FINAL REPORT ACTIVITY 1.4

DEVELOPMENT OF MID-TERM NATIONAL STRATEGY FOR ENHANCED DOMESTIC MARKET OF WOOD PRODUCTS

ITTO PD 928/22 Rev.1 (I)
Development Of Sustainable Domestic Market
For Wood Products

Jakarta, February 2025

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

JAPANGOV THE GOVERNMENT OF JAPAN

MAFF Ministry of Agriculture, Forestry and Fisheries

MINISTRY OF FORESTRY REPUBLIC OF INDONESIA

FINAL REPORT ACTIVITY 1.4

DEVELOPMENT OF MID-TERM NATIONAL STRATEGY FOR ENHANCED DOMESTIC MARKET OF WOOD PRODUCTS

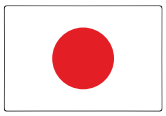
Prepared by:
Prof. Bramasto Nugroho - National Consultant of ITTO Project PD 928/22 Rev.1 (I)

The study was conducted by:
Dr. Rina Kristanti - Project Coordinator ITTO PD 928/22 Rev.1 (I)

Supported by:
The International Tropical Timber Organization (ITTO)
Ministry of Agriculture, Forestry and Fisheries Japan Goverment
Directorate of Forest Product Processing and Marketing,
Directorate General of Sustainable Forest Management,
The Ministry of Forestry

Jakarta, February 2025

INTERNATIONAL TROPICAL
TIMBER ORGANIZATION



JAPANGOV
THE GOVERNMENT OF JAPAN

MAFF
Ministry of Agriculture,
Forestry and Fisheries

MINISTRY OF
FORESTRY
REPUBLIC OF INDONESIA

Executing Agency

Mr. Erwan Sudaryanto

Krisdianto, Ph.D. (former)

Dr. Drasospolino (former)

Dr. Ristianto Pribadi (former)

Director of Forest Product Processing and Marketing,
Directorate General of Sustainable Forest Management, Ministry of Forestry

Dr. Deden Nurochman

Dr. Sudarmalik (former)

Deputy Director of Forest Product Processing Planning
Directorate General of Sustainable Forest Management, Ministry of Forestry

Project Coordinator

Dr. Rina Kristanti
Policy Analyst of Sustainable Forest Management,
Directorate General of Sustainable Forest Management, Ministry of Forestry

Address: Manggala Wanabakti Building, Block I, 11th Floor,
Jl. Gatot Subroto, Jakarta 10270
Phone number: +62 21 5704618
Fax number: +62 21 5704618
Email: itto.woodproduct@menklhk.org
Website: https://sihutanku.phl.menlhk.go.id/

EXECUTIVE SUMMARY

The development of the domestic market for processed wood products needs to be encouraged by various parties. The current situation is that substitute goods dominate the domestic market. The research results show some important things about the condition of the domestic demand for processed wood products. The results of this research can be used as a reference for interested parties to develop strategies for developing the domestic market for processed wood products. The following will describe the position of processed wood products and strategies that can be an option for developing wood products in the domestic market.

1. The dominance of high substitution products for processed wood products is shown by the value of domestic sales. In 2019, substitute products reached a value of 14.02 billion USD, while in the same year, the sales value in the domestic market for wood products only reached 1.3 billion USD.

2. The potential domestic market for processed wood products reaches 8.3 million m3 per year, with a composition of 40% for furniture needs and 60% for construction needs. Thus, the need for raw materials for the wood industry reaches 17 million m3 per year. Preference survey results also show that processed wood products are still loved by local consumers, ranging from 69-96%.

3. Based on the competitive advantage of wood products over substitute products, wood products are in the Dog position, while substitute products are in the Cash Cow position. Dog position means that the wood product business has a low market growth rate and low competition. The cash cow position indicates that the position of substitute products is very favorable because it has a high market share and a low level of competition.

4. In developing a strategy for developing processed wood products, it is necessary to pay attention to internal readiness and external encouragement (SWOT). The review of respondents in Central Java and East Java shows different results. In Central Java, processed wood products in furniture and construction are aggressive (Quadrant I), while wood crafts are in a turnover position (Quadrant III). In contrast to respondents in East Java, furniture is in an aggressive position (Quadrant I), construction is in a turnover position (Quadrant III), and handicraft products are in a diversified position (Quadrant II).

5. When the product is in an aggressive position or Quadrant I, an aggressive development strategy is needed so that the processed wood industry can utilize its strengths, such as product quality and craftsman skills, to capture opportunities available in domestic and international markets. This is shown for furniture and construction wood products in Central Java, as well as Furniture in East Java.

6. The diversification position (Quadrant II) indicates the need to use existing strengths to overcome threats. Product and market diversification, as well as vertical and horizontal integration, are essential strategies to improve competitiveness. This is demonstrated for woodcraft products in East Java.

7. When products are in Quadrant III, it is necessary to minimize weaknesses to seize opportunities such as technological change, internal policies, and human resources. This is the case for wood crafts in Central Java and construction in East Java.

8. By using QSPM quantitative analysis to evaluate the development strategy of the wood crafts, construction wood, and furniture industries in Central Java and East Java, the results show that the condition of the processed wood industry is in the Build and Growth zone. In this position, strategies are needed for integration, market concentration, market development, and new product development.

9. To optimize marketing strategies and product development, the results of the evaluation of wood products in East Java and Central Java show different results. In Central Java, furniture and woodcraft in Quadrant VI position require investment to grow, protect position, and optimize position strategies. Meanwhile, construction in Central Java and East Java is in Quadrant V, which requires Improved position and optimized position strategies. While in East Java, furniture and handicrafts are in Quadrant II position, which requires an investment to grow, improve position, and protect position strategy.

10. Nationally, to optimize the marketing strategy of furniture and woodcraft, the strategies of investing in growing, protecting position, and optimizing positions are needed. Meanwhile, to optimize the marketing strategy and development of construction, improved position and optimized position strategies are needed.

TABLE OF CONTENT

TABLE OF FIGURES

LIST OF TABLES

ANNEX

I. INTRODUCTION

1.1 Background

Domestic consumption of wood products plays an essential role in maintaining the stability of timber production. In the global economic crisis context, the ITTO study showed that domestic demand for tropical timber helped the industry survive and maintain stable production. Thus, domestic consumption not only reduces dependence on international markets but is also a critical factor in keeping the resilience of the tropical timber industry to global economic fluctuations.

After the COVID-19 pandemic, the government and timber industry businesses are trying to revive domestic market consumption of wood products. In its report entitled "The Impact of the COVID-19 Pandemic on Tropical Wood Production", ITTO made three critical conclusions, namely (ITTO 2021):

- Exports of primary wood products are highly vulnerable to economic shocks.
- The intense focus and reliance on unprocessed wood products should be reconsidered to improve the future resilience of the forest sector. Domestic consumption has proven to be a stabilizer of tropical timber production in previous economic crises

Besides facing the challenges of raw material availability and price instability, the biggest challenge in developing the domestic market for wood products is the dominance of substitute products such as iron, steel, aluminum, and plastic which is exacerbated by negative campaigns indicating that using wood products will result in forest and environmental damage as stated by Kompassiana media (2020) stating "Save paper, save trees". It may be true that using timber products will result in forest unsustainability, but this only occurs in natural forests managed by the state which in many cases ill-defined property rights. High demand will increase illegal logging due to the characteristics of state forests as a high exclusion cost (HEC) resource. This will not happen in plantation forests, especially in small-scale private forests that are relatively well-defined compared to state forests. In such forests, high demand will increase people's interest in planting trees.

The claim that using timber products will hurt the environment, especially in terms of climate change, has been refuted by Strykowski (2013). Strykowski (2013) showed that wood as a building material does not produce CO_2 emissions, while mineral and metal-based building materials produce high CO_2 emissions (Figure 1.1).

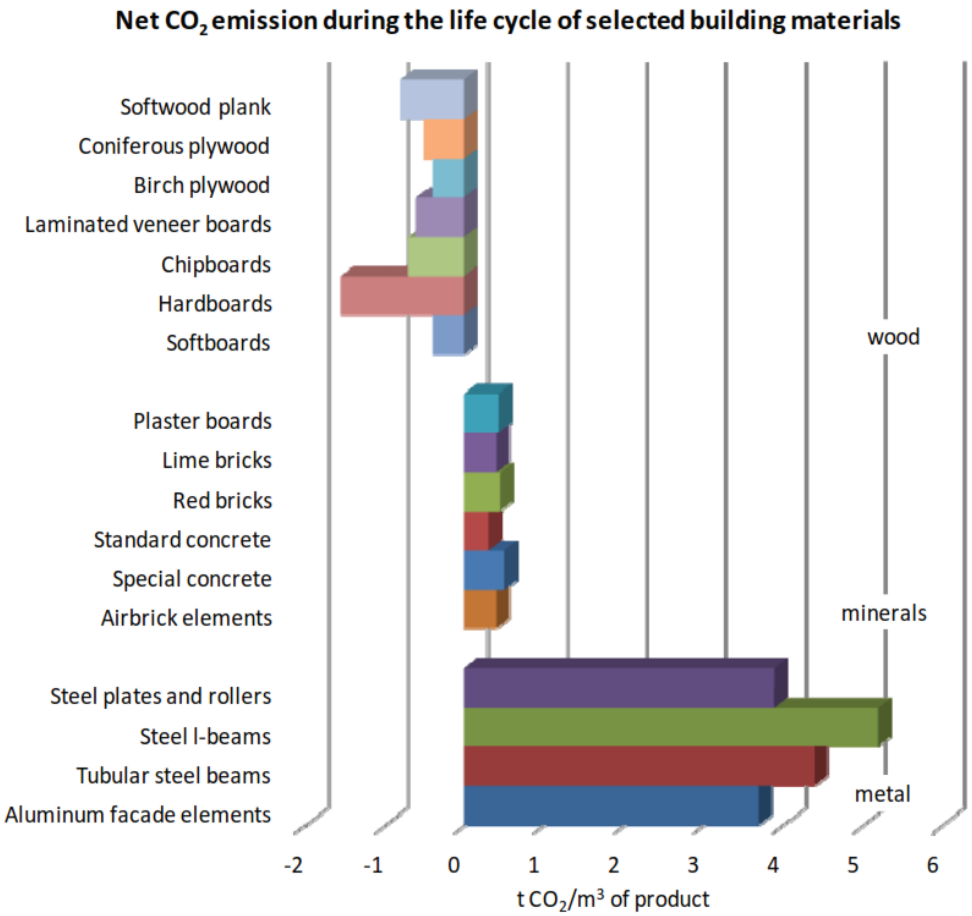


Figure 1.1 Net CO_2 emission during the life cycle of selected building materials

In terms of energy usage, the production of wood-based products only requires an average of 6.6 GJ per ton-product for softwood lumber and a maximum of 23.6 GJ per ton-product for wet-process hardboard. Much smaller than the energy needed to produce its substitute products, where producing steel wall studs requires 56.5 GJ per ton-product and a maximum of 230.5 GJ per ton-product for aluminum siding (Table 1.1). This shows that using wood material is not only environmentally friendly but also more efficient in energy utilization.

Table 1.1 Energy required to produce wood-based and non-wood materials

Commodity	Energy (GJ t^{-1})		
	Harvesting	Manufacture	Total
Softwood lumber	1.0	5.6	6.6
Oak flooring	1.3	6.6	7.9
Laminated veneer lumber	0.8	7.7	8.5
Softwood plywood	0.8	8.0	8.8
Structural flakeboard	1.2	8.7	9.9
Medium-density fiberboard	0.9	10.8	11.7
Insulation board	0.7	12.2	12.9
Hardwood plywood	1.2	11.8	13.0
Underlayment particleboard	5.3	9.4	14.7

Commodity	Energy (GJ t^{-1})		
	Harvesting	Manufacture	Total
Wet-process hardboard	0.8	22.8	23.6
Gypsum board	0.1	3.1	3.2
Asphalt shingles	0.0	6.6	6.6
Concrete	0.6	8.8	9.4
Concrete Block	0.6	8.8	9.4
Clay brick	0.7	8.9	9.6
Carpet and pad	7.7	33.3	40.9
Steel wall studs	2.9	53.6	56.5
Steel floor joints	2.9	53.6	56.5
Aluminum siding	31.1	199.4	230.5

The community's need for wood products is increasing along with the increase in population. Most of these wood products are used as building materials, raw materials for pulp and paper, fuel and charcoal, and materials for making furniture. From a preliminary survey of 250 respondents, the majority of wood products consumed on a household scale to support daily life on Java Island consist of furniture, construction, and woodcraft products. There are challenges for the forestry industry with the issuance of Law 11/2020 regarding Job Creation (Undang Undang Cipta Kerja), among others:

- Increase the advantages of using wood products compared to substitute products,
- Increase competitiveness,
- Provide assistance and mentoring for timber legality certificates
- Ensure the availability of raw materials (supply chain management)
- Improve the ability of human resources (product and design)
- Increase promotion and market expansion

Project PD 928/22 Rev.1 (I) "Development of Domestic Market for Sustainable Wood Products", implemented by the Directorate of Forest Products Processing and Marketing, Directorate General of Sustainable Forest Management, Ministry of Environment and Forestry, aims to promote the development of domestic consumption for wood products, in anticipation of population and economic growth, through increased consumption security, improved supply chains, and improved government policies.

1.2 Objective

This study aims to develop a medium-term national strategy to improve the domestic market for wood products.

1.3 Scope of work

- To engage relevant stakeholders in charge of the domestic market of wood products development

- To capture the existing policy supporting the use of wood products as well as the policy becoming the disincentive to the development of the use of wood products;
- To study previous studies on the development of the use of wood products
- To sum the result of Activity 1.1, 1.2, 1.3, 1.5, 2.2 and 2.3 regarding:
    - Study on the consumption of wood products;
    - Study on salient features of substitute products;
    - Study on the development of the enriched assortment of wood products sold in the domestic market;
    - Public education on the advantages of using wood products;
    - Development of policy interventions on the use of wooden materials in construction sectors;
    - Development of policy incentives for investment in collective facilities for wood processing.
- To develop a mid-term national strategy for the enhanced domestic market of wood products based on the result of the study mentioned above.

1.4 Method

1.4.1 Key Questions

1. How big is the market for wood products and their substitutes for the domestic market at the national level?
2. Are raw material sources available to meet domestic market demand?
3. What are the advantages (salient features) of substitute products and consumer preferences for wood products? s
4. Do wood products have a competitive advantage over substitute products?
5. Do the internal and external factors of the domestic market-oriented wood processing industry support its development?
6. What portfolio and marketing strategies can be implemented by paying attention to market attractiveness and competitive position variables?
7. Who are the stakeholders that need to be involved, their roles, and the organization of their roles?

To strengthen the domestic market position of processed wood products, analyzing and exploring market potential and development strategies is necessary. The main focus of this study is to develop a recommendation to strengthen the domestic market through domestic consumption and production (or supply chain) of wood products with particular emphasis on furniture, construction timber, and woodcraft products. The study includes a consumption

study of processed wood products and consumer preferences for these products and their substitutes. In addition, a portfolio analysis of processed wood products was conducted to assess the position and condition of each product in designing future development strategies. The approaches used include the Boston Consulting Group (BCG) Matrix, Quantitative Strategic Planning Matrix (QSPM), and GE/McKinsey Portfolio Matrix. The BCG Matrix uses a relative market share and growth approach to determine the market position of the processed wood industry and formulate policies by product advantages.

The QSPM approach is conducted through Internal Factor Scoring Matrix (IFE) and External Factor Scoring Matrix (EFE) to identify crucial internal and external factors in designing strategies. Meanwhile, the GE/McKinsey Portfolio approach is used in portfolio analysis to determine the direction of marketing strategy through offensive or defensive strategies. The two main analytical tools used in determining this strategy choice are the Market Attractiveness Index and the Competitive Position Index (Best, 2013).

This comprehensive analysis provides a solid foundation for companies to make strategic decisions, capitalize on existing market opportunities, and maintain or improve their competitive position in the processed wood industry in the domestic market. Thus, the timber industry can optimize the use of resources and design effective marketing strategies to achieve long-term growth objectives. The framework is presented in Figure 1.2.

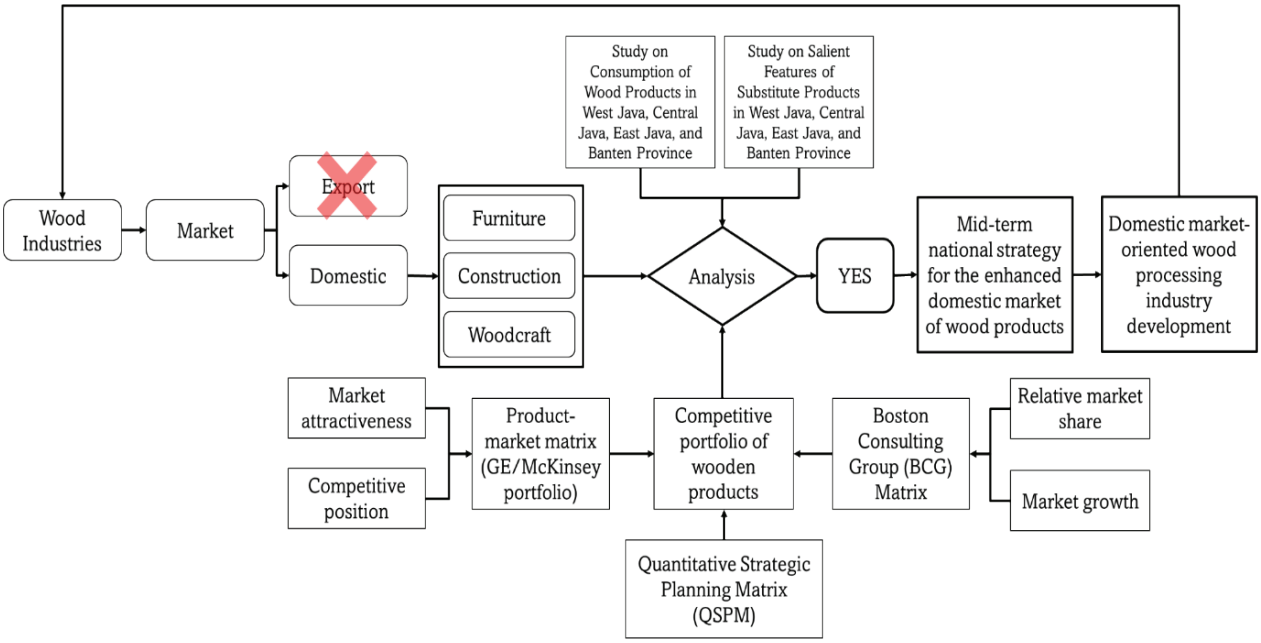


Figure 1.2 Logical framework

1.4.2 Data Analysis

The variables, indicators, data sources and analysis used in this study are described in Table 1.2.

Table 1.2 Variables, indicators, data sources and data analysis

Variables	Indicators/data requirements	Data sources	Data analysis
Domestic market for wood products and their substitutes	Domestic market: • 5 years production for wood products: furniture, construction, woodcraft • 5 years import for wood products: furniture, construction, woodcraft • 5 years export for wood products: furniture, construction, woodcraft	• Badan Pusat Statistik	Trend Analysis
Raw material sources	• 5 years log production from various sources	• Log production statistic • KLHK, APHI, Perhutani, etc.	Trend Analysis
Market size	• Per capita wood consumption • Total population of Indonesia	• Literature review • Statistics of Indonesia's population	Estimated consumption
Consumer preferences for wood products and substitutes	• Consumers target • Consumers preference	• ITTO Report for Activity 1.1, 1.2, 1.3, 1.5, 2.2, and 2.3	• Marketing theory • Market oriented strategy
Competitive advantage of wood products over substitutes	• Relative market share • Market growth	• Domestic trade statistic • BPS, Ministry of Trade	Boston Consulting Group (BCG) Matrix
Portfolio and marketing strategies	• Market attractiveness • Competitive position	• FGD, questionnaire & in-depth interview • KLHK, Ministry of Trade, Ministry of Industry • Wood industries and related associations	Production-market matrix (GE/McKinsey portofolio) (Best 2013)

Variables	Indicators/data requirements	Data sources	Data analysis
Wood product development strategy	• Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) • Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrix • Actionable Strategy Scores (STASS)	• FGD, questionnaire & in-depth interview • KLHK, Ministry of Trade, Ministry of Industry • Wood industries and related associations	Quantitative Strategic Planning Matrix (QSPM) (Wheelen et al. 2018 - modified)

A. Competitive advantage of wood products over substitute products: BCG Matrix

The Boston Consulting Group Matrix, or BCG Matrix, is a strategic analysis tool for visualizing a company's product or business portfolio. This matrix was developed by the Boston Consulting Group in 1970 by a consultant named Bruce Henderson. According to Laksana and Waluyo (2021), the BCG matrix is a matrix that divides a business into two axes: the X axis (relative to market share position) and the Y axis (relative to market growth rate). In this matrix, a business can occupy one of four business positions, namely question marks, stars, cash cows, and dogs (Wahyuandari 2013) (Figure 1.3). In this case, the use of the BCG matrix can determine the market position of the processed wood industry and choose the right policy based on its advantages (Syahfitri et al. 2021).

