities to increase the utilization rate of wood in processing; to build large-scale concentrated processing clusters in concentrated plantation areas; to build raw wood trading centers in 3 Northern, Central and Southern regions.

Supporting wood processing enterprises to associate and cooperate with research institutes, universities and vocational schools in applying science and technology to meet the needs of technological innovation, support training and training in technology and skills for technical staff and workers.

V. CONCLUSIONS, LIMITATIONS, AND POLICY IMPLICATIONS

5.1. Conclusions

Imported raw wood has been playing an important role, accounting for 37% of the total amount of raw wood in the production of WPs exported to the EU market. Although imported raw wood has many advantages, due to the increase in prices, the supply of wood is not timely and not stable, so processing enterprises tend to use domestic raw wood, so the imported raw wood demand will tend to decrease.

Domestic raw wood has been used to produce WPs exported to the EU market has tended to increase over the years, currently accounting for 63% of the total amount of raw wood. Acacia wood, rubber wood, pine wood and melaleuca wood produced in the country are of good quality and stable quantities that can meet the demand for raw wood to produce export WPs.

The raw wood demand for WPs processing focuses on quality, legality, traceability, accountability as required by the EVFTA, VPA/FLEGT agreements as well as requirements in the implementation of EUDR commitments. These create big challenges for the supply of domestic wood.

It is forecasted that the raw wood demand for processing WPs for export will increase sharply in the period of 2025 - 2030, while the raw wood demand for processing WPs exported to the EU market will decrease. These two upward and downward trends pose the need to adjust the WPs export market to help reduce the pressure on trade barriers, especially tariff pressure due to the trade surplus of the current WPs export industry. trends. These are two pairs of opposite trends that help policy makers and managers readjust the export market to recalculate the demand for raw wood.

Solutions to reduce the imported raw wood demand and increase the domestic raw wood demand are very necessary because they include integrated measures to help effectively manage domestic raw wood sources; improve the quality of domestic raw wood; technical improvement, production management level... thereby increasing the demand for domestic raw wood.

5.2. Limitations

The research is based on the results of a survey of 46 enterprises out of 300 domestic enterprises that use raw wood for processing WPs exported to the European market. This research only responds to the question of the demand for raw wood. While consumers in Europe are

increasingly demanding that the WPs they use must be traceable to the legal origin of raw wood. This research is not based on the opinion of European consumers as a basis for determining the demand for raw wood through the consumption of WPs. This point is considered one of the limitations of the study. To mitigate this limitation, the reseach team tried to analyze the factors of legality, traceability as well as non-deforestation, but the identification of these factors in the research was not in-depth enough to allow for more convincing solutions to be proposed. The above limitations may need to be overcome in the research of supply chain raw wood in the next research topic.

5.3. Implications

This research has clearly shown that a very important aspect is a policy implication to increase the domestic raw wood demand for processing WPs for export. A policy that is likely to encourage businesses and forest owners to enforce legal timber assurance, traceability, accountability for domestic timber under the EVFTA, VPA/FLEGT agreements as well as the implementation of EUDR commitments to attract WPs from other markets, especially from the US market to the EU market to reduce tariff pressure in the trade surplus balance for WPs.

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Email tác giả liên hệ: ngai.nguyenba@phenikaa-uni.edu.vn

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