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VIETNAM WOOD PELLET PRODUCTION AND TRADE

KEY POLICY AND SUSTAINABILITY ASPECTS

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SUMMARY

Over the past 10 years, the wood pellet industry has grown rapidly, becoming one of the key export products of the wood sector. The raw materials used for pellet production mainly come from wood processing residues, including branches and tops removed prior to processing, undersized logs unsuitable for sawing or drying, sawdust, wood shavings, peeled wood waste, offcuts, etc. These materials are sourced from both domestic plantations and imported timber. Due to this characteristic, pellet manufacturing facilities are often located in areas with abundant planted forests and/or a well-developed wood processing ecosystem. Such areas include several northern midland and mountainous provinces like Bac Giang, Phu Tho, and Yen Bai; central provinces such as Ha Tinh, Binh Dinh, and Phu Yen; and southern regions including Ho Chi Minh City, Binh Duong, Binh Phuoc, and Dong Nai. Each region has its own specific characteristics in terms of the wood pellet supply chain.

In 2024, Vietnam exported around 6 million tons of pellets, generating over USD 800 million. Japan and South Korea are the two main export markets, accounting for nearly 95% of Vietnam's total pellet export volume and value. Of this, Japan accounted for 60% of the volume and 65% of the value, while South Korea made up 34% of the volume and 28% of the value in 2024. However, growth prospects in both markets are limited due to the suspension or reduction of subsidy policies for co-firing power projects using pellets. The average export price shows a significant gap between Japan (USD 140/ton) and South Korea (USD 100/ton), reflecting differences in quality requirements, supply chain control, and sustainability standards.

Currently, Vietnam's pellet industry faces several major challenges: unstable raw material supply with high risks, complex and non-transparent supply chains, and inconsistent pellet quality, which reduces the industry's ability to meet increasingly strict requirements on legality and sustainability in Japan and South Korea. This situation requires both the government and pellet enterprises in Vietnam to review and address essential issues such as developing sustainable raw material areas and ensuring pellet quality. In addition, macro-level support policies are needed, such as planning for pellet industry development within the broader wood sector ecosystem, promoting incentives for biomass energy, and supporting the transition from fossil fuels to biomass energy to reduce greenhouse gas emissions.

All these actions require strong coordination and close cooperation among enterprises in the pellet industry to build and implement a common development strategy for the sector, establish mechanisms to ensure quality and pricing, foster fair competition, and strengthen the role of businesses in policy advocacy both domestically and internationally.

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The arguments presented herein represent the independent views of the authoring team and do not necessarily reflect the opinions of the sponsors and partners. The authoring team disclaims responsibility for any third-party use of the information contained within this report.

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1. Introduction

Vietnam's wood pellet industry has existed for over 15 years; however, it has only experienced significant growth in the past decade, primarily serving export markets. The raw materials used for pellet production mainly come from wood processing residues, including branches and tops removed prior to processing, undersized logs unsuitable for sawing or drying, sawdust, wood shavings, peeled wood waste, offcuts, etc. These materials are sourced from both domestic plantations and imported timber. Due to this characteristic, pellet manufacturing facilities are often located in areas with abundant planted forests and/or a well-developed wood processing ecosystem. Such areas include several northern midland and mountainous provinces like Bac Giang, Phu Tho, and Yen Bai; central provinces such as Ha Tinh, Binh Dinh, and Phu Yen; and southern regions including Ho Chi Minh City, Binh Duong, Binh Phuoc, and Dong Nai. Each region has its own specific characteristics in terms of the wood pellet supply chain.

The report titled **“Vietnam wood pellet production and trade – key policy and sustainability aspects”** comprises four main sections. Following the Introduction, Section 2 outlines the sources of raw wood materials used in Vietnam's wood pellet industry. Section 3 presents the current status of wood pellet exports up to the end of the first quarter of 2025. Section 4 discusses existing challenges within the wood pellet supply chain, with corresponding recommendations proposed in Section 5 to promote the legal and sustainable development of Vietnam's wood pellet industry in the future.