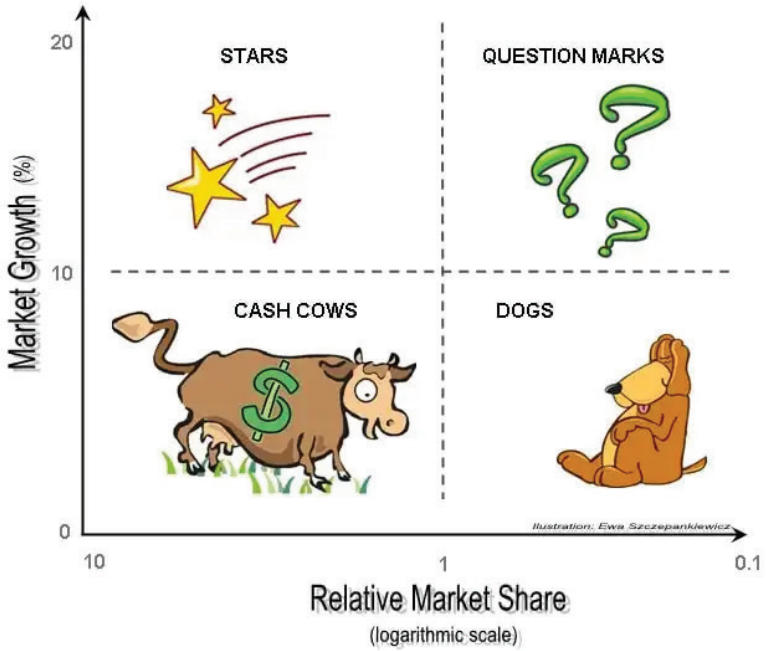


Figure 1.3 Boston Consulting Group (BCG) Matrix Analysis

Star is characterized by a high market growth rate and a relatively high market share. This condition is considered favorable so that integration strategies, market penetration, market development, promotion, product development (quality and features), joint ventures, acquisition of competitors, and so on can be applied. **Cash Cow** business is characterized by

having a high market share and low growth rate (low competition). This condition is considered very favorable so that strategies can be applied to improve/maintain product quality and features, increase customer satisfaction and loyalty, more attractive packaging, promotion, responsibility for customer preferences, and so on. **Question mark**, characterized by a high level of market growth but a relatively small market share. This condition experiences uncertainty so that market penetration strategies, market development, product development, quality improvement, seizing competitors' customers, intensive marketing research, diversification of marketing objectives, and so on can be applied. **Dog**, businesses are located in a position where the market growth rate is low and the market share is small (low competition) (Kader and Hossain 2020). This condition is considered unfavorable so it is necessary to implement a strategy of rebranding, strengthening innovation, adding features, divesting, retrenchment, liquidating, harvesting as soon as possible, and so on.

B. SWOT Analysis (*Strengths, Weaknesses, Opportunities, Threats*)

SWOT analysis is the process of identifying internal and external conditions involved as inputs to produce outputs, namely capacity development strategies (Suyadi et al. 2022). Before knowing the SWOT strategy, it is necessary to examine the problem first through a SWOT diagram by making a cut point between the X and Y axes, where the value of the X axis is obtained from the difference between the Strength and Weakness element scores, while the value of the Y axis is obtained from the difference between the Opportunities and Threats element scores as described in Figure 1.4.

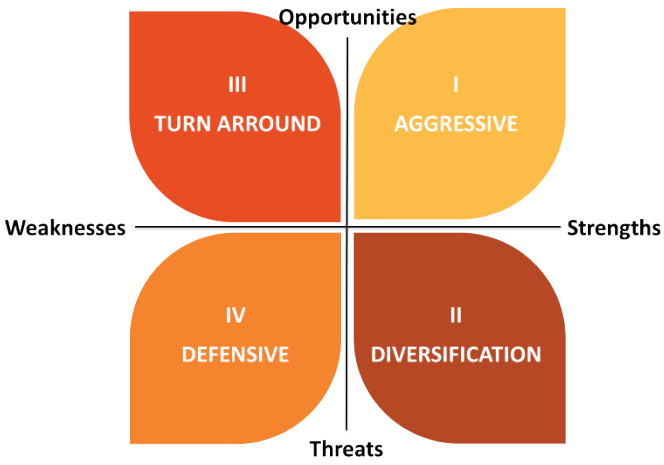


Figure 1.4 SWOT matrix

If the commodity is in Quadrant I, then an aggressive development strategy is needed by utilizing strengths to seize opportunities. If in Quadrant II, then using strengths to overcome threats by diversification (products and/or markets) and integration (vertical and/or horizontal). If in Quadrant III (turn around), then improve/minimize weaknesses to seize opportunities such as changing technology, internal policies, and human resources. If in Quadrant IV (defensive), the conditions are considered unfavorable commodities in this category do not need to be developed at this time.

C. Quantitative Strategic Planning Matrix - QSPM

The QSPM method is a strategic analysis tool that helps decision-makers evaluate alternative strategies to achieve goals. By identifying strengths, weaknesses, opportunities, and threats, QSPM determines the most appropriate strategic priorities (Rahmantari et al. 2023). According to Pearce and Robinson (2017), the Quantitative Strategic Planning Matrix (QSPM) is a strategy formulation technique that uses inputs from the Internal Factor Scoring Matrix (IFE), External Factor Scoring Matrix (EFE), and competitive profile (Figure 1.5).

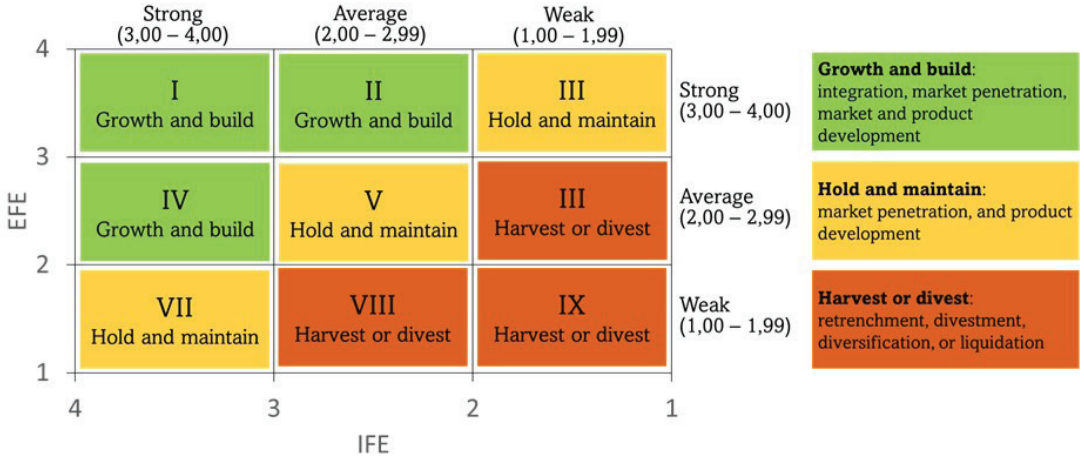


Figure 1.5 Quantitative Strategic Planning Matrix (QSPM)

D. Portfolio and marketing strategies: Market attractiveness and competitive positioning approach.

Market-based management is a strategic approach to marketing plan development that emphasizes responsiveness to market conditions to improve the company's financial returns. In his book entitled "Market-Based Management: Strategies for Growing Customer Value and Profitability" (2013), Best explains that an effective business strategy must be based on an in-depth analysis of the market and the company's position in the industry. This approach is formulated with the aim that the company can increase customer value and financial profitability.

In designing a marketing strategy with a market-based management approach, the GE/ Mc-Kinsey Portfolio approach is used. In the portfolio analysis, the direction of the marketing strategy that can be used for the company, such as offensive or defensive strategy, can be determined (Figure 1.6). To determine the choice of strategy, two analytical tools are used, namely the Market Attractiveness Index and Competitive Position Index (Best, 2013).

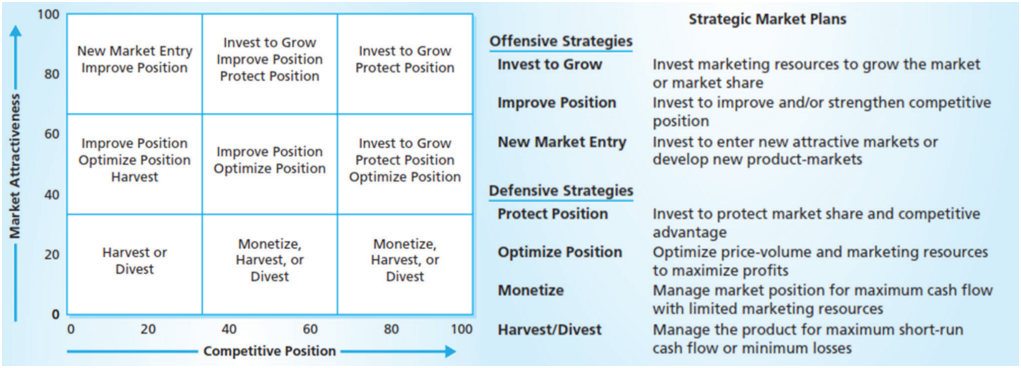


Figure 1.6 Market Attractiveness and Competitive Position (Best, 2013)

Market Attractiveness is an analysis of the market development in which the industry operates. In this market attractiveness analysis, we must understand several things that affect the development and situation of the market. Market attractiveness is influenced by three main factors: market forces, competitive environment, and market access (Best, 2013; Adnyana and Darma, 2015).

If market attractiveness is seen from external factors, then competitive position is seen from the company's internal conditions. The company's internal strength is an important point that will be analyzed in the competitive position matrix. The three key factors in this internal analysis are the company's uniqueness to compete (differentiation advantage), cost advantage, and marketing advantage (Best, 2013). The more superior the competitive uniqueness of the company, the stronger the company's capital will be to compete with competitors (Maulana, 2017; Peteraf & Bergen, 2003; Krisnamurti and Darma, 2015).

The results of the analysis of market attractiveness and internal strength of the company are then formulated into a portfolio analysis. Market Attractiveness is on the Y-axis, while the competitive position is on the X-axis (Figure 1.6). The result of the assessment score, which is the multiplication of the rating and weight of each indicator in the matrix, will be a guide to determine the company's position (Best, 2013). In the 9 (Nine) quadrants of the portfolio, it will be able to clearly describe the position of the company and the choice of strategy to be used, whether offensive strategies or defensive strategies (Amatulli et al. 2011; Best, 2013; Kanten and Darma, 2017).

Offensive strategy is divided into three sub-strategy options, namely invest to grow, improve position, and enter new markets. Meanwhile, the defensive strategy is also divided into three sub-strategies, namely hold/protect share position (survive in the current market), optimize/monetize position (optimize sales in the current market scope), and harvest/divest share position (harvest the end of the current market) (Barksdale & Harris, 1982; Udo-Imeh et al., 2012).

E. Focus Group Discussion (FGD)

Focus Group Discussion (FGD) is a process of collecting systematic data and information on a particular problem through group discussion. Unlike interviews, in FGDs, the moderator does not ask questions but reveals an issue that will be the subject of discussion. FGD participants in this study can be seen in Table 1.3.

Table 1.3 Stakeholders involved in FGDs

Surakarta 30 May 2024	Malang 26 June 2024	Pasuruan 27 June 2024	Semarang 10 July 2024
1. Direktorat BPPHH, KLHK 2. Dinas Lingkungan Hidup dan Kehutanan Jawa Tengah	1. Direktorat BPPHH, KLHK 2. Dinas Lingkungan Hidup dan Kehutanan Jawa Timur	1. Direktorat BPPHH, KLHK 2. UPT Industri Kayu dan Produk Kayu Pasuruan	1. Direktorat BPPHH, KLHK 2. Politeknik Industri Furnitur dan Pengolahan Kayu Kendal 3. Setditjen PHL, KLHKBalai Pengelolaan Hutan Lesatari Wilayah VII Surabaya

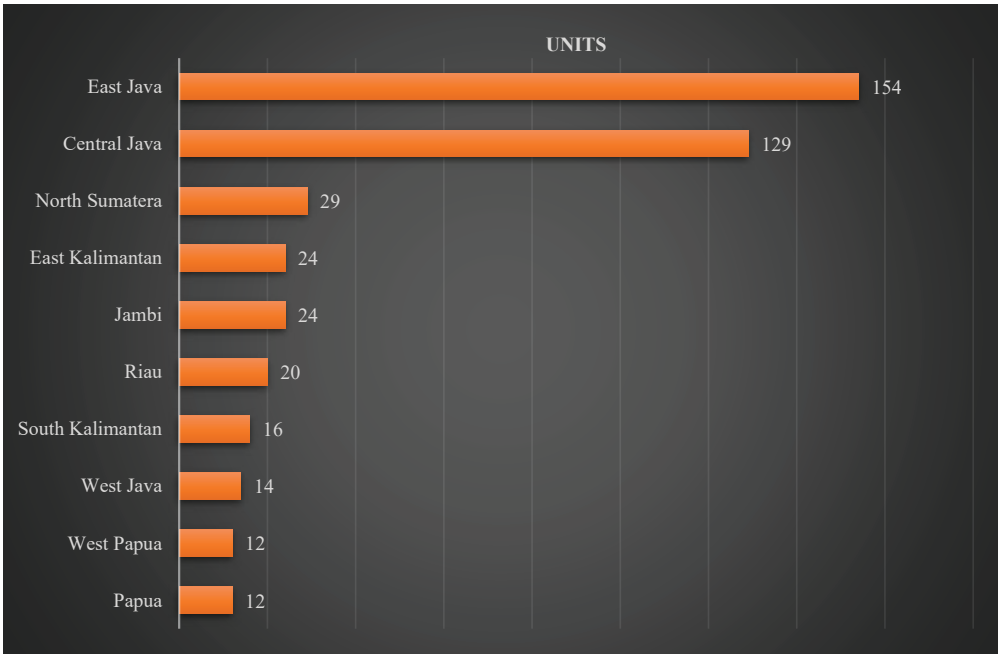
Surakarta 30 May 2024	Malang 26 June 2024	Pasuruan 27 June 2024	Semarang 10 July 2024
3. Dinas Perindustrian dan Perdagangan Jawa Tengah 4. DPM - PTSP Jawa Tengah 5. Cabang Dinas Kehutanan Wilayah X Jawa Tengah 6. Divisi regional Perhutani Jawa Tengah 7. Sub-direktorat PPHH, KLHK 8. ILWA 9. ASMINDO Solo Raya dan Semarang 10. HIMKI Semarang, Solo dan Jepara 11. APKINDO Komda Jawa 12. ISWA Jawa Tengah 13. Perguruan Tinggi (UNS & IPB)	3. Dinas Perindustrian dan Perdagangan Jawa Timur 4. DPM-PTSP Jatim 5. Dinas PUPR Jatim 6. Biro Pengadaan Barang/Jasa Jatim 7. BPHL Wilayah VII Surabaya 8. UPT Industri Kayu Pasuruan 9. Divre Perhutani Jatim 10. Direktorat BPPHH, KLHK 11. APKINDO Komda Jawa 12. ILWA 13. ASMINDO Jatim, Pasuruan, Ngawi dan Situbondo 14. HIMKI Jatim 15. ISWA Jatim 16. Perguruan Tinggi (UB & IPB)	3. Pelaku usaha kecil menengah mebel Pasuruan 4. Pedagang mebel Pasuruan 5. IPB University	4. Pusat Pengendalian Pembangunan Ekoregion Jawa 5. Dinas Perindustrian dan Perdagangan Provinsi Jawa Tengah 6. Dinas Kehutanan dan Lingkungan Provinsi Jawa Tengah 7. Dinas PM PTSP Provinsi Jawa Tengah 8. Dinas PU Bina Marga dan Cipta Karya 9. Perum Perhutani Divre Jateng 10. ILWA 11. ISWA 12. Asmindo Komda Solo Raya 13. Asmindo Komda Semarang 14. Asmindo Klaten 15. HIMKI Semarang Raya 16. HIMKI Solo Raya 17. HIMKI Jepara Raya 18. APKINDO 19. IPB University

II. PRODUCTION AND TRADE OF PROCESSED WOOD PRODUCTS

2.1 Source and volume of raw materials

The processed wood industry is distributed across various provinces in Indonesia (Figure 2.1). East Java and Central Java provinces are the centers of the processed wood industry, each with a significant number of industries. East Java Province, with 154 processed wood industries, shows the critical role of this province in contributing to national timber production. This is supported by abundant timber resources in the region, as well as developed infrastructure and markets. Similar to East Java, Central Java Province, with 129 processed wood industries, also has an important role in the industry. Central Java is a production center due to its strategic location on the island of Java and has good access to raw materials and markets.

Apart from East Java and Central Java, the processed wood industry is also spread across other provinces in Indonesia. This shows the potential that exists in various regions to contribute to this industry. It also reflects the importance of the processed wood industry sector in the national economy and its role in creating jobs and economic growth in various regions.



Source: RPBBI 2024

Figure 2.1 Distribution of the national processed wood industry

The main sources of raw materials for the processed wood industry in East Java, Central Java, West Java, and Banten Province come from 4 sources: plantation forest (Perum Perhutani and community forests), natural production forest, rubber estate, and processed materials (Figure 2.2). The industry's largest source of raw materials comes from plantation forests (66%) where logs from community forests contribute 90% and 10% from Perhutani (Satudata PHL, KLHK 2023).

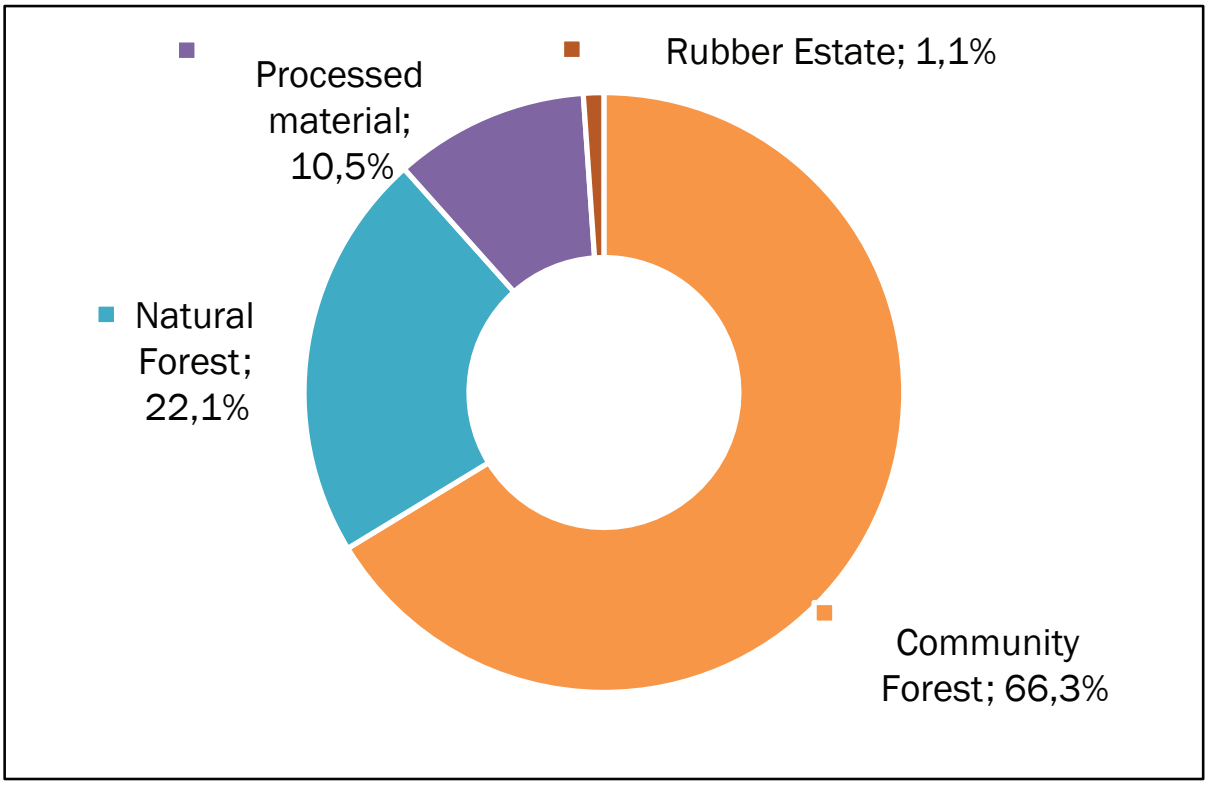
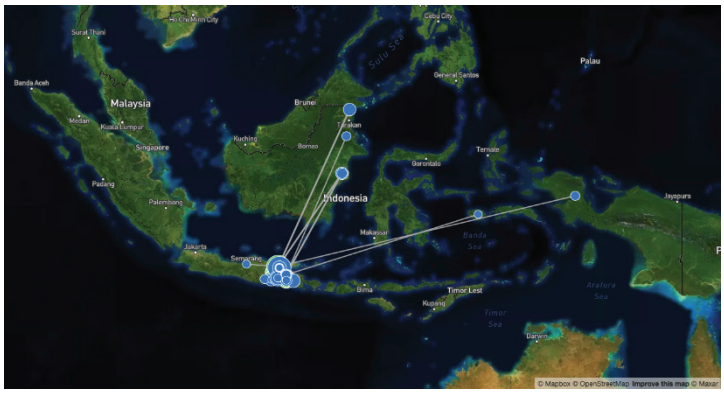


Figure 2.2 Raw Materials Sources

In the fulfillment of raw materials, the industry obtains raw material sources from outside its area, even though the availability of raw materials around the industry is adequate. This occurs because of the absence of log availability information at locations around the industry. On the one hand, this phenomenon shows an imbalance in the utilization of local resources to support the processed wood industries, on the other hand, it will cause inefficiencies in the transportation costs of raw materials. Source: BPHL (processed)

a



b

Figure 2.3 Distribution of timber trade in Java Island

A comprehensive overview of the raw wood material fulfilment in East Java Province during 2023 is provided in Figure 2.3a and Source: BPHL (processed) and Figure 2.3b, which emphasise both intra-provincial and inter-provincial dynamics. The data indicates that the province primarily sources its raw material requirements for processed wood products from internal sources, indicating a robust internal supply chain. The raw material supply is influenced by a network of critical communities and districts that operate within a province. Surabaya and Gresik are significant centres, collectively accounting for 13% of the total supply and a substantial flow of 118.8 thousand cubic meters between them. Furthermore, Malang, Jember, Blitar, and Lumajang are critical sources that contribute to the province's internal production capabilities.

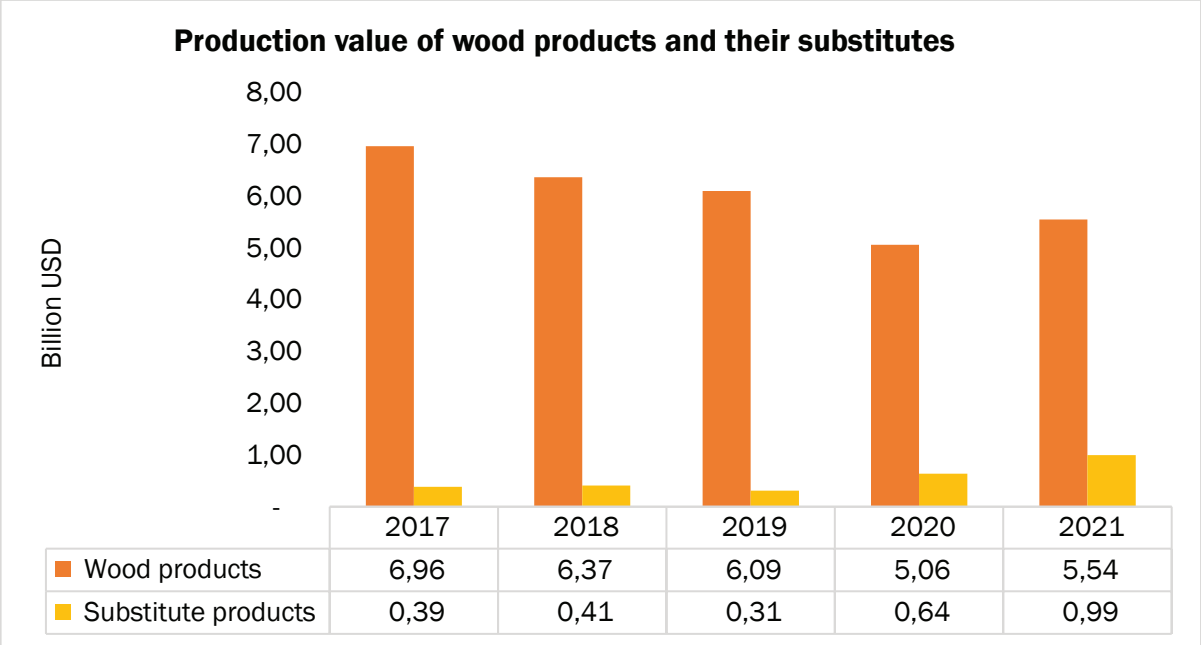
Nevertheless, the data also reveals a substantial inter-provincial dimension. Although East Java exhibits a high degree of self-reliance, external contributions are essential in meeting the overall demand for natural wood materials. Key external suppliers are identified as Central Java, East Kalimantan, North Kalimantan, Maluku, and West Papua. Cities such as Semarang in Central Java, Berau and Samarinda in East Kalimantan, and Nunukan in North Kalimantan are notable contributors to this inter-provincial network. The intricate and ever-changing nature of raw material fulfilment in East Java Province is emphasised by these discoveries. The supply chain is guaranteed a certain level of stability and resilience as a result of the province's internal capacity for timber production. Nevertheless, the dependence on external sources, particularly from neighbouring provinces and regions, underscores the interconnectedness of the wood processing industry and the significance of preserving a variety of supply channels.

In summary, the raw material landscape in East Java Province is distinguished by its dual dependence on internal and external sources. The province's internal production capacity is substantial, with key cities and districts playing a critical role. Nevertheless, external contributions are essential to satisfy the entire range of demand. This dynamic system is influenced by market forces, resource availability, and regional cooperation as a result of the interplay of internal and external factors.

2.2 Production

There is a decreasing trend in wood industry productivity (Figure 2.4). In 2017, the value of national production of processed wood products was recorded at 6.9 billion USD and continued to decline in the following years until reaching 5 billion USD in 2020. In 2021, processed wood production showed a slight increase in production value to 5.5 billion USD.

Compared to the production value of substitutes, processed wood products are much larger, reaching ten times that of substitutes (Figure 2.4). This fact shows that the processed wood sector has strong potential and is better in terms of economic value. It seems that the substitute products marketed in Indonesia come from imports.



	2017	2018	2019	2020	2021
Wood products	6,96	6,37	6,09	5,06	5,54
Substitute products	0,39	0,41	0,31	0,64	0,99

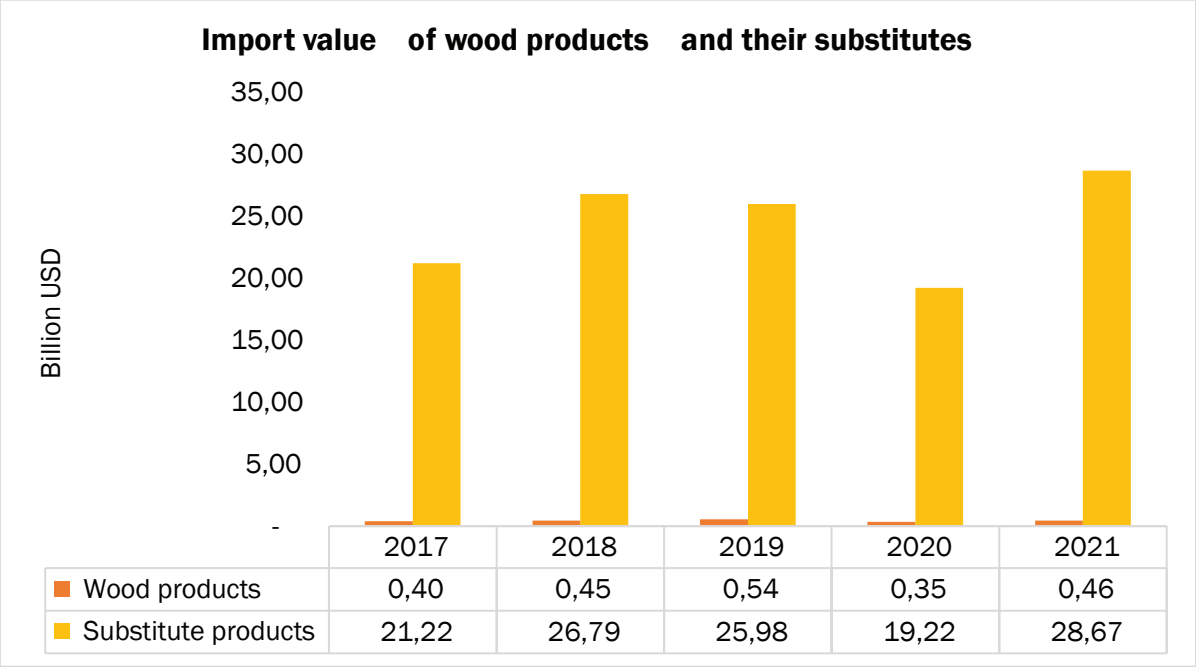
Sources: https://www.bps.go.id/id/publication/2019/12/18/6c13ea752734256f43424043/statistik-industri-manufaktur-produksi-2017.html until https://www.bps.go.id/id/publication/2023/12/29/1b230e cd07b1b0360656a06e/statistik-industri-manufaktur-produksi-2022.html

Figure 2.4 Production value of wood products and their substitutes

2.3 Import

In 2017, the import value of processed wood products reached 408 million USD. However, this figure increased in subsequent years, reaching 542 million USD in 2019. However, in 2020, the import value dropped dramatically to 351 million USD before increasing again in 2021 to reach 456 million USD (Figure 2.5).

When compared to the value of imports of substitute products, imports of processed wood products are 55 times smaller on average. However, most of these substitute products are destined for the domestic market, suggesting potential "economic leakage" in the sector and waste of foreign exchange (devisa). This phenomenon indicates that while substitute products may be available, reliance on more expensive imported products can lead to lost revenue potential for the local economy. Given this situation, the national processed wood industry needs to capitalize on existing opportunities and reduce dependence on imports to promote more sustainable economic growth, increase the competitiveness of local products in the domestic market, and save foreign exchange reserves.



	2017	2018	2019	2020	2021
Wood products	0,40	0,45	0,54	0,35	0,46
Substitute products	21,22	26,79	25,98	19,22	28,67

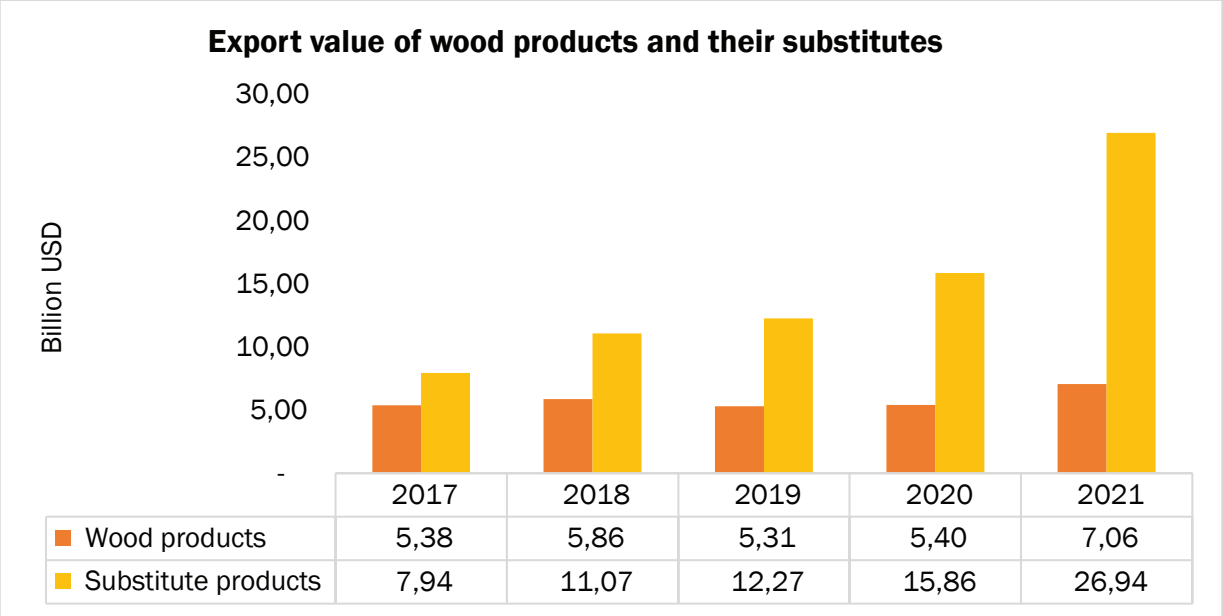
Sources: https://www.bps.go.id/id/publication/2018/05/11/a9a77e8eea6ac3af80d 8d3fc/statistik-perdagangan-luar-negeri-indonesia-impor-2017-jilid-i.html until https://www.bps.go.id/id/publication/ 2023/06/14/c59944681f8 8800a968f96b0/statistik-perdagangan-luar-negeri-indonesia-impor-2022-jilid-i. html

Figure 2.5 Import value of wood products and their substitutes

2.4 Export

Indonesia's exports of wood products show a fluctuating trend in value ranging from 5.3 to 5.8 billion USD from 2017 to 2020. Despite the variation in this figure, the processed wood sector recorded a significant achievement in 2021, with exports surging to USD 7 billion (Figure 2.6). However, it should be noted that the export value of substitute products is greater than wood products. This fact shows that, although the wood industry has significant potential, the challenge of competing with alternative products such as building materials and other composite products still exists in the global market. This competition demands more attention in terms of product innovation and differentiation to compete effectively.

The engineered wood industry needs to innovate and improve its competitiveness. This strategy includes developing new products, implementing sustainability practices, and improving production efficiency. With these measures, the engineered wood sector can capitalize on the opportunities available in the international market, contribute more to the national economy, and support environmental conservation.



	2017	2018	2019	2020	2021
Wood products	5,38	5,86	5,31	5,40	7,06
Substitute products	7,94	11,07	12,27	15,86	26,94

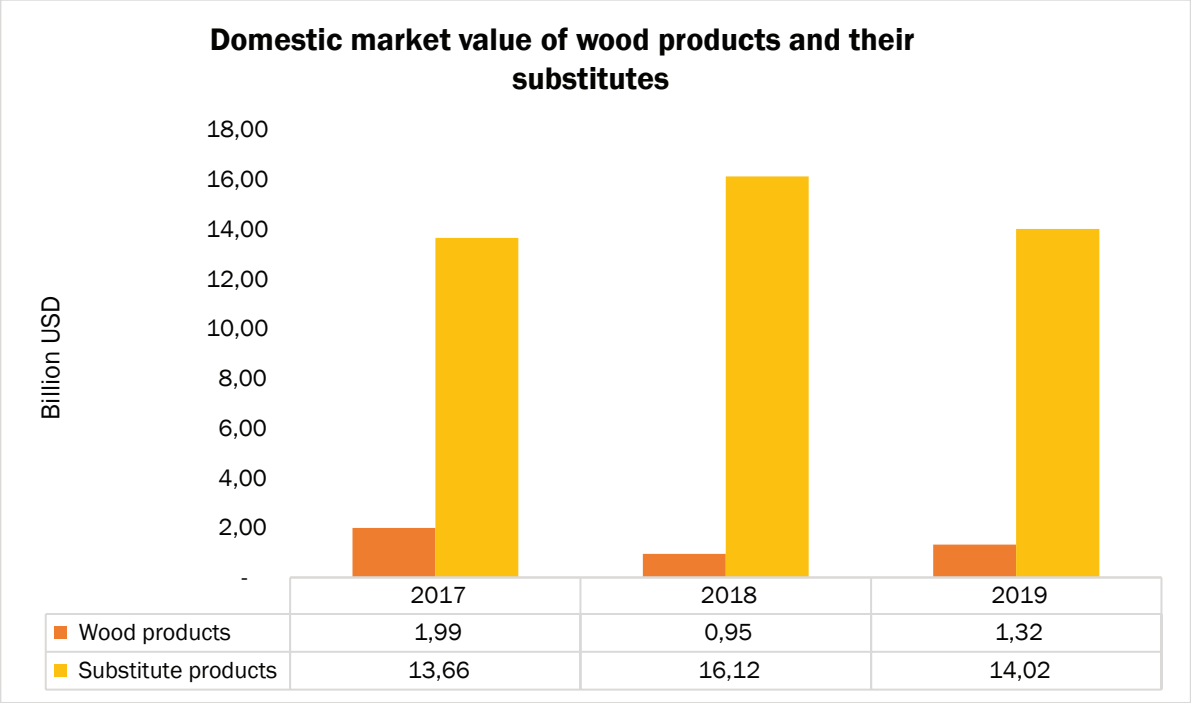
Sources: https://www.bps.go.id/id/publication/2018/06/04/2d27d1def4bf1f86c92ebbd7/statistikperdagangan-luar-negeri-indonesia-ekspor--2017--jilid-i.html until https://www.bps.go.id/id/publication/2023/07/07/f6ea774181ca7b3fd0b1540e/statistik-perdagangan-luar-negeri-indonesia-ekspor-2022-jilid-i.html

Figure 2.6 Export value of wood products and their substitutes

2.5 Domestic market

Based on the available data, this study can only describe domestic market data for wood products and their substitutes for 3 years (2017 to 2019). The domestic market for processed wood products in Indonesia has shown fewer encouraging developments in recent years. In 2017, the domestic market value of processed wood products was recorded at only USD 1.9 billion. However, in 2018, this value decreased significantly to only 952 million USD. Although it had experienced an increase in 2019 with a value of 1.3 billion USD (Figure 2.7). On the other hand, the domestic market of wood substitute products is very dominant. In 2017 the domestic market of substitute products reached 13.66 billion USD, in 2018 it increased to 16.12 billion USD, and in 2019 it decreased again to 14.02 billion USD (Figure 2.7).

This sharp decline in the domestic market for wood products indicates that the potential market for domestic is not being optimized. Various factors can influence this trend, including competition with growing substitute products. This condition indicates the need for strategic efforts to increase the attractiveness of processed wood products in the domestic market, both through product innovation and awareness-raising campaigns on the benefits of using sustainable processed wood.

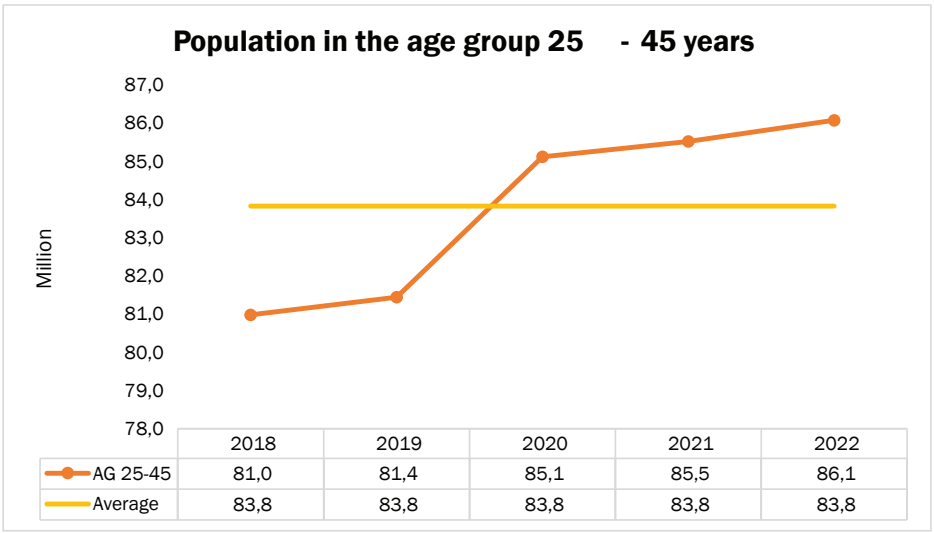


Source: calculation results

Figure 2.7 The domestic market value of wood products and their substitutes

2.6 Domestic market estimation

In 2018 to 2022, the number of productive-age population between 25-45 years old in Indonesia reached an average of 83.8 million people (Figure 2.8). High population growth directly impacts the increasing demand for housing, infrastructure, and consumer goods, including furniture. Specifically, in the wood industry, the per capita consumption level of processed wood products will be affected by population growth as each needs furniture, home decoration, and construction materials.



Source: https://www.bps.go.id/id/statistics-table/3/WVc0MGEyMXBkVFUxY25KeE9HdDZkbTQzWkVkb1p6MDkjMw==/jumlah-penduduk-menurut-kelompok-umur-dan-jenis-kelamin.html?year=2022

Figure 2.8 Total productive-age population in Indonesia 2018-2022

Research conducted by Lutfi et al. (2020) showed that furniture consumption per capita/year was around 0.4 m^3 per year, while construction (roof and building construction) reached 0.6 m^3 per capita/year (Table 2.1). This data shows that the total potential consumption of processed wood products in Indonesia can be estimated at 8.38 million m^3 per year, with a composition of 40% for furniture and 60% for construction. Calculations using the parameter R=50% indicate that the estimated raw material needs of the wood industry reach around 17 million m^3 per year. This illustrates that the potential consumption of wood products in Indonesia is still quite high in meeting the needs of furniture and construction (building materials).

Table 2.1 Consumption per capita/year

Type of use	Type of wood-base		Total
	Composite	Solid	
Roof		0,02	0,02
Building Construction		0,04	0,04
Furniture	0,01	0,03	0,04
Sum	0,01	0,09	0,10

Source: Lutfi *et al*. (2020)

III. POLICY ON THE USE OF DOMESTIC WOOD PRODUCTS

3.1 Law 3/2014 on Industry

Law No. 3/2014 on Industry, particularly Article 86, stipulates the obligation for government agencies, state-owned enterprises (SOEs), and the private sector to use domestic products in every procurement of goods and services. This policy provides an opportunity to increase the uptake of national processed wood products in the domestic market.