2. Raw material supply for the wood pellet industry

2.1. General overview

Over the past 15–20 years, Vietnam's wood processing industry has experienced strong growth, becoming one of the country's key export sectors, with export turnover reaching over USD 16 billion in 2024. Within this sector, the wood pellet industry holds a distinct position by utilizing input materials from other processing segments, thereby reducing waste and increasing national revenue. Since 2015, wood pellet export turnover has grown rapidly, making it one of the industry's strategic export products, generating hundreds of millions of USD annually—primarily serving East Asian markets such as South Korea and Japan. Vietnam's wood pellet industry relies on a highly diverse range of raw wood materials in terms of both origin and species.

In terms of origin, wood pellets are primarily produced from residues generated by other wood processing industries. Among these, the majority of input wood comes from domestically planted forests. Additionally, a portion is sourced from wood processing facilities using imported materials. Before being used for the production of export-grade wood pellets, these residues—including branches, twigs, tops, sawdust, shavings, bark waste, wood cut-offs, etc. (Figure 1)—are often partially utilized by processing facilities as on-site fuel for their boilers or sold to intermediary collectors who then resell them to end-users in industries that require wood residues for fuel, such as brick kilns, food processing, paper, and pharmaceuticals. In localities lacking such intermediary collection systems, these

wood residues may go unused and be treated as waste, resulting in significant inefficiencies. The growth of the wood pellet industry has thus played a vital role in minimizing raw material loss and enhancing the overall sustainability of the wood sector. However, during periods of excessive export price increases—such as the overheating phase in 2022—strong demand for raw materials drove up input prices, prompting some farmers to harvest immature trees as young as 3 to 4 years old for sale. This has raised concerns about the potential imbalance in the raw material planning of the entire wood industry, especially as the demand for wood pellet processing and exports continues to expand. Furthermore, the use by some facilities of by-products from imported tropical hardwoods—sourced from Africa or Laos and collected from traditional woodcraft villages—has sparked concerns over the legality and traceability of the resulting wood pellets.

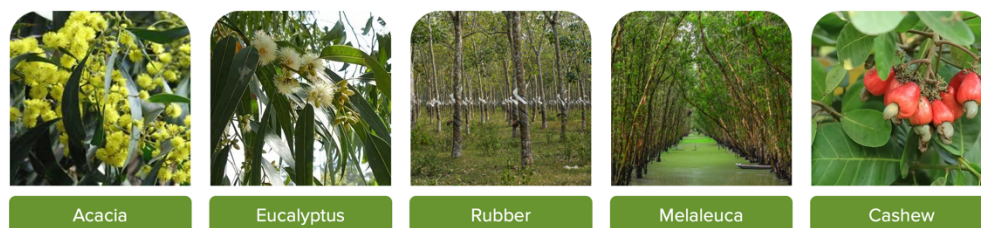
Figure 1: Wood pellet’s raw materials



Source: Illustration by Forest Trends

In terms of wood species, wood pellets can be produced from a wide range of raw materials. In Vietnam, due to the specific characteristics of the wood processing supply chain—which primarily uses domestically sourced acacia, eucalyptus, and rubberwood—these species also constitute the main components of wood pellets. Additionally, in the Central Highlands and Southeastern regions, water melaleuca (*Melaleuca cajuputi*), commonly cultivated in the Mekong Delta, and cashew wood collected during the annual pruning of cashew trees are also used. Other species, though in smaller quantities—such as bodhi, tung, margosa, oak, and ash—can also be utilized for pellet production.