With the implementation of this law, Indonesian processed wood products can be prioritized in the procurement of government and SOE projects. This opportunity encourages processed wood industry players to improve product quality and innovation so that they can compete better in the domestic market. The implementation of Law 3/2014 is a strategic step to strengthen the processed wood industry sector, support environmental sustainability, and create more jobs for the community.

3.2 Law 6/2023 concerning the Stipulation of Government Regulations in place of Law Number 2 of 2022 concerning Job Creation (Cipta Kerja)

Increased consumption of domestic products is further strengthened by Law No. 6/2023 on Job Creation. This law stipulates that central and regional governments must allocate at least 40% of the procurement of goods and services for products produced by Micro and Small Enterprises (MSEs) and cooperatives. This provision aims to support the growth of the MSE and cooperative sectors while encouraging the utilization of domestic products.

With this allocation, there is expected to be an increased uptake of local products in government procurement of goods and services, which not only has a positive impact on the local economy but also provides opportunities for MSEs and cooperatives to grow. This creates a more sustainable ecosystem where domestic products, including processed wood products, get greater support from the government.

3.3 Government Regulation 29/2018 regarding Industry Empowerment

The encouragement of consumption of processed wood products in the domestic sector is further strengthened by Government Regulation No. 29/2018, which regulates the obligation to use domestic products with a minimum Domestic Component Level (TKDN) value of 25% (article 61). This regulation applies when domestic products are available with the sum of the TKDN value and the Production Capital Cost (BMP) reaching at least 40%.

This policy aims to encourage the procurement of goods and services that are more oriented towards local products, thus providing incentives for the processed wood industry

to increase the proportion of domestic components in the production process. With this regulation, processed wood producers are encouraged to innovate and improve product quality, to meet the TKDN standards.

3.4 Presidential Regulation 12/2021 on Government Procurement of Goods/Services

The increase in the market for processed wood products in Indonesia is further supported by Presidential Regulation No. 12 of 2021, specifically Article 66, which stipulates that the procurement of goods and services by the government must use domestic products. With this obligation, processed wood products produced by domestic industry players are expected to be absorbed more by the government in various development projects.

The implementation of this Presidential Regulation emphasizes the government's commitment to support the development of domestic industries, which is expected to create a more sustainable ecosystem and reduce dependence on imported products. By encouraging the use of domestic products, the processed wood sector has the opportunity to grow more rapidly while having a positive impact on the sustainability of forest resources and the environment.

3.5 Presidential Instruction Number 2 of 2022 regarding Procurement of Government Goods/Services

In 2022, the President of the Republic of Indonesia issued Presidential Instruction (Inpres) Number 2 of 2022, which focuses on accelerating the use of domestic products and products of micro, small, and cooperative enterprises (MSMEs) in the procurement of government goods and services. This instruction is a strategic step in supporting the National Movement Proud of Made in Indonesia, which aims to increase the competitiveness of local products and support domestic economic growth.

One sector that is expected to get the positive impact of this Presidential Instruction is the processed wood industry. Indonesia has great potential in the timber industry, with abundant natural resources, as a tropical country and a variety of high-quality wood species. The use of wood products in government procurement can create significant market opportunities for the industry.

The presidential instruction provides an opportunity for processed wood products to be more widely absorbed in government procurement. Through this policy, the government is expected to reduce dependence on imported wood and wood substitute materials and products as well as to increase the capacity and quality of the domestic processed wood industry.

IV. CONSUMER PREFERENCES FOR WOOD PRODUCTS AND THEIR SUBSTITUTES

4.1 Interest in the product

Based on the results of ITTO's research (2023) on public preferences for wood products and their substitutes in West Java, Banten, and Central Java revealed that the majority of respondents still showed high interest in wood products. A Likert scale assessment (scale 5) showed that in West Java, 96% of respondents expressed interest in wooden furniture, much higher than the 57% interest in substitute furniture. This interest is not only limited to furniture but also in wooden construction and handicraft products, where the interest levels were 84% and 88%, respectively (Figure 4.1).

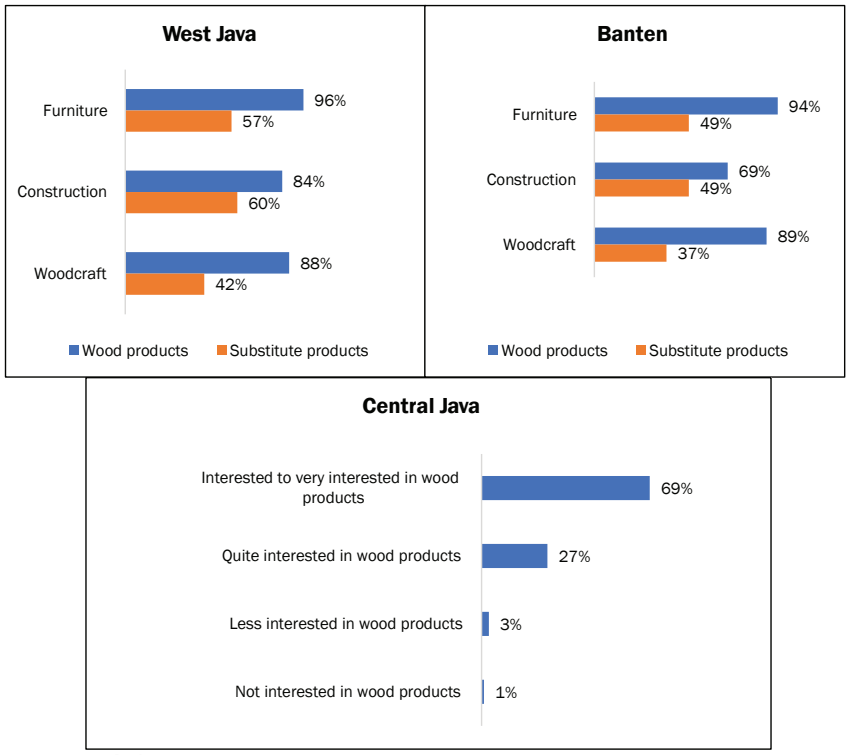


Figure 4.1 Respondent's interest in processed wood products

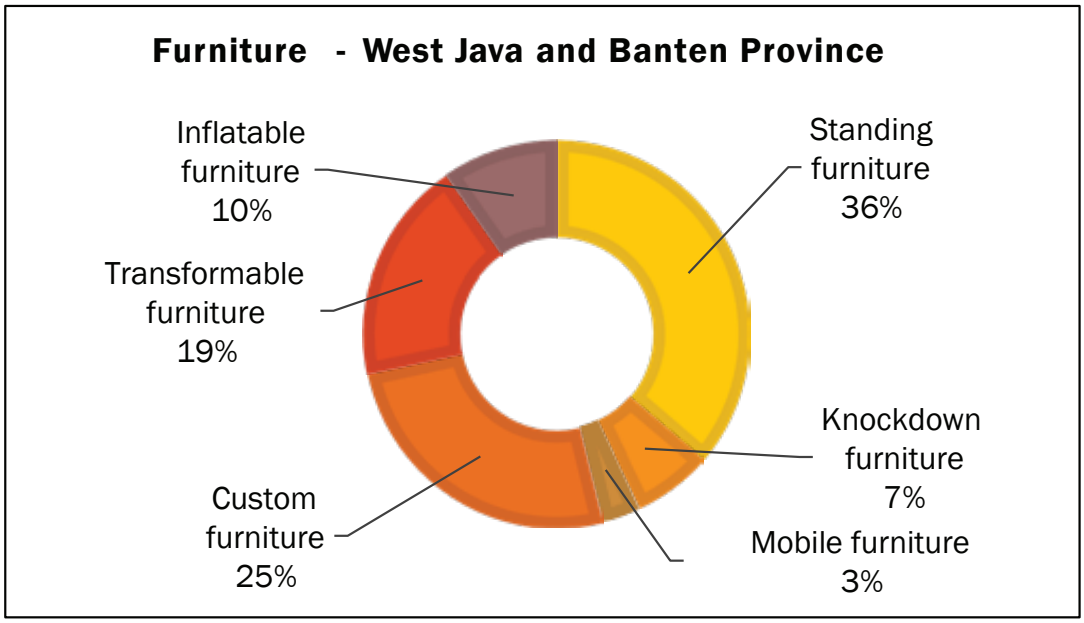
A similar phenomenon was also found in Banten province, where respondents preferred wood products more in the furniture, construction, and handicraft categories than their substitutes. This confirms that even though there are other alternatives, wood products remain the community's main choice. In Central Java, 43% of respondents claimed to be interested, 26% were very interested, and 27% were moderately interested in wood products.

These figures show that public interest in wood products is still high. From the analysis of the three regions, people's preference for wood products appears strong. This provides a positive signal for the processed wood industry, indicating that there are opportunities to develop and compete with substitute products. Thus, the processed wood industry in Indonesia has the potential to grow and adapt to dynamic market needs.

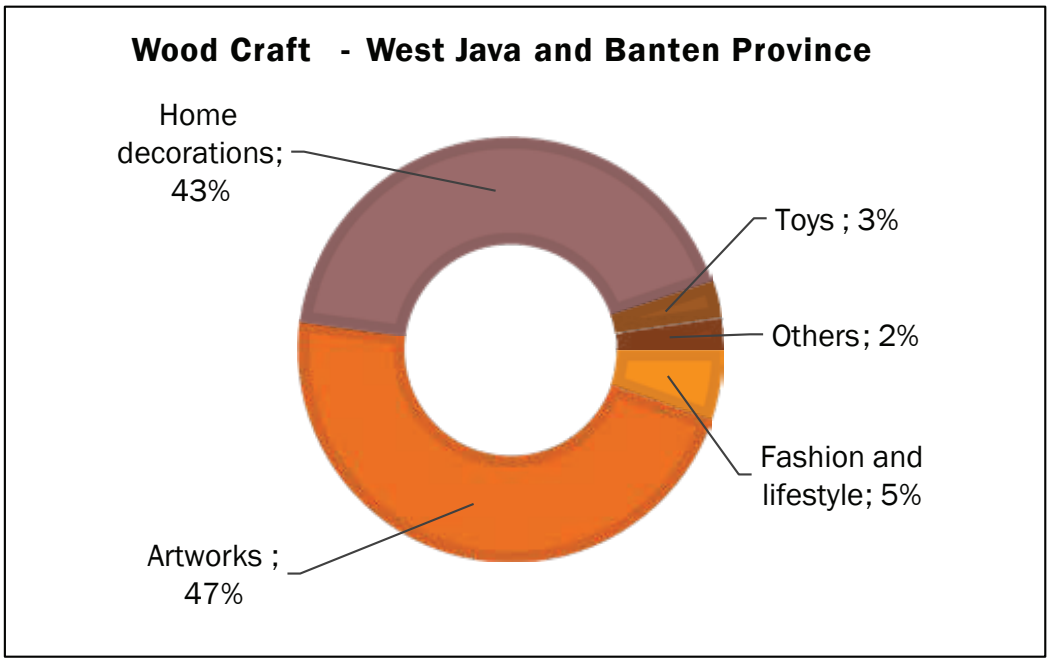
4.2 Product design

The questionnaire distributed to respondents in East Java, West Java, and Central Java revealed a significant range of design preferences related to wood products (Figure 4.2). In East Java, respondents showed a strong interest in flexible/multifunctional and modern minimalist designs. They tend to want furniture that fulfills basic functions and offers ease of use and organization. In addition, modern and minimalist aesthetics are the main attraction, reflecting the popular design trends among urbanites.

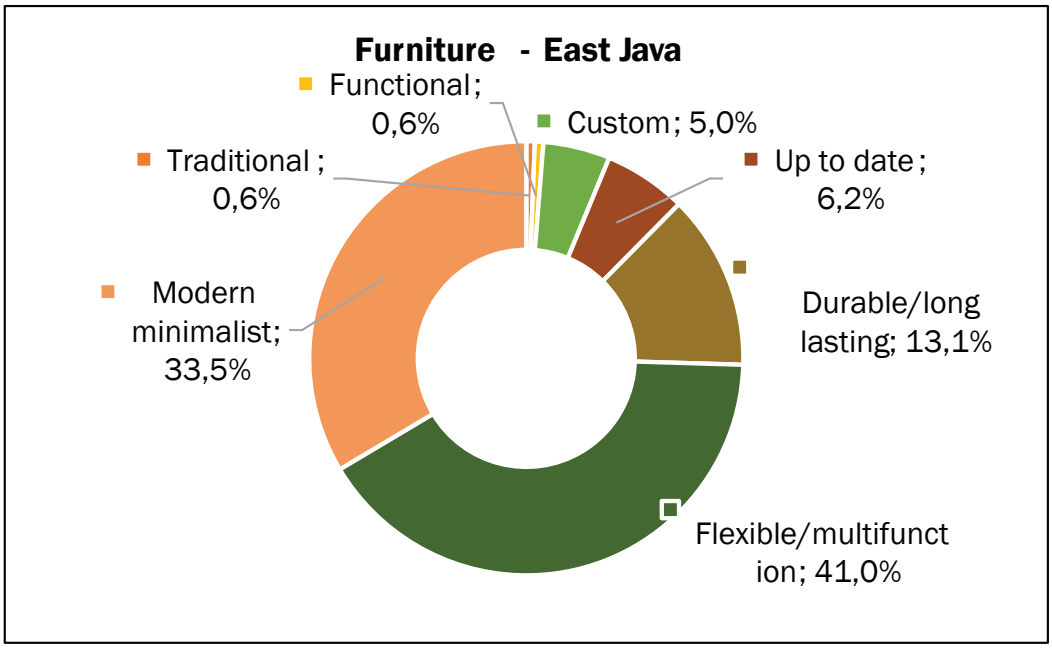
(a)



(b)



(c)



(d)

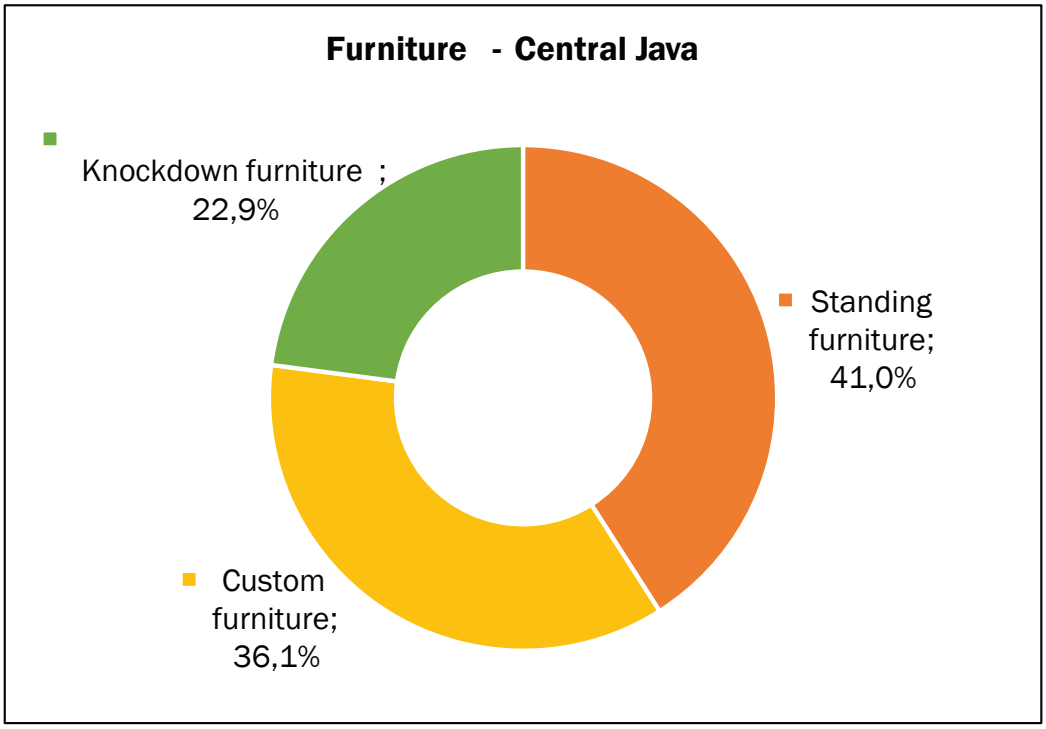


Figure 4.2 Design preferences for wood products in West Java and Banten (a and b), East Java (c), and Central Java (d)

Meanwhile, in West Java, respondents prefer one-piece (standing) furniture designs, custom furniture, and transformable/multifunctional furniture. This interest indicates a demand for products that can be tailored to individual needs and furniture that can adapt to various functions in the living space. In addition, for wood crafts, there is an interest in designs that emphasize artwork and home decor, indicating a high appreciation for beauty and aesthetic values.

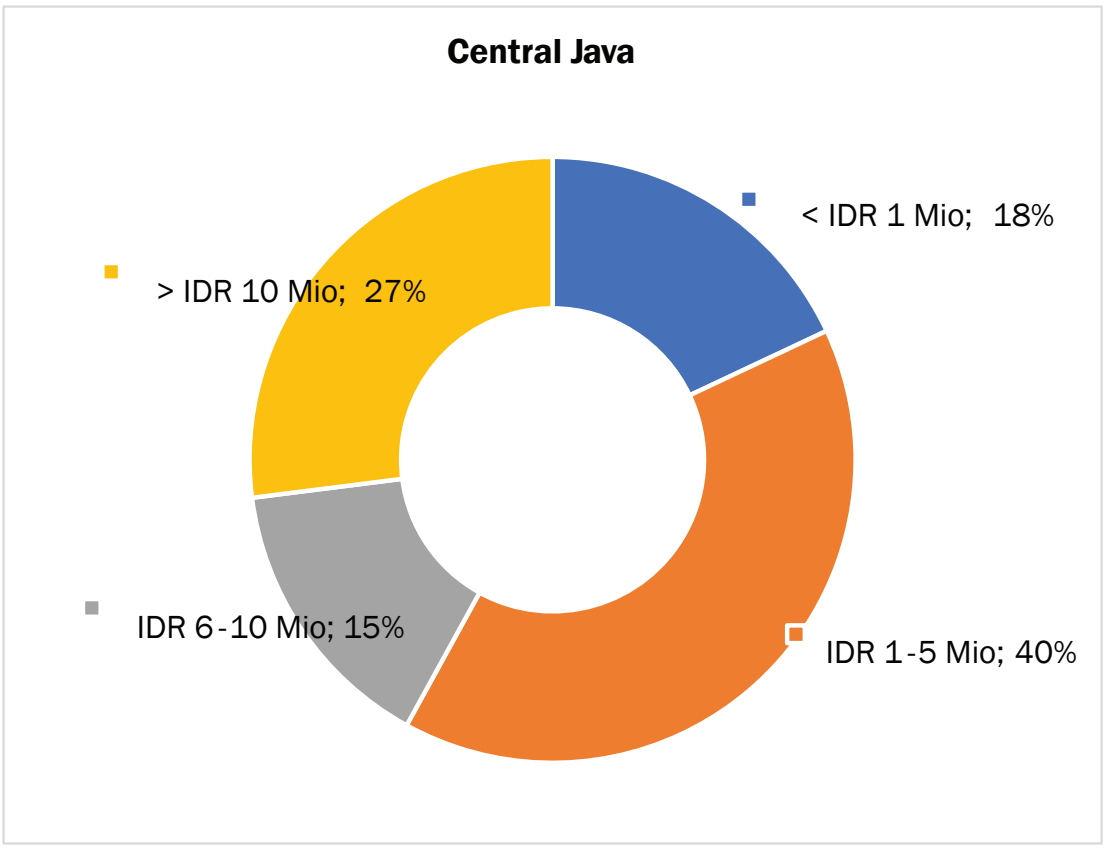
In Central Java, design preferences tend to be more specific, with respondents showing interest in built-in (standing) and assembled (custom) products. Built-in products, which are permanently designed within a space, provide an optimal solution for efficient use of space, while assembled products offer ease in combining and moving, in line with the needs of people who may move frequently.

Overall, the results of this study suggest that the processed wood industry should be able to adapt its products according to local consumer trends and needs to improve competitiveness in the market.

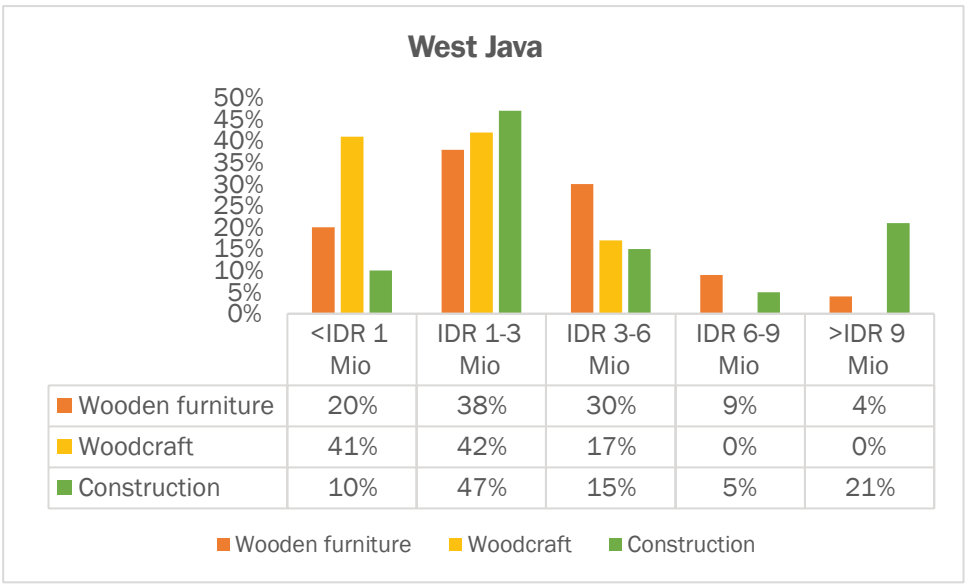
4.3 Willingness to spend on wood products

Based on the results of questionnaires conducted in West Java, Central Java, and Banten, there is a tendency for people to be willing to spend a significant amount of money on wood products, whether in the furniture, craft, or construction categories. In West Java, respondents were highly willing to spend more than IDR 9 million per year on furniture and construction wood products and between IDR 3 and 6 million on handicraft products. Similarly, in Banten, respondents allocated more than Rp 9 million for furniture and construction wood products and between IDR 3 - 6 million for handicrafts. Meanwhile, around 40% of respondents in Central Java are willing to spend between IDR 1 to 5 million per year on processed wood products, with 27% willing to pay more than IDR 10 million, indicating a premium market segment. These findings suggest that people are still willing to buy wood products in various categories, although product quality remains a critical factor in purchasing decisions (Figure 4.3).

(a)



(b)



(c)

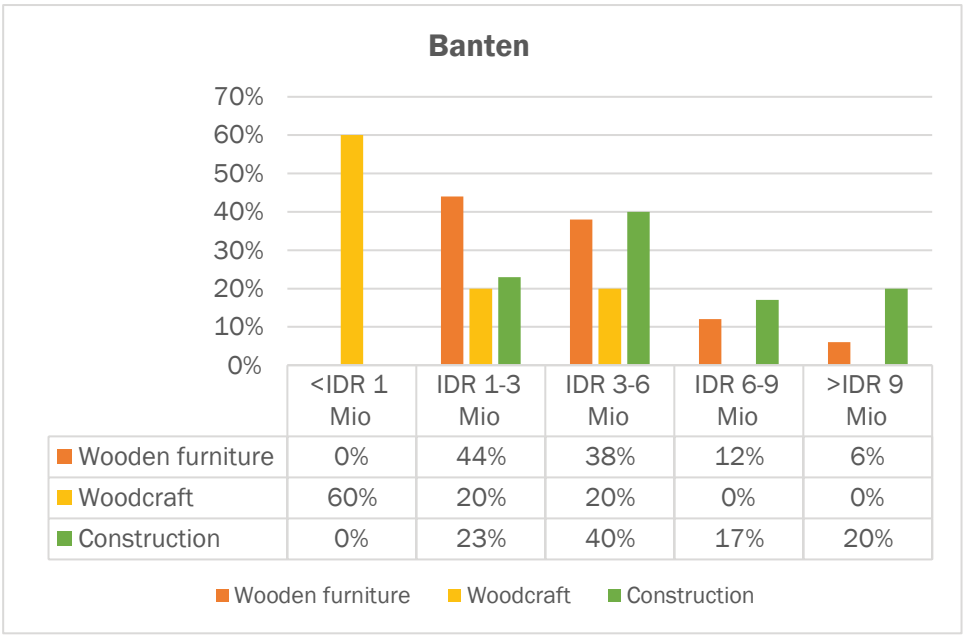
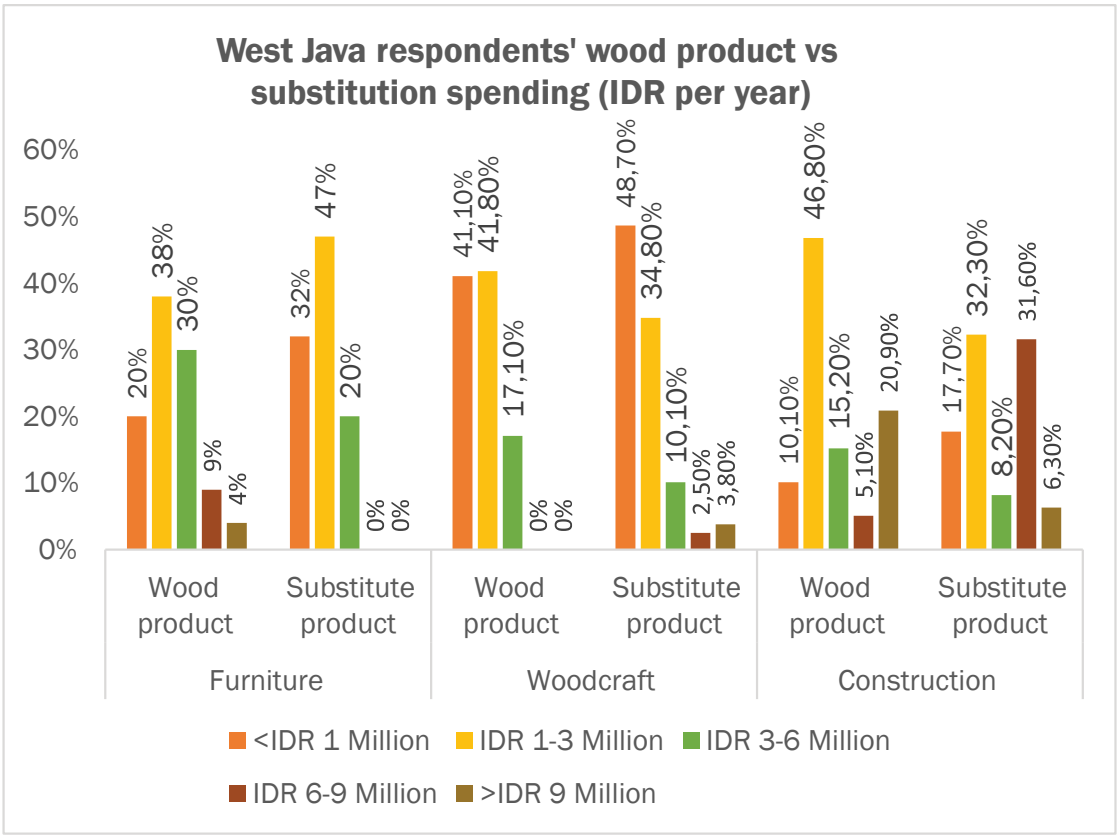


Figure 4.3 Willingness to spend on wood products in Central Java (a), West Java (b), and Banten Province (c)

The same survey also showed differences in spending on wood products and substitutes. Most respondents, 38%, spend IDR 1-3 million yearly on wooden furniture products. In comparison, only 4% are willing to pay more than IDR 9 million annually, indicating a segmented market for high-quality wooden products. For substitute furniture products, 47% of respondents spend IDR 1-3 million annually. Still, none pay more than IDR 6 million annually, indicating a lower budget for substitute furniture than wooden furniture. For wooden handicrafts, most respondents only spend less than IDR 3 million per year, with only 3.8% willing to pay more than IDR 9 million per year for substitute handicrafts, indicating high interest from certain market segments. Spending on wood construction products shows a similar pattern, with most respondents spending IDR 1-3 million per year, while 20% are willing to pay more than IDR 9 million per year. This data indicates a significant need for high-quality timber construction products in certain market segments and a strong interest in substitute products in the construction category.

(a)



(b)

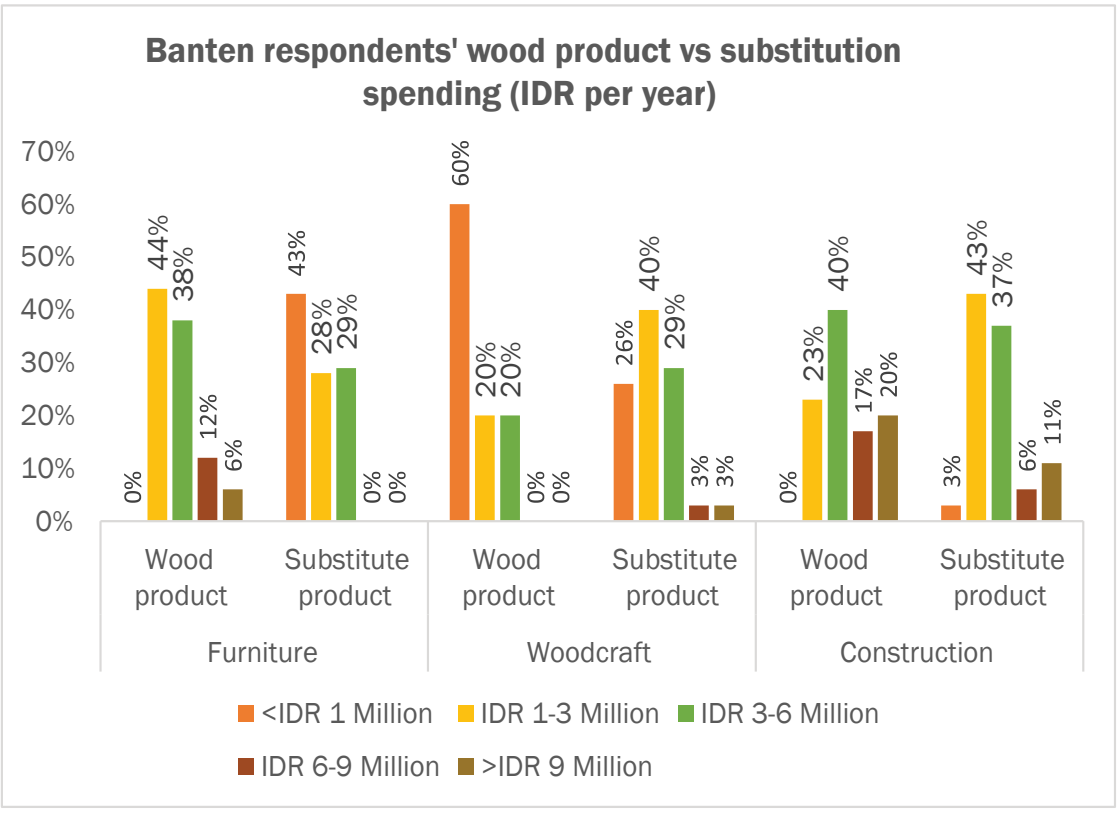
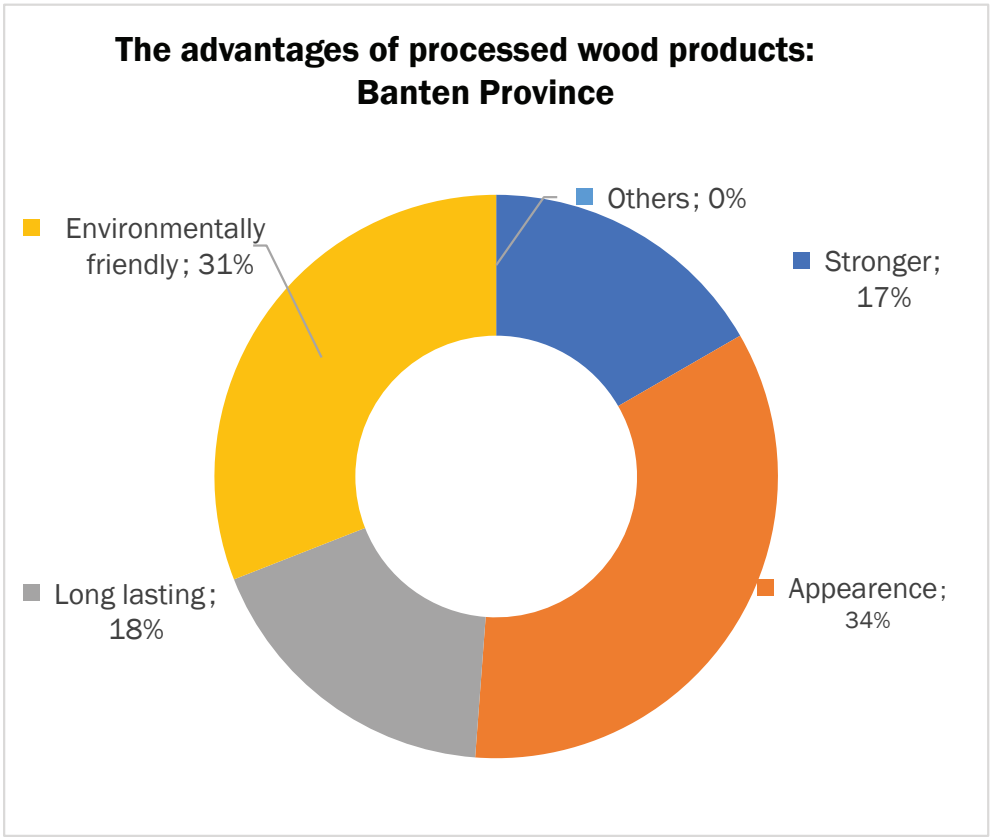


Figure 4.4 Respondents' spending per year on wood products and substitutes in West Java (a) and Banten (b)

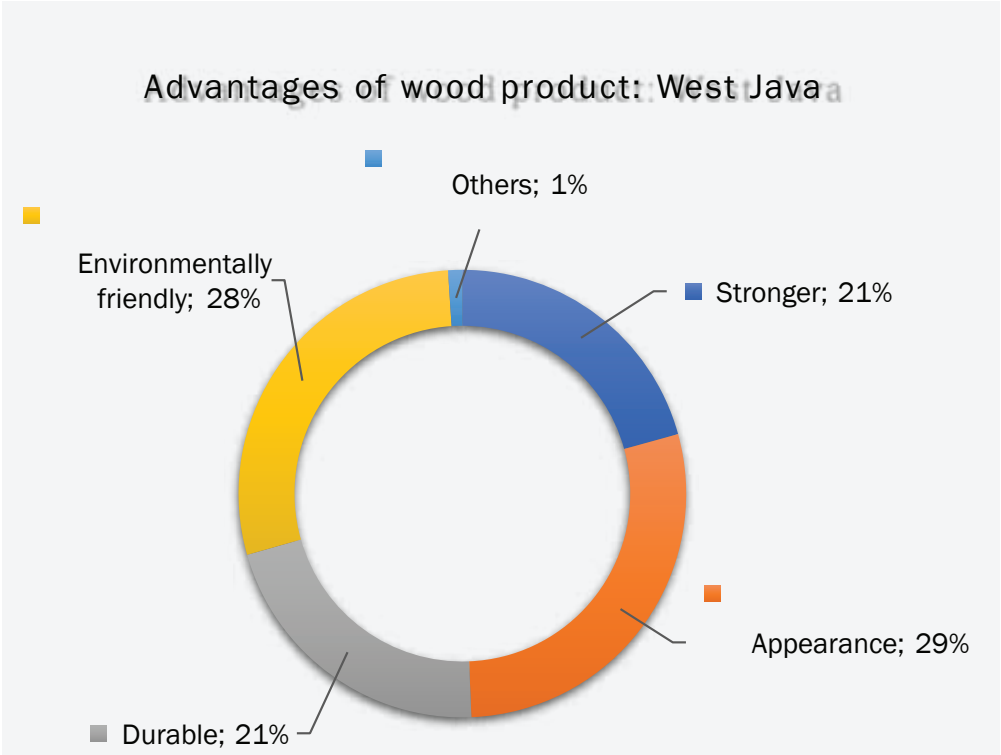
4.4 Quality

Based on the results of questionnaires conducted in East Java, West Java, and Central Java, respondents gave a positive assessment of the quality of processed wood products (Figure 4.5).

(a)



(b)



(c)

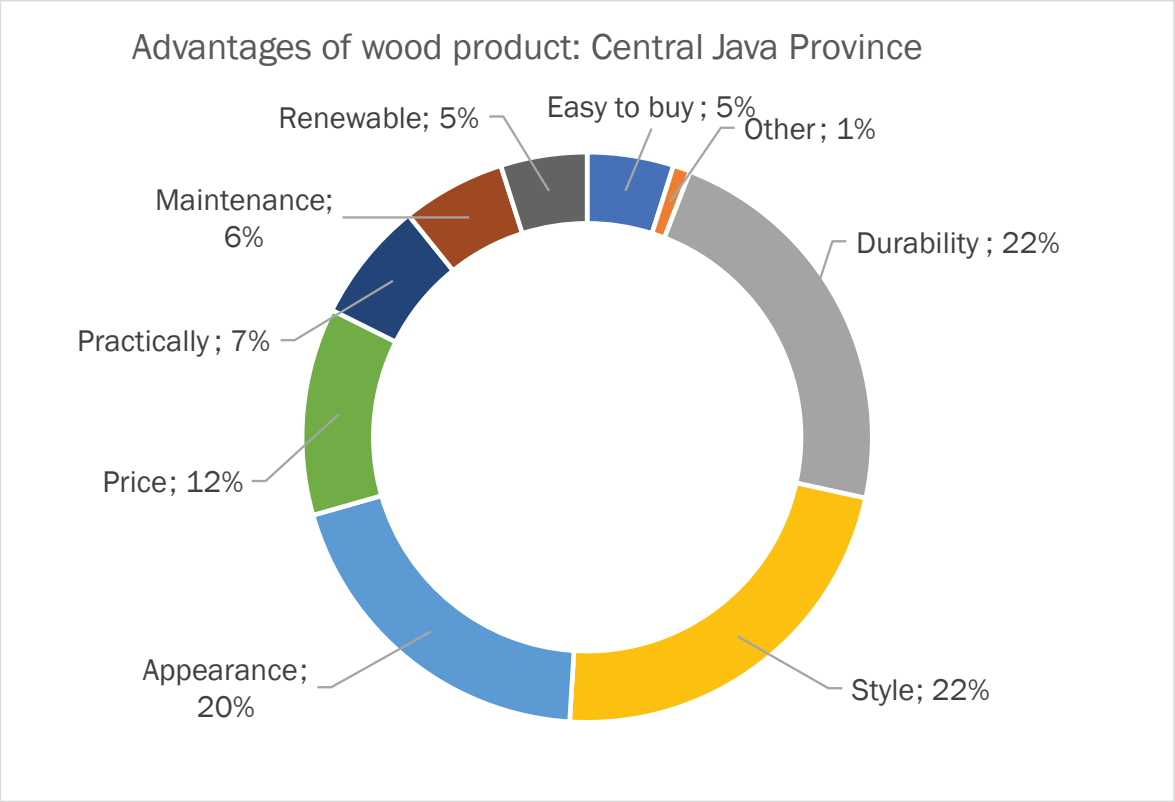


Figure 4.5 Respondents' preference for the quality of processed wood products in Banten (a), West Java (b), Central Java (c)

In West Java, respondents provided various perspectives on wood products. As many as 34% of respondents consider wood products to have a more beautiful appearance than other products. In addition, 31% of respondents stated that the products are environmentally friendly, 18% considered wood products to be strong, and 17% stated that the products are durable.

The perception of respondents from Banten Province regarding the advantages of wood products is almost the same as the perception of respondents from West Java Province. Respondents from Banten perceive the superiority of wood products based on their beautiful appearance (29%), environmentally friendly (28%), durable (21%), and material strength (21%). This reflects consumers' awareness of the important aesthetics, sustainability, and durability aspects when choosing products. Meanwhile, in Central Java, most respondents highlighted the strong durability of wood products and attractive models and styles. The beauty of appearance was also a factor that received attention, indicating that attractive design is one of the important criteria in consumer preferences.

This positive preference indicates that the majority of people still have a great interest in wood products. This provides opportunities for further development in the processed wood industry to meet the growing market demand. A focus on quality improvement, design innovation, and sustainability could be key strategies to increase wood products' competitiveness in domestic and international markets.

However, despite their advantages, wood products also face several weaknesses (Figure 4.6). Based on a survey conducted among respondents in West Java and Banten, there are several weaknesses of wood products susceptible to termites (33%), non-fire resistant (28%), susceptible to fungus (rot) (21%), expensive (15%), and there are also those who perceive wood products as not environmentally friendly (4%).

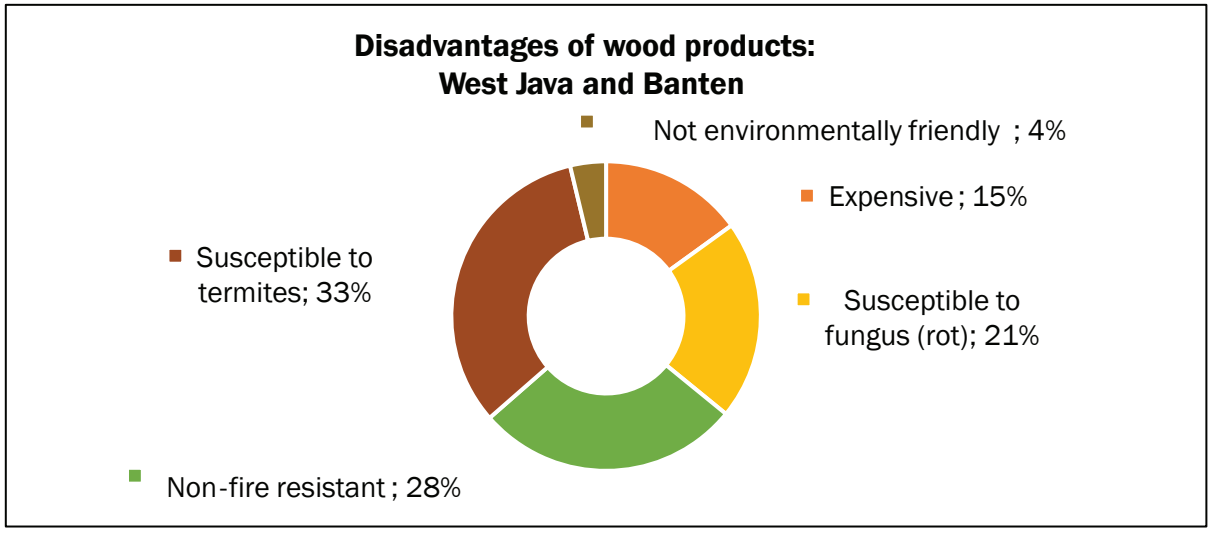


Figure 4.6 Disadvantages of wood products

Termites and fungus can significantly damage the wood structure, reducing the strength and durability of the product. This vulnerability is a major concern as it can affect the durability and safety of wood products in the long term. Making it important to develop better protection technologies.

Resistance to fire is one of the important considerations in choosing building materials, especially in the construction of tall buildings and public spaces. This weakness highlights the need to improve fire protection in wood products. Apart from technical issues, some respondents considered wooden products to be expensive. This price factor can limit product accessibility and influence consumer purchasing decisions, especially for market segments with limited budgets.

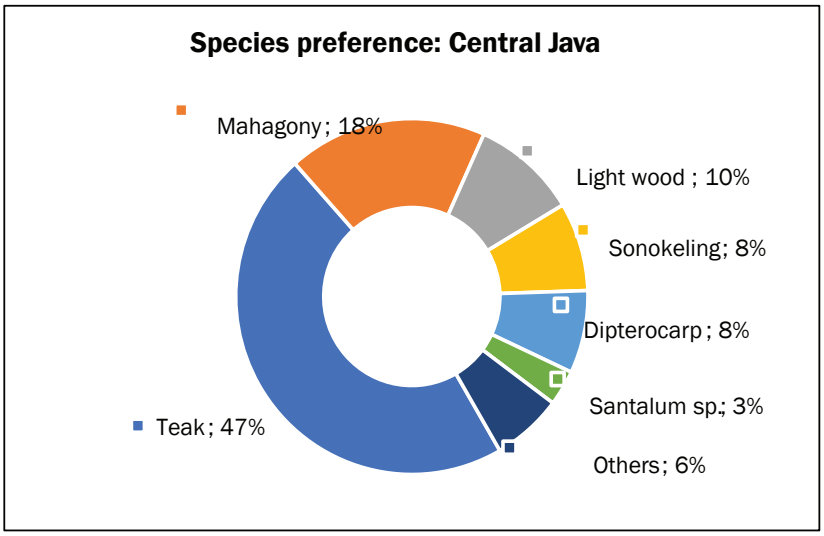
The weaknesses identified in wood products require serious attention from the industry. To maintain competitiveness and meet consumer expectations, the processed wood industry needs to innovate and implement solutions to address these weaknesses. With the right strategy, the industry can improve product quality, reduce costs, and ultimately, strengthen the position of wood products in the market.

4.5 Preferred wood species

Based on the results of the questionnaires in East Java and Central Java regarding preferences for wood species, most respondents from both provinces show significant interest in products made from teak wood. In Central Java, 47% of respondents chose teak wood, while in East Java, 70% of the total respondents. The main reason is that teak wood is considered to have good strength, durability, and a long service life. Such characteristics

are highly valued in the context of the long-term usability of wood products, such as furniture, construction materials, and decorations. In Central Java, besides teak wood, respondents' interest in mahogany wood is also quite high (34% of respondents), but this is not the case with respondents in East Java, where only 1% are interested. Products from mahogany wood are often used for furniture and interior decoration. There are many more types of wood that respondents are interested in, such as sengon, rosewood, and meranti. Figure 4.7 shows people's preference for wood species.

(a)



(b)

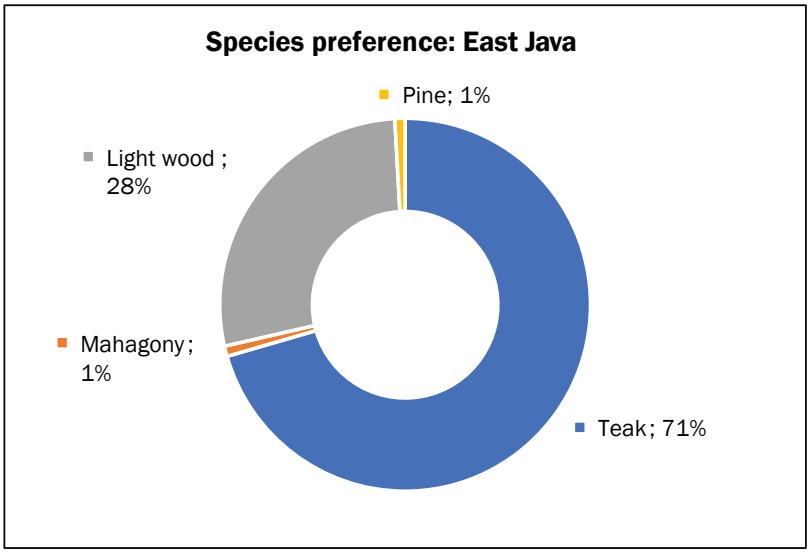


Figure 4.7 Community preference for wood species

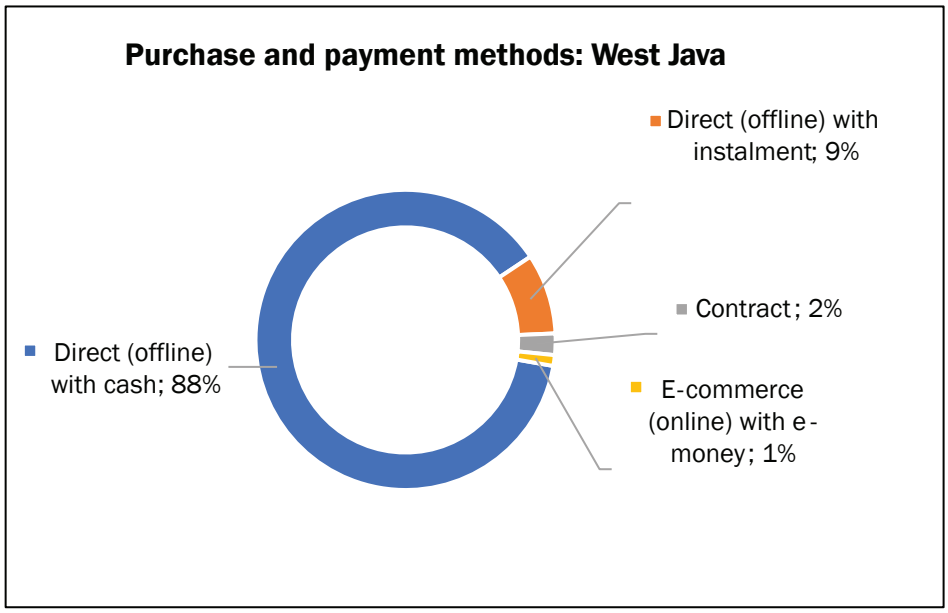
The results of this questionnaire illustrate that people's preferences in choosing types of wood products are strongly influenced by the physical qualities of wood, such as strength and durability. This provides information for the local timber industry to be able to direct marketing strategies and product development in accordance with consumer preferences. As an additional note, it should be considered that in general, Indonesian people, especially Javanese, will prefer teak wood, but the ability to buy teak wood is very limited because of its expensive price. This means that desire and ability to buy need to be considered.

4.6 Purchase and payment methods

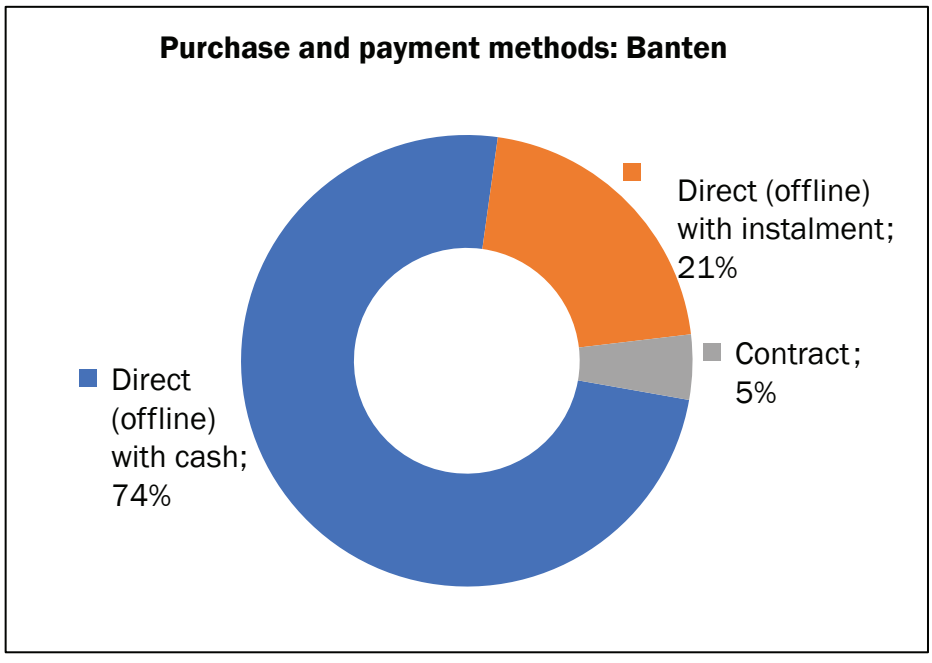
The questionnaire results conducted in West Java, Central Java, East Java, and Banten show that most respondents are more interested in direct (offline) cash payment when purchasing wood products (Figure 4.8). This phenomenon shows that trust and preference for direct transactions are still dominant. It is understandable because wood products are expensive and buyers want to see the physical condition and appearance first before deciding to buy. This indicates that the role of the showroom is very important to be considered (cleanliness, layout, product grouping, etc.).

Only a few respondents chose to pay online to purchase processed wood products. Factors such as transaction security, transaction habits, and the preference to see and inspect goods in person before purchase are the reasons behind the low interest in online payments in purchasing wood products.

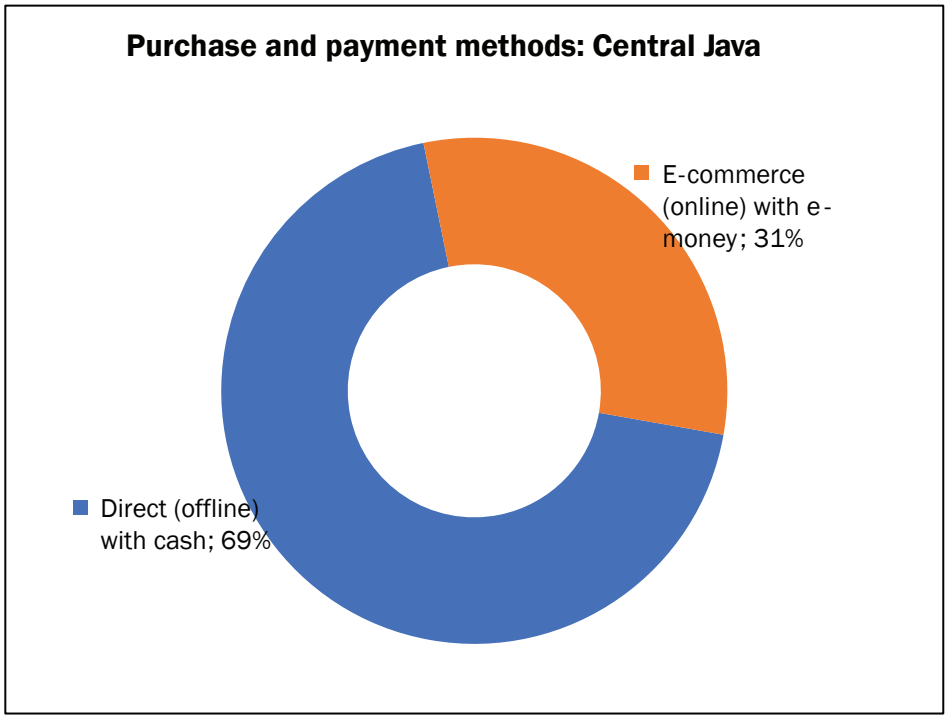
(a)



(b)



(a)



(b)

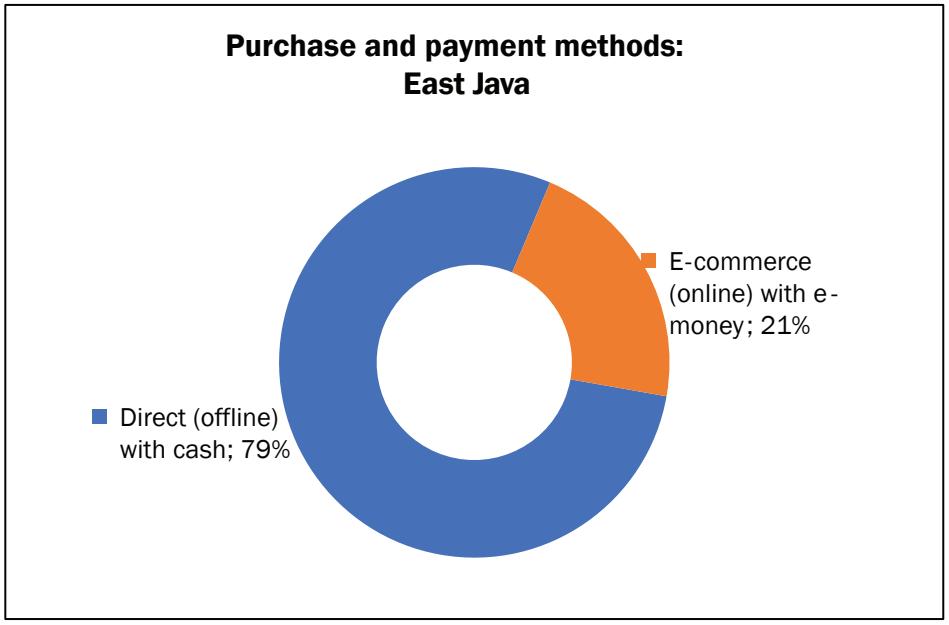
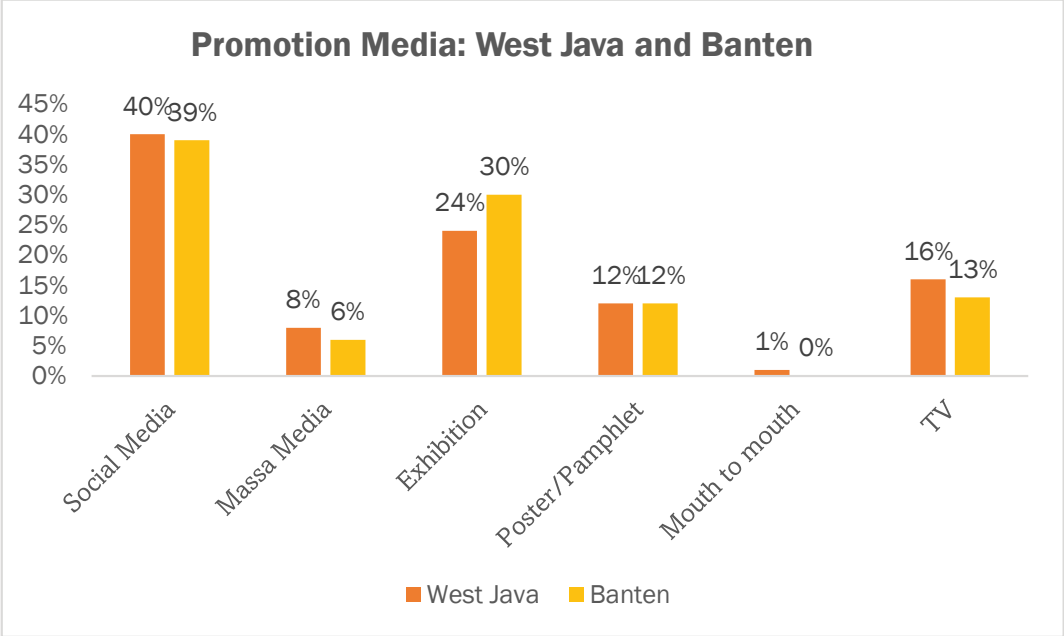


Figure 4.8 Purchase and payment methods in West Java (a), Banten (b), Central Java (c), East Java (d)

4.7 Promotion effectiveness

Based on the results of the questionnaire analysis, most respondents were more likely to suggest using social media as the main platform for promoting wood products (Figure 4.9). Social media is considered to have great power in reaching various age groups and has the potential to reach audiences from various geographical locations. These advantages make social media a potential promotional tool for expanding market reach.

(a)



(b)

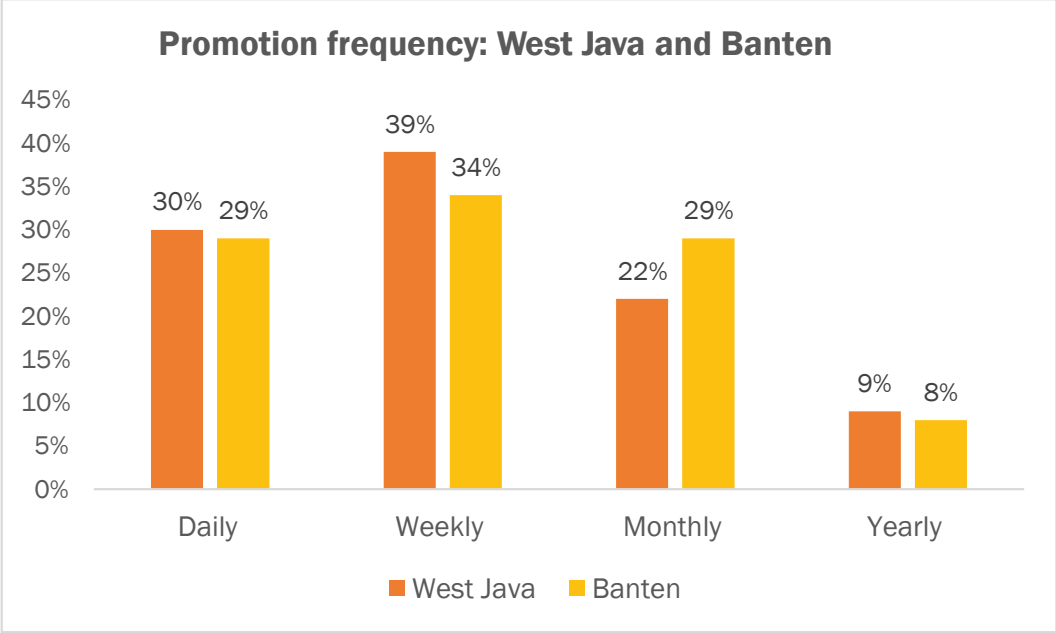


Figure 4.9 Media (a) and frequency (b) of promotion for wood products

Apart from social media, respondents also recommended using exhibitions, television, posters, and mass media as effective promotional channels. Exhibitions are promotional mechanisms that allow consumers to see and experience products firsthand. Meanwhile, television, posters, and mass media can provide wide exposure to products.

Regarding the frequency of promotions, the majority of respondents suggested conducting promotions with weekly intensity. This frequency is considered optimal as it can maintain product presence and awareness in the minds of consumers on a regular basis, without becoming too intrusive. By utilizing social media and other promotional channels according to people's preferences, industry players can increase their product visibility and expand market share.

4.8 Consumers target

Based on the given fishbone diagram, it provides a mapping of consumer characteristics for wood products and their substitutes. Each identified branch provides insight into the factors that influence consumer behavior towards their choice of using wood products and alternatives. The following is a scientific narrative based on the diagram (Figure 4.10)

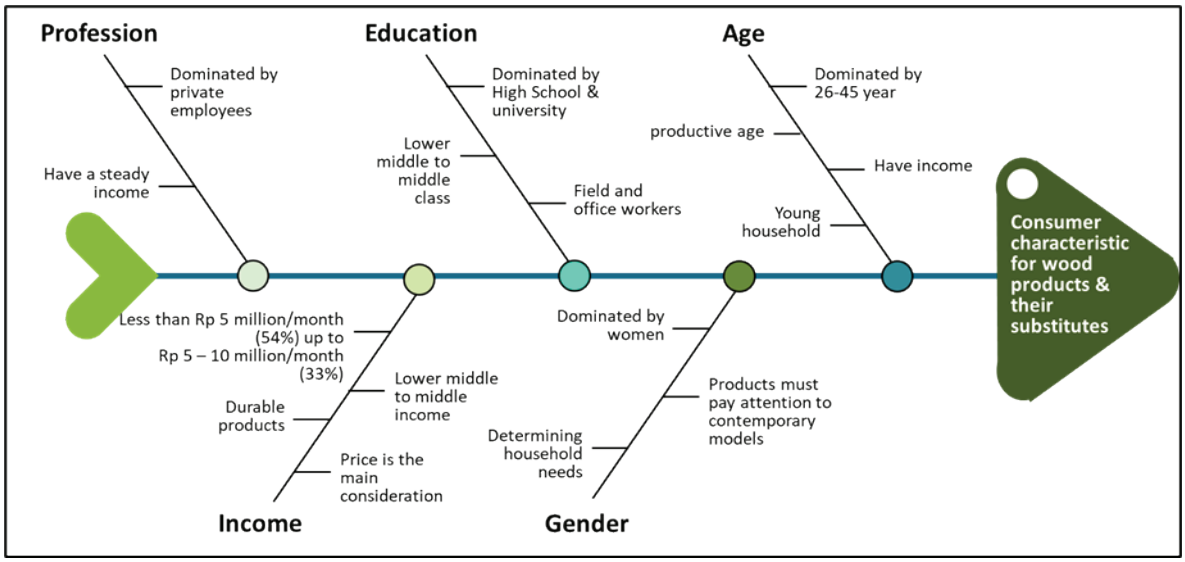


Figure 4.10 Consumers target for wood products

1. Profession

   Consumers being dominated by private employees indicates that the main market segment for wood products and substitutes comes from individuals who have steady employment. This suggests income stability is important in determining their purchasing power for these products. Private employees typically work in offices or the field, which may influence their preference for products that are more durable and functional according to their work or home needs.

2. Income

   Most consumers are in the income range between less than IDR 5 million per month (54%) to IDR 5-10 million per month (33%). Thus, the majority of consumers are in the lower middle class, which makes the price a major consideration in decision-making. The products sought by these consumers are usually products that are durable and have a high use value at an affordable price.

3. Education

   Consumers of wood products and their substitutes are dominated by individuals with middle to upper education levels, the majority of whom have a high school to university education. This indicates that consumers have a good awareness of product quality and function. They tend to make more rational decisions based on their knowledge, thus paying attention to factors such as material quality, price, and durability.

4. Gender

   This diagram shows that the consumer segment is dominated by women, especially when it comes to household needs. In this context, purchasing decisions are often related to products that suit daily needs, and are functional and efficient in the use of space and materials. Women's role in the household often focuses on aspects such as comfort and practicality, making these factors important in the selection of wood products or alternatives.

5. Age

   The main consumers are from the 26-45 age group, which is the productive age group and is at a phase of life where they already have a steady income and tend to form young families. In this context, they not only consider the functional aspects of wood products or their substitutes but also the aesthetic aspects and contemporary models that match the trends and needs of modern households.

V. COMPETITIVENESS OF WOOD PRODUCTS FOR THE DOMESTIC MARKET

5.1 Competitiveness of wood products against their substitutes

Analysis using the BCG matrix shows that compared to its substitute products, wood products are in the “dogs” position (Figure 5.1). This condition indicates that wood products have low market growth and a small market share. This position suggests challenges for the processed wood industry in terms of competitiveness and growth potential.

It seems that wood substitute products dominate the domestic market for furniture, construction wood, and craft products as depicted in Figure 2.6. This dominance causes wood substitute products to be in a “cash cow” position where they have a large market share and high competitiveness against wood products (Figure 5.1). In such a situation, wood substitute products can only enjoy the results of their efforts to defeat wood products. In FGDs, participants stated that this happened because wood industry players and related governments were late in anticipating negative campaigns against forestry products and were spoiled by the tempting export market.

Substitute products are a major challenge for the development of processed wood products in Indonesia. Dependence on the export market often makes the processed wood industry pay less attention to the dynamics and potential of the domestic market. When the export market declines or collapses, processed wood producers have difficulty competing in the local market.

However, in 2019, wood products were once in the “question mark” position, indicating that they had experienced an increase in market growth, although their market share was still relatively low compared to their substitute products. This indicates that there is still an opportunity to develop wood product industries.

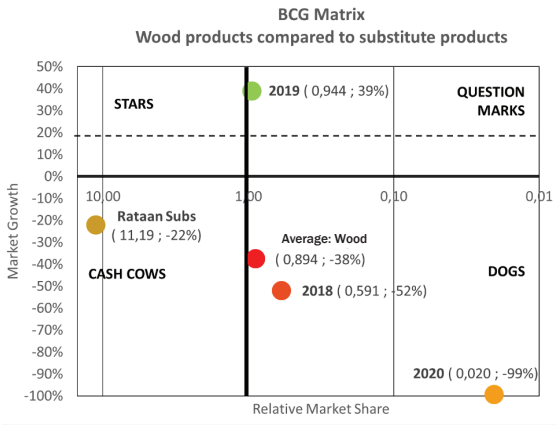


Figure 5.1 BCG Matrix: wood products VS their substitute products

In the FGDs revealed the challenge of whether the processed wood product industries are still optimistic about developing the wood industry or will they give up on the situation (pessimistic) with the harvest strategy, stop production, liquidate, or divest. It seems that their choice is still optimistic about developing the wood industry.

Optimistic strategies that can be implemented under these conditions include rebranding, strengthening innovation and adding features, retrenchment, market penetration, and product quality improvement. The rebranding option can be done by building counter-discourse to fight negative campaigns. Strengthening innovation and adding features are aimed at producing engineered products such as composite wood, engineered wood, complementary wood-metal, attractive designs, etc. Retrenchment is intended to ensure competitive wood products prices. Market penetration focuses on increasing market share through more aggressive promotion and better distribution. In addition, market development and product development should be prioritized, by exploring new market segments and introducing innovations to existing products. Improvements in product quality are also essential to attract a broader range of consumers, while intensive marketing research is needed to understand market needs and preferences. Diversifying marketing destinations, including reaching international markets, can provide new growth opportunities. With these measures, the engineered wood industry can potentially transform and improve its position in the BCG matrix in the future.

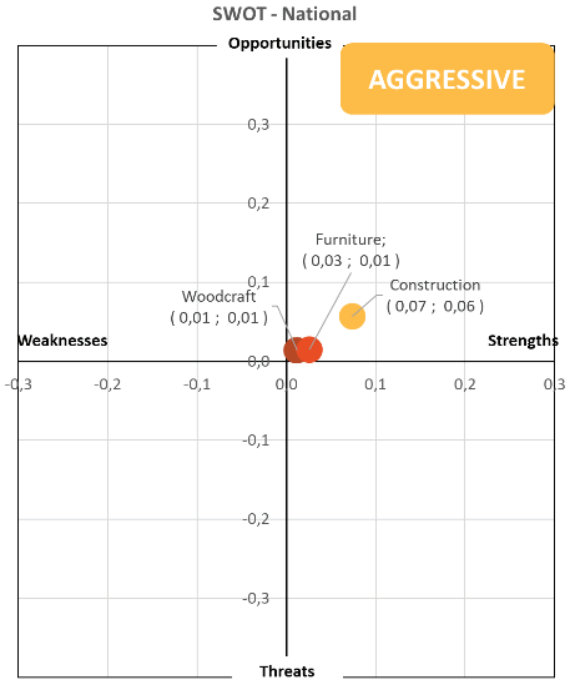
Therefore, the processed wood industry must develop strategies for the domestic market, including product innovation, quality improvement, and value-added enhancement. By understanding and anticipating market trends, engineered wood producers can strive to strengthen their position, both in the local and international markets, to face increasingly fierce competition from substitute products. The question then is whether Indonesia's wood industries are ready to be developed.

5.2 Internal readiness and external challenges of the wood industries

5.2.1 SWOT analysis

In developing the domestic market for the processed wood sector, a SWOT analysis was conducted in two provinces, namely Central Java and East Java. This analysis aims to identify the strategic position of processed wood industries, which include woodcrafts, furniture, and construction timber (Figure 5.2).

(a) (b)



(c)

Figure 5.2 SWOT analysis of processed wood industry readiness in Central Java (a), East Java (b), National (c)

The SWOT analysis results in Central Java show that processed wood industries, especially for furniture, and construction timber, are in Quadrant I. This position reflects a combination of significant strengths and available opportunities. Thus, an aggressive

development strategy is required so that the processed wood industry can capitalize on its strengths, such as product quality and artisan skills, to seize the opportunities available in the domestic and international markets. This strategy has the potential to increase market share and strengthen competitive position. In the meanwhile, woodcraft industry is in Quadrant III (turnaround), so it needs to minimize weaknesses to reach opportunities such as changing technology, internal policies, and human resources.

In contrast, the SWOT analysis in East Java shows different results, except for the furniture industry, which is the same as in Central Java, in Quadrant I (aggressive). The construction wood industry was identified as being in Quadrant III (turnaround), indicating weaknesses that must be corrected to take advantage of existing opportunities. Suggested measures include improving technology, strengthening internal policies, and developing human resources. On the other hand, the woodcraft industry is located in Quadrant II (diversifications), indicating the need to use existing strengths to overcome threats. Product and market diversification and vertical or horizontal integration are important strategies to improve competitiveness.

When analyzed as a whole (national), although there are differences in the position of each province, woodcraft, furniture, and construction industries are in Quadrant I. This suggests that an aggressive development strategy is the most relevant option to increase market growth. Through the synergy between existing strengths and opportunities that can be utilized, the processed wood sector in Indonesia, particularly in Central Java and East Java, has great potential to grow. This will not only improve competitiveness but will also contribute to local and national economic growth.

The results of the SWOT analysis above show that the choice of an optimistic strategy in the “dogs” position based on the BCG Matrix analysis is correct. This means that even though they face a difficult situation competing with substitute products, it still has the potential to be developed in the future.

Indeed, the timber industry in Indonesia has significant potential to improve the domestic market. Through an analysis of existing strengths and opportunities, it can be concluded that there is a readiness to strengthen the position of this sector. Some of the key strengths that support the timber industry in Indonesia include:

1. Geographical position: Indonesia, as a tropical country, has good access to a wide range of natural resources, including vast forests, diverse timber species, and can be grown all year round. This makes it easy to provide raw materials.
2. Wood as a renewable resource: Public awareness to use environmentally friendly products can be utilized to encourage the consumption of renewable products such as wood.
3. Environmental issues: Using environmentally friendly products can be a strength in increasing the market for wood products.
4. Beautiful appearance: The beauty of wood products, in terms of aesthetics and texture, is attractive to consumers. This creates opportunities for marketing wood products as premium goods.
5. Availability of marketing channels: A growing marketing infrastructure, both online and offline, enables more comprehensive access to consumers, accelerates distribution, and expands market reach.

In addition to strengths, there are opportunities for the timber industry in Indonesia. The main opportunities that can be utilized by the Indonesian timber industry include:

1. TKDN (Domestic Component Level) policy: This policy encourages the use of domestic products for development. This policy helps to absorb the domestic market for the timber industry.
2. Growth in development: Growing infrastructure development creates high demand for wood products, especially in construction.
3. Relatively cheap raw material prices: The availability of affordable wood raw materials (cheaper than international prices) provides an opportunity to increase the profitability and competitiveness of processed wood products.
4. Demographic bonus: With the increasing number of young households, the demand for furniture and home interior products continues to grow, providing great opportunities for wood products development.
5. Machine revitalization policy for MSMEs: It is recognized that wood industry machines are aging and outdated. Machine revitalization policy for MSMEs can overcome these obstacles, both through policies to assist in purchasing new machines and through the provision of collective wood processing facilities such as in Jepara and Pasuruan.

To utilize existing strengths to reach the opportunities, the Indonesian timber industry needs to implement an integrated strategy. By integrating existing strengths with available opportunities, the timber industry in Indonesia has great potential to grow and compete in both domestic and global markets.

5.2.2 Quantitative Strategic Planning Matrix (QSPM) analysis of processed wood industry

A quantitative analysis using QSPM was conducted to evaluate development strategies for woodcraft, construction wood, and furniture industries in Central Java and East Java. This analysis provides a strong strategic foundation for the timber industry to design appropriate measures to capitalize on national growth opportunities.

Based on the results of the IFE and EFE analysis in Central Java, the woodcraft industry is in Quadrant I with an IFE value of 3.1 and EFE value of 3.2, so as construction wood industry with an IFE value of 3.3 and EFE value of 3.2, while furniture industry are in Quadrant II with an IFE value of 3.1 and EFE value of 3.0. While the results of the analysis in East Java, wood crafts and construction wood industries are in Quadrant I. The IFE value of the construction industry is 3.3 and the EFE value is 3.2, and the woodcraft industry has an IFE value of 3.0 and EFE of 3.2. Meanwhile, the furniture industry is in Quadrant II with an IFE value of 3.1 and an EFE value of 2.9 (Figure 5.3).

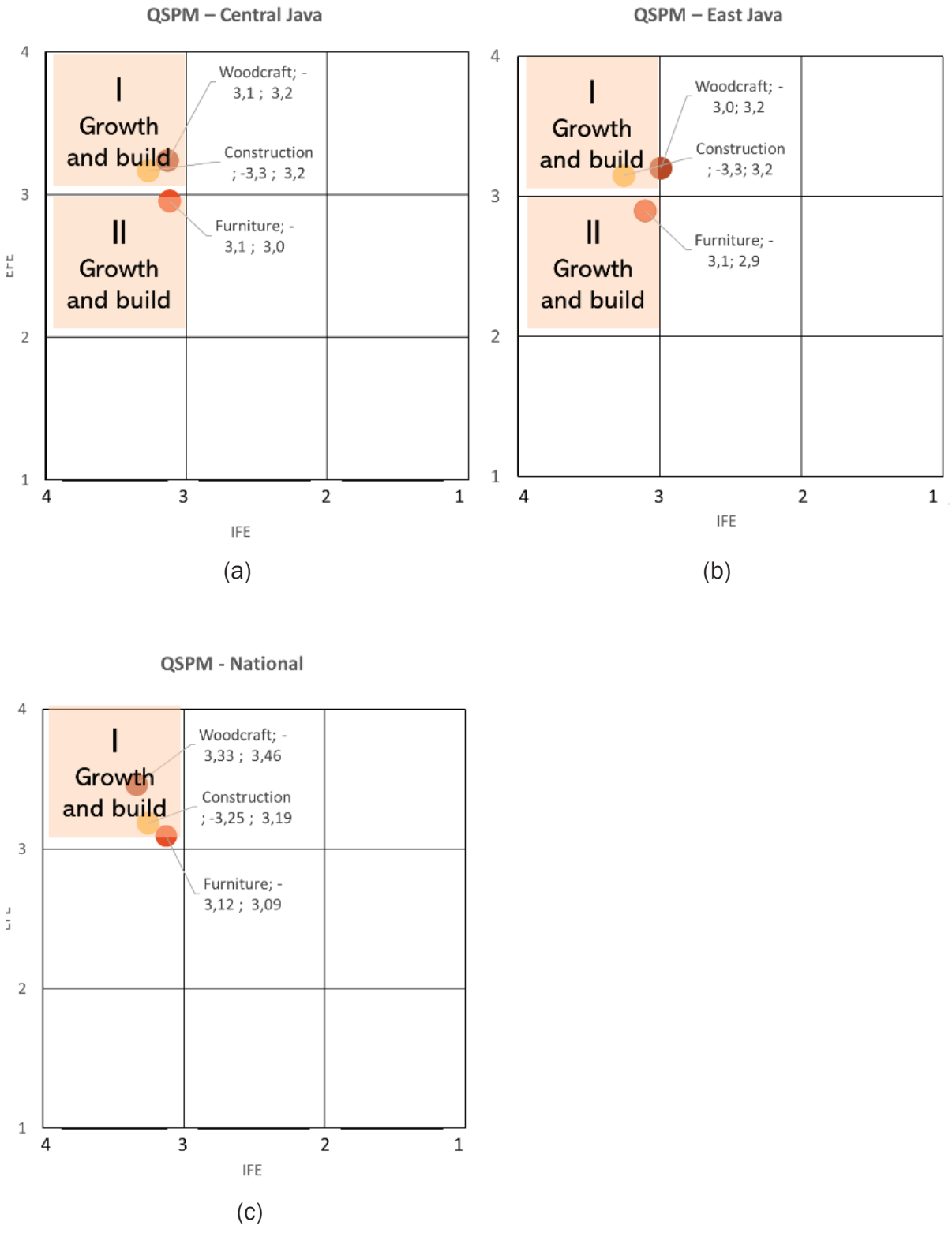


Figure 5.3 QSPM matrix of processed wood industry readiness

Overall, wood crafts, construction wood, and furniture industries are in Quadrant I. According to David (2004), Quadrants I, II, and IV signify the “Growth and Build” zone, which indicates the potential for growth and development. The recommended strategy for this zone is:

1. Integration, i.e., increasing cooperation between business actors in the timber industry, which can cover various aspects, ranging from sharing resources and production facilities that are not optimally used (idle capacity) to collaboration in product development and marketing. Sharing information and experience between business actors is also key in this integration strategy. Information on market trends, the latest production technology, and consumer needs can be shared to optimize marketing strategies and targeted product development. In addition, a clear division of labor between industry, trade, and services can accelerate the production and distribution process of wood products. For example, the development of services that support wood products, such as interior design or after-sales services, can add value to consumers and increase market attractiveness.
2. Market penetration to increase market share with more aggressive promotions and improved product quality; utilization of government policies regarding environmental issues (especially climate change), utilization of domestic products, green TKDN, dan industrial revitalization; exhibitions and development of wood product market centers.
3. Market development is also a focus by expanding product penetration to new geographical, especially outside Java areas; marketing cooperation; various market information, and strengthening domestic market information (government and private). Strengthening domestic market information is important to implement considering that up to the time this study was conducted, no organization had data on the domestic market for wood products, including the Ministry of Trade.
4. New Product Development (NPD) includes improving product quality and features as well as developing new products (Wheelen *et al*. 2018) through innovation and modification to increase market competitiveness. Product development can be done by adding features, technological innovation (composite wood, engineered timber, and complementary wood-metal/blending (mixing) products), and attractive designs. No less important is government assistance to provide product designers (for example the establishment of a Technical Implementation Unit (UPT) for Wood Product Design) and market intelligence support.

5.3 Product-market Matrix: Marketing strategies for increasing the domestic market for wood products

To optimize marketing and product development strategies, a portfolio analysis using the GE/McKinsey Portfolio Matrix was applied to evaluate the position of wood products in Central Java and East Java. This matrix helps identify the position of products in the market based on the strength of market position and industry attractiveness, thereby enabling the development of appropriate strategies for each product category.

Based on the analysis, processed wood products in Central Java, East Java, and National (combined data from Central Java and East Java) are grouped in quadrants. The results of the analysis are presented in

Figure 5.4. In Central Java shows that construction timber is in quadrant V with a Competitive Position Index (CPI) value of 60 and a Market Attractiveness Index (MAI) of 49, meanwhile, furniture (CPI = 66 and MAI = 64) and woodcraft (CPI = 68 and MAI = 59) products are in Quadrant VI. In East Java shows that furniture (CPI = 61 and MAI = 70) and woodcraft (CPI = 59 and MAI = 72) are in Quadrant VI, meanwhile, construction timber is in Quadrant V

(CPI = 49 and MAI = 63). Nationally construction timber is in Quadrant V (CPI = 60 and MAI = 49) and for furniture (CPI = 70 and MAI = 62) and woodcraft (CPI = 68 and MAI = 58) are in Quadrant VI.

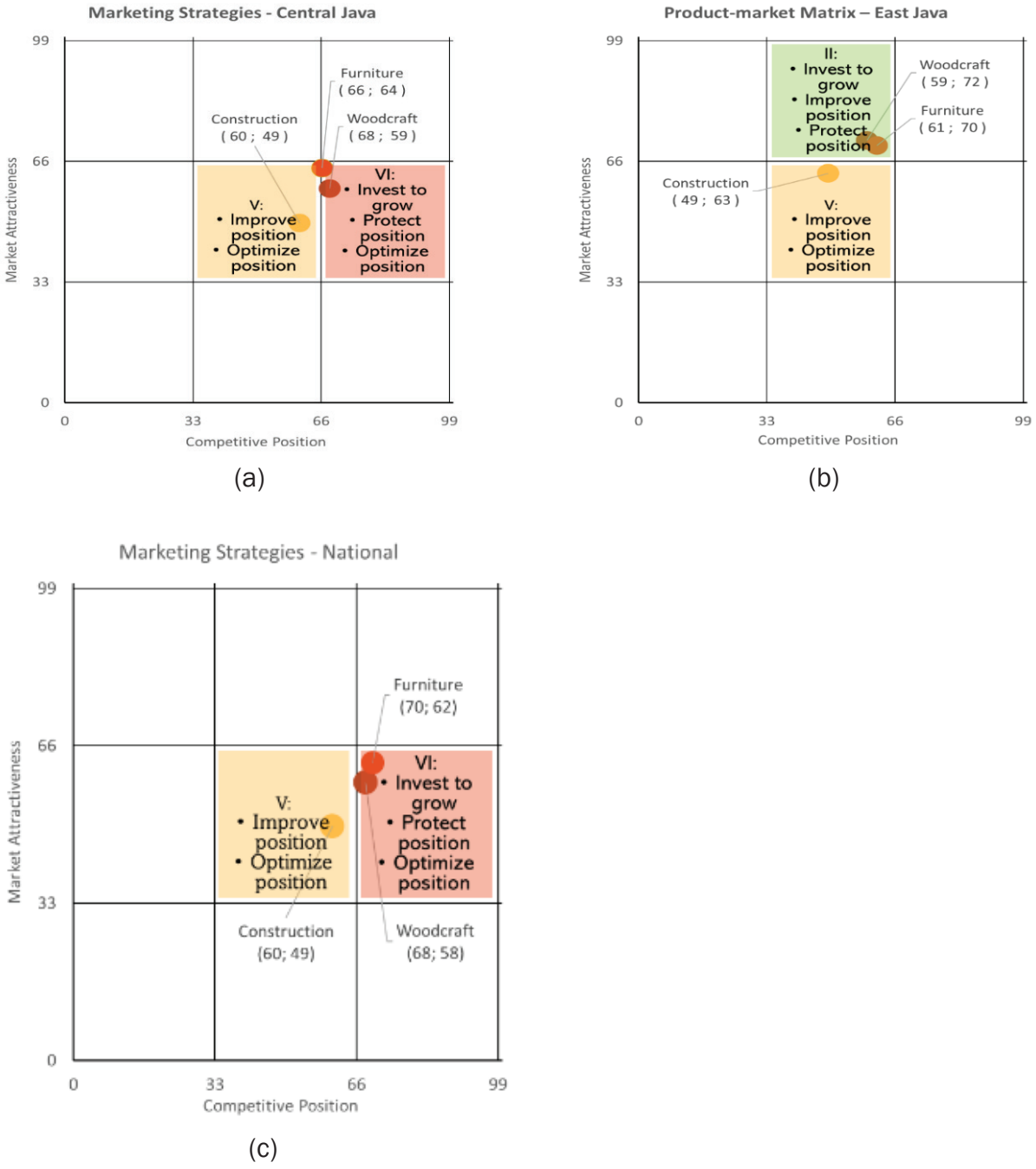


Figure 5.4 GE/McKinsey Portfolio Matrix

Marketing strategies for the identified quadrants can be explained as follows (Best 2013):

1. For Quadrant II, the strategies include:

    a. Invest to Grow: invest marketing resources to grow the market or market share

b. Improve Position: invest to improve and/or strengthen competitive position

c. Protect Position: invest to protect market share and competitive advantage

2. For Quadrant V, the strategies include:

a. Improve Position: invest to improve and/or strengthen competitive position

b. Optimize Position: optimize price-volume and marketing resources to maximize profits

3. For Quadrant VI, the strategies include:

a. Invest to Grow: invest marketing resources to grow the market or market share

b. Protect Position: invest to protect market share and competitive advantage

c. Optimize Position: optimize price-volume and marketing resources to maximize profits

Nationally, the recommended strategies for woodcraft and furniture products are invest to grow, protect position, and optimize position. To capitalize on the industry's strong market position and high attractiveness, additional investment should be made in product development, production technology, and manufacturing capacity. This will enable increased production scale and operational efficiency. Efforts should also be made to improve product quality and differentiation from competitors. This includes design innovations, material improvements, and unique or premium product offerings to appeal to a broader market segment. In addition, geographical expansion and market diversification are required to explore and enter new markets to open up new opportunities and increase growth potential.

Meanwhile, the recommended strategy for timber construction products is to improve and optimize position. The strategy focuses on cost management and production efficiency to increase profitability in a less attractive market. This includes optimizing production processes, controlling material costs, and increasing human resource productivity. In addition, maintaining high-quality standards and ensuring customer satisfaction remains a priority. This can strengthen existing market positions and reduce the risk of losing market share. Monitoring and adjustments need to be made to monitor market conditions and adjust marketing strategies according to changes in industry attractiveness and customer needs.

VI. NATIONAL STRATEGY FOR THE ENHANCED DOMESTIC MARKET OF WOOD PRODUCTS

The domestic market has not been optimized. So far, the processed wood products industry players are still focused on export markets. This is due to the high price of export market products. When the shock of the export market began to be felt, the domestic market slowly became an option. However, the existence of substitute products has dominated the domestic market earlier. The absence of data and information on the circulation of processed wood products, the volume of production of processed wood products, and the consumption needs of the domestic market are signs of unpreparedness to develop the domestic market. However, the results of ITTO research (2024) show that more than 80% of people are interested in using wood products. This means that the opportunity to develop the domestic market is quite large. Therefore, more efforts are needed to develop the domestic market.

Key issues have been identified to improve the domestic market including the certainty/ availability of raw materials, information on real production capacity to meet domestic market share, and weak marketing. With the various issues identified above, a medium-term strategy is needed to overcome these issues. This section will outline the medium-term strategies to overcome the problems that have been described.

6.1 Raw Material Fulfillment Strategy

By paying attention to the issue of raw material fulfillment, there is an opportunity to develop fast-growing plantation forests such as sengon, jabon, balsa, etc. The results of research conducted by ITTO in 2024, showed that the average supply of raw materials from community forests in West Java, East Java, Central Java, and Banten during 2019-2023 was 6.2 million m^3 per year on average or around 96% dominated by sengon, while Perhutani supplied raw materials 4% or around 263 thousand m^3 per year in average consist of teak, mahogany, pines, sengon, etc. Raw materials from plantation forests (sengon) outside Java are also imported from Kalimantan Island and Sumatra Island, although with the risk of raw materials becoming defective and high transportation costs for raw material transportation.

The problem of raw material availability is felt by all wood product producers ranging from Small and Medium Industries (SMIs) to large industries. Raw material issues include a) information on the distribution of raw materials, b) scarcity of certain types of raw materials, c) availability of raw materials according to specifications, and d) mobilization of raw material transportation with various types of raw materials. The mobilization of raw material transportation has various risks, namely damage to raw materials and high transportation costs. With the problem of raw materials faced, there is an anomaly that the industry continues to grow. At the same time, it is known that the production capacity only reaches 30-40% of the installed capacity (ITTO 2024).

To overcome the various problems above, a strategy to fulfill raw materials is needed, among others:

1. Efforts/encouragement to continue developing community or plantation forests in Java. Community forests continue to grow in Java, the latest data from the 2009 inventory shows that the area has reached 2.8 million ha[1]. Despite the limited land in Java, which is only 6% of Indonesia's land area, community forests can contribute 80-90% to fulfill raw materials. This means that the conditions in Java are possible because of the infrastructure, infrastructure funds support, and an essential factor is the availability of markets in competitive prices and security of land tenure (private property). With this situation, a step that can be chosen to develop the same situation outside Java is to build markets outside Java.

2. Promoting the development of community forests outside Java by replicating the supporting factors for community forest development in Java. From the calculations in Chapter 2, the potential domestic market demand is 8.38 million m^3 per year which requires raw materials of around 17 million m^3 per year (R = 50%). Of this amount, 6 million m^3 per year has currently been fulfilled, so there is still a deficiency of around 11 million m^3 to meet those potential domestic markets. If the average community forest production is 75 m^3 per hectare, then assuming a harvest age of fast-growing species of 6 years, it still requires an additional community forest area of around 880,000 hectares. An amount that is not too large.

3. Developing a community forest-based industry. Efforts to develop community forests outside Java will attract investors and communities in the sawmill and/or home industries investment outside Java Island. By bringing the industry closer to raw materials, a market will be developed at the local level. Communities with their potential have the space to carry out production activities. They will be able to process raw materials into semi-finished goods, while corporate-scale industries can process them into finished goods. Thus, it can resolve industry complaints about the shortage of raw materials. Empowering local communities is a key aspect of sustainable development strategies.

4. Creating an information system on timber distribution, type, and volume and developing a timber/log marketplace platform. This is to provide services to small, medium, and large industries by enhancing the distribution and amount of wood available in various locations. With the information system and/or timber/log marketplace platform, the supply chain that connects the buyer and seller as well as the flow of raw materials to the industry can run efficiently. Transportation costs can be minimized because the planning of raw material collection routes can be calculated so as not to cause waste so that the production costs of wood products can be made efficient which will ultimately increase competitive advantage.

5. In building a timber distribution information system, adequate information is needed, including geospatial data input, inventory database input, and tracking system. Geospatial data collects information on the distribution of forest locations and timber distribution (by name by address); inventory database input contains the existence of wood species, stand age, number or volume of publications, and logging time information. Meanwhile, the tracking system identifies the process of timber movement from the felling site to the final distribution point.

1 Forest Establishment Unit Region (BPKH) XI and MFP (2009)

6.2 Production Strategy

There are problems with producing processed wood products. The identification results show several problems, among others: a) how large the domestic market share for wood products is not yet known accurately, b) the type of products marketed are not yet on domestic consumer needs; c) high production costs d) mastery and use of technology has not been widely mastered, and e) product development innovations have not been mastered massively. To overcome some of the above problems, the steps needed for the production strategy of processed wood products include:

1. Market needs research in each region of the country

   The approach to finding out how much the market share of domestic consumption of processed wood products must be carried out in an integrated manner. It can be initiated between the association and the government. Currently, the benchmark for wood consumption needs to use secondary data from the 2020 Lutfi et al. research conducted in the West Java region. The data is then projected towards the fulfillment of domestic raw materials for crafts and furniture. From this research, the estimated domestic market demand for construction wood and furniture is 8.4 million m3. Confirmation and clarification of the estimated market share needs must be carried out in various regions. The certainty of the size of the domestic market share will make it easier for the industry to make optimal production efforts.

2. Innovation and technology improvement

   Research and development to launch products must be in line with market needs. The pattern of mass production must be changed to production (product-driven) in line with consumer desires (market-driven). Product design power is needed for product development. One of the weaknesses of wood products is the resilience and durability of wood. Currently, the massive development of timber from plantation forests is a type of light wood with low durability. So, preservation and drying technology is needed, which must be mastered by small industry players. So even though the wood used is light wood, due to the touch of technology, the life of the wood becomes longer.

3. Increase value-added production at the village level to overcome diversification risks and high production costs

   One of the ways to increase added value in villages is by disaggregating the types of production between large-scale industries and household industries. It is known that large-scale industries generally still produce veneer to plywood. Meanwhile, veneer production has now begun to be developed at the household level. Large industries can then be directed to carry out plywood production activities. By opening up space for the development of household industries to produce veneer, it can generate an economy of household-scale production.

4. Increase sawmill activities at the village level.

   Raw materials in the form of logs can be pre-processed at the village-level sawmill so that the goods come out in the form of semi-finished goods. The problem of transaction costs due to transporting logs can be overcome. Likewise, concerns due to damage to raw materials can be resolved. This is due to the broader input supply change.

6.3 Marketing Strategy

The marketing issue is one of the homework for the government and industry players to increase domestic consumer demand. The domestic market has been dominated by almost 92% of substitute products. Some marketing issues include a) limited product distribution and marketing network, b) target consumers have not been identified, c) the availability of product marketing infrastructure is uneven between cities, c) high costs for the distribution of product transportation between cities and islands, and d) branding the use of environmentally friendly wood products is still not optimal and still needs to be maximized. The efforts needed to overcome various marketing problems can be done in the following ways.

1. Mass socialization of product uniqueness

   This is done to highlight the product's superiority compared to substitute goods already widely circulated. Although government policies are in place, more is needed to generate widespread public interest. Currently, TKDN calculations do not take into account environmental aspects, such as emissions produced and energy requirements consumed to produce certain products (we call it Brown TKDN). In the future, such environmental aspects need to be taken into account (we call it Green TKDN). Product branding through massive socialization must be carried out through various media, such as exhibitions and advertisements on all digital platforms and television stations that can reach consumers widely. The organization of exhibitions must continue to be intensified to introduce products and product advantages.

   Socialization and marketing schemes can also be carried out creatively, by involving product brand ambassadors or influencers, creative marketing through digital platforms that present videos, blogs and infographics on the uniqueness and benefits of using wood products.

2. Market segmentation

   Although substitute goods are widespread, specific market segments need to be prioritized. Thus, efforts must be made to identify these market segments. Fulfilling these segments by providing advantages such as custom products is one form of offering that can be done.

3. Price offer

   One way to attract consumer interest is by setting competitive prices. Discount mechanisms or product promotions can be chosen by businesses to provide reference price options to consumers. Sales of excess export wood products, as carried out by associations in Solo and Semarang, need to be strengthened.

4. Mass Market and Local Government Education

   Education about product excellence must be carried out intensively. Education can be done not only to consumers but also to high school students, college students and even to decision-makers at the government level (local and national). In education, it is necessary to present the benefits and uses of the product. The educational media chosen for the government is through webinars and workshops. Meanwhile, mass-market education can also be used. Use customer testimonials, case studies, and reviews to show that processed wood products have been accepted and appreciated.

VII. CONCLUSIONS AND RECOMMENDATIONS

The entry of wood substitute products for furniture, construction materials, and woodcraft has damaged the domestic processed wood product market and significantly affected the domestic wood industry, especially domestic market-oriented SMEs. Cheaper prices, easy-to-obtain goods, the delay in combating imported substitute products, and negative campaigns to consume forest products are the keys to successful penetration of the substitute product market. Strengthening the domestic wood market can save foreign exchange, and create jobs and business opportunities. The narrative (discourse) "using forest products will damage the environment" needs to be reviewed, and even needs to be fought by building a counter-discourse.

In a difficult situation, it turns out that processed wood industry players still have optimism to rise. The perception analysis in various FGDs shows that wood industry players still want an aggressive strategy with the choice of growth and build actions for the furniture, construction wood, and woodcraft industries. In terms of marketing strategy, their choices include investing to grow, protecting position, improving position, and optimizing position.

To realize this optimism, the domestic processed wood market needs to be developed and the readiness of the wood industry needs to be strengthened through:

1. Leveraging strengths (environmental issues, beauty appearance, and ease of processing) to reach opportunities (raw material prices, development growth, and TKDN policies)
2. Transformation of "brown TKDN" policies to "green TKDN"
3. Government support for production (tools & machines, program credit, design support) and marketing
4. Market coordination (raw materials and products) through the utilization of Information Technology (digitalization and/or log/timber marketplace platforms)
5. Transformation from "product-driven" to "market-driven"
6. Collective actions of timber industry players must be strengthened
7. Finally, mutually beneficial cooperation is better than competing to kill each other

For that reason, all stakeholders need to be involved. Key stakeholders that need to be involved include the Coordinating Ministry for Economic Affairs, the Ministry of Environment and Forestry, the Ministry of Industry, the Ministry of Trade, the Investment Board, the Ministry of Cooperatives and Small and Medium Enterprises, associations of the wood and woodcraft industry, wood industry entrepreneurs, teachers and academics, and relevant NGOs.

REFERENCES

Adnyana R, Darma GS. 2015. Strategi marketing mix, yield management, customer satisfaction, and occupancy rate. *Jurnal Manajemen dan Bisnis.* 12(1): 92-115.

Amatulli C, Caputo T, Guido G. 2011. Strategic analysis through the general electric/Mckinsey Matriks: an application to the Italian fashion industry. International Journal of Business and Management. 6(5): 61-75.

Barksdale HC. Harris CE. 1982. Portfolio analysis and the product life cycle. *Long Range Planning*. https://Doi.Org/10.1016/0024-6301(82)90010-3

Best R.J. 2013. Market-based management: strategies for growing customer value and profitability. 6th edition. Pearson Education, Inc. USA.

David FR. 2004. Manajemen Strategis, Edisi Bahasa Indonesia. Jakarta: Gramedia.

Dewi NKYW, Sri Darma G. 2019. Strategi investasi & manajemen resiko rumah sakit swasta di Bali. *Jurnal Manajemen Bisnis*. 16(2):110.

ITTO. 2021. Impacts of the pandemic on tropical timber trade could be felt for years, say panelists at Annual Market Discussion. [website]. Accessed 03 September 2024. https://www.itto.int/ittc-57/day2/

Kader A, Hossain H. 2020. An analysis of BCG Growth Sharing Matrix. *International Journal of Economic, Business and Accounting Research (IJEBAR)*. 4(1).

Kanten IK, Darma GS. 2017. Consumer behavior, marketing strategy, consumer satisfaction, and business performance. *Jurnal Manajemen & Bisnis*. 14(2): 143-165.

Kompassiana. 2020. Hemat Kertas, Pohon Terselamatkan. [website]. Accessed 09 September 2024. https://www.kompasiana.com/bayususena/5fb9bae3d541df05c86aacb2/hemat-kertas-pohon-terselamatkan

Krisnamurti MB, Darma GS. 2015. Strategi diferensiasi produk dan jasa di industri digital printing. *Jurnal Manajemen & Bisnis.* 12(1): 122-139.

Laksana TN, Waluyo M. 2021. Analisis strategi pemasaran dengan metode SWOT dan BCG di PT. XYZ. *Jurnal Manajemen Industri dan Teknologi*. 2(2): 96-107.

Maulana N. 2017. The influence of barosok trading system on ethical business behavior in the husbandry sector in West Sumatra. *Journal of Advanced Research in Social Sciences and Humanities*. 2(2): 131-138.

Peteraf MA, Bergen ME. 2003. Scanning dynamic competitive landscapes: a market-based and resource-based framework. *Strategic Management Journal*. 24(10):1027-1041.

Putra GSA, Maulana N. 2018. Strategi meningkatkan daya saing industri kreatif Indonesia: Studi kasus pengembangan klaster industri Tamansari Bogor. 10(2).

Rahmantari NLL, Utari NKMT, Putra IPSS. 2023. Strategi pengembangan UMKM dengan metode SWOT dan QSPM (Quantitative Strategic Planning Matrix) pada UMKM Freshy Salad. *Jurnal Pendidikan Tambusai*. 7(2): 6203-6212.

Suyadi A, Handayani E, Tubastuvi N, Hapsari I, Trinowo ME. 2022. Capacity building model for rural lower categories: SWOT analysis. International Journal of Research Business and Social Science. 11(6): 609-617

Syahfitri D, Nurhadi E, Amir, I.Tjahaja. 2021. Boston Consulting Group as the basis of strategic planning in PG Candi Baru Sidoarjo. *Jurnal Agribisnis Lahan kering.* 6(3): 1357.

Wayhuandari W. 2013. Analisis matrik Boston Consulting Group (BCG) terhadap portofolio produk guna perencanaan strategi pemasaran dalam menghadapi persaingan. *Jurnal Universitas Tulungagung Bonorowo*. 1(1): 94-96.

Wheelen T.L, Hunger J.D, Hoffman A.N, Bamford C.E. 2018. Strategic Management and Business Policy: Globalization, Innovation, and Sustainability (ed 15th) (esp. Chapter 7). Pearson Education Limited. UK

ANNEX

Annex 1 FGD in Semarang, Central Java Province

Date	:	11 July 2024
Place	:	Central Java Department of Industry and Trade, Semarang, Central Java
Activity	:	FGD on National Strategy Formulation: Establishment of Communication Forum for Domestic Market Development of Processed Wood and Wood Reinforcement in Construction Sector Location of Central Java Province Domestic Market Development

Annex 2 FGD in Malang, East Java Province

Date	:	26 June 2024
Place	:	Brawijaya University, Malang, East Java
Activity	:	FGD on National Strategy Formulation: Establishment of Communication Forum for Domestic Market Development of Processed Wood and Wood Reinforcement in the Construction Sector Location of East Java Province Domestic Market Development

Annex 3 FGD in Pasuruan, East Java

Date	:	27 June 2024
Place	:	Timber Unit Pasuruan, Pasuruan, East Java
Activity	:	FGD on National Strategy Formulation: Establishment of Communication Forum for Domestic Market Development of Processed Wood and Wood Reinforcement in the Construction Sector Location of East Java Province Domestic Market Development

Annex 4 FGD in Pasuruan, East Java

Date : 23 May 2024
Place : Central Java Region X CDK Surakarta, Solo
Activity : FGD On Nasional Strategy for Enhance Domestic Market of Wood Product

Annex 5 FGD in Bogor, West Java

Date	:	25 April 2024
Place	:	Luminor Hotel, Bogor, West Java
Activity	:	FGD On Development Mid Term Nasional Strategy for Enhance Domestic Market of Wood Product

Annex 6 Workshop dissemination in Faculty of Forestry and Environmental IPB, Bogor

Date	:	23 April 2024
Place	:	Faculty of Forestry and Environmental IPB, Bogor
Activity	:	Workshop dissemination of study results of development domestic Bogor in West Java dan Banten

INTERNATIONAL TROPICAL
TIMBER ORGANIZATION

JAPANGOV
THE GOVERNMENT OF JAPAN

MAFF
Ministry of Agriculture,
Forestry and Fisheries

MINISTRY OF
FORESTRY
REPUBLIC OF INDONESIA

ITTO PD 928/22 Rev.1 (I)

DEVELOPMENT OF SUSTAINABLE DOMESTIC MARKET FOR WOOD PRODUCTS

- 2025 -