Figure 2: Species commonly used as raw materials for wood pellet production in Vietnam



2.2. Raw material supply from domestic plantation forest

In 2023, Vietnam had approximately 14.86 million hectares of forest, including 10.13 million hectares of natural forest and around 4.73 million hectares of planted forest. Table 1 presents the current state of Vietnam's forests in 2023, as reported by the Ministry of Agriculture and Rural Development (now the Ministry of Agriculture and Environment – MARD&E). According to MARD&E, Vietnam is now able to meet 80% of its raw material needs for wood processing through 30.7 million cubic meters of timber from domestically planted forests. The area of planted forests in Vietnam has steadily increased over the years (Table 2 and Figure 3), with the majority consisting of monoculture plantations of fast-growing species such as acacia, eucalyptus, and rubberwood. However, most of this timber is small-diameter and of limited quality due to early harvesting (particularly acacia and eucalyptus, which are generally harvested before reaching seven years of age). Only about 30–40% of timber from planted forests in Vietnam meets the size requirements for sawnwood used in furniture manufacturing for export. Nevertheless, Vietnam's wood processing industry has made effective use of domestic plantation timber to produce a range of raw wood products—such as peeled veneer, sliced veneer, and finger-jointed wood panels—thereby optimizing the use of local materials for furniture production and export. Small-diameter trees that do not meet size standards, along with wood residues such as branches, tops, sawdust, shavings, and offcuts, are used to produce woodchips, wood pellets, particleboard, and MDF (Figure 4).

Table 1: Forest status of vietnam in 2023 by geographical region

Regions	Natural forest (thousand ha)	Planted forest (thousand ha)	Total amount (thousand ha)	Forest cover rate (%)
Northern Midland and Mountainous Region	3.738,4	1.701,2	5.439,6	54,0
Red River Delta	182,2	307,2	489,4	21,3
North Central and South Central Coast	3.777,5	1.843,6	5.621,2	54,2
Central Highlands	2.093,6	492,1	2.585,7	46,3
Southeast Region	258,9	220,9	479,7	19,6
Mekong River Delta	79,2	165,5	244,6	5,4
Nationwide	10.129,7	4.730,5	14.860,3	42,0

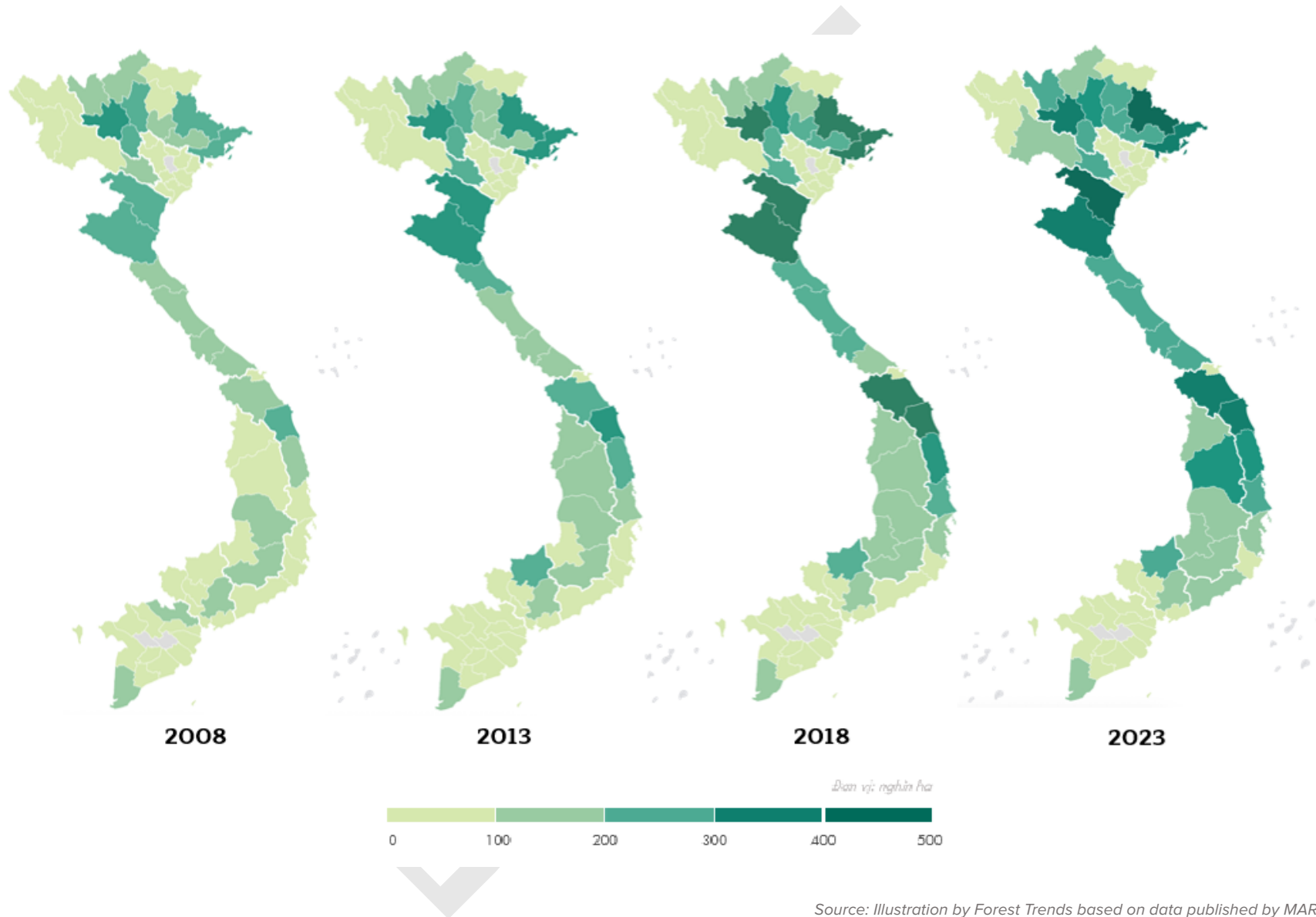
Soucre: MARD&E

Table 2: Area of planted forests in vietnam over the years by geographical region (Unit: thousand ha)

Regions	2008	2013	2018	2023
Northern Midland and Mountainous Region	984,1	1.247,2	1.453,3	1.701,2
Red River Delta	203,6	266,7	306,6	307,2
North Central and South Central Coast	1.007,3	1.298,7	1.727,7	1.843,6
Central Highlands	197,3	300,8	350,3	492,1
Southeast Region	139,5	220	229	220,9
Mekong River Delta	238,3	222,9	168,8	165,5
Nationwide	2.770,2	3.556,3	4.235,8	4.730,5

Soucre: MARD&E

Figure 3: Map of the area of planted forests in Vietnam increasing over the years



Source: Illustration by Forest Trends based on data published by MARD

Figure 4: Domestically planted forest timber serves as a key raw material for many of Vietnam’s wood products



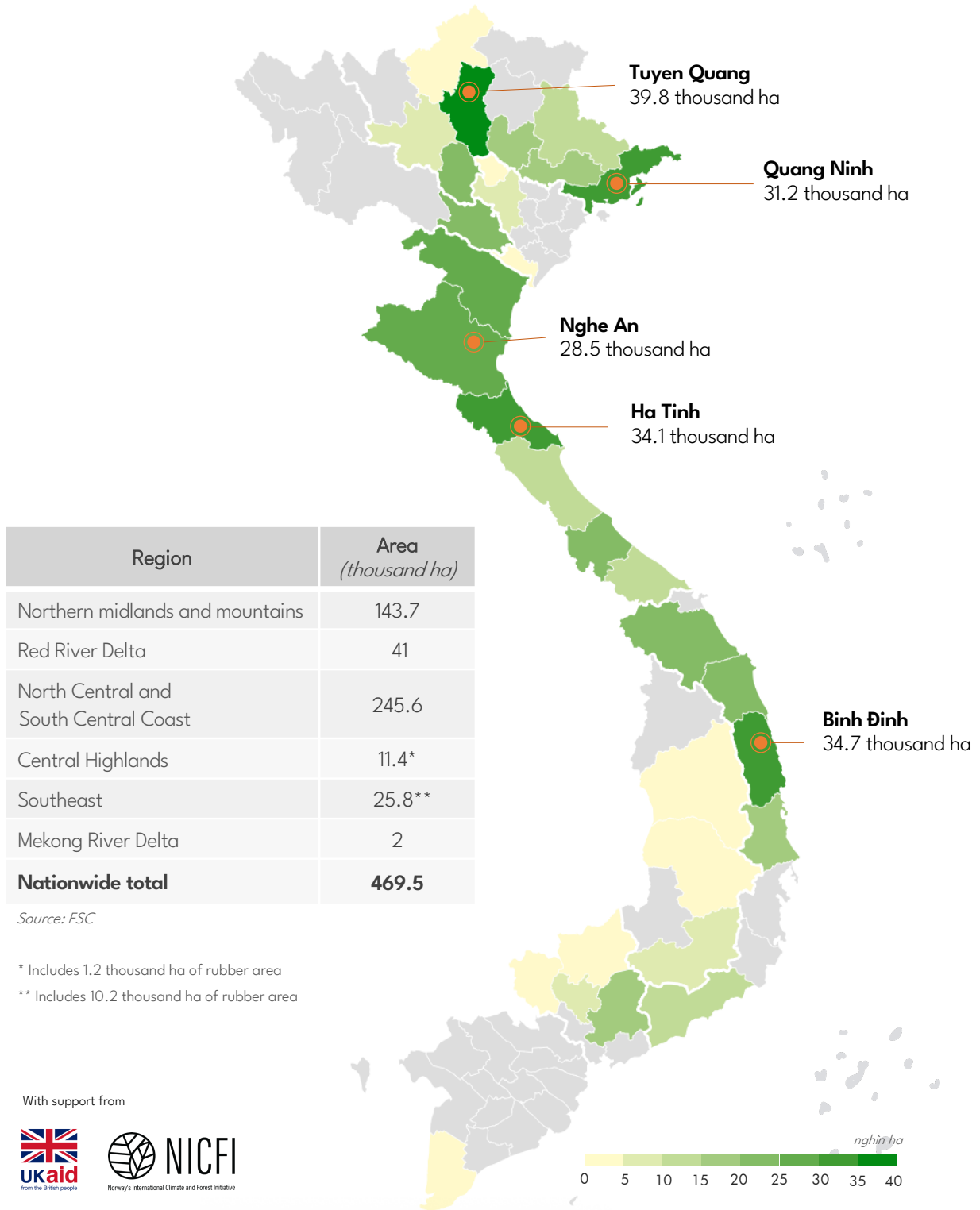
Source: Illustration by Forest Trends

Each year, the area of planted forests in Vietnam expands by approximately 150,000 to 200,000 hectares, primarily originating from land managed by individual households. These new plantations are established mainly on forest land previously allocated to households. In the past, in many localities, the limited number of wood processing facilities, the unstable market for plantation timber, and the relatively low value of harvested wood—combined with the labor-intensive nature of land clearing—led many households to avoid accepting allocated forest land, or to leave it idle. In some cases, households chose instead to cultivate higher-income crops such as cassava, maize, or fruit trees. However, over the past 15 years, as Vietnam’s wood processing and export industries have become more dynamic, the rising demand for raw wood materials has driven up timber prices, creating strong incentives for households to expand planted forest areas. This trend has been particularly evident in the northern mountainous region, the central region, and the Central Highlands. The expansion of plantation areas has directly contributed to an increasing supply of timber.

Moreover, due to the stringent requirements of key export markets such as the EU, the United States, and Japan, the area of high-quality, sustainably certified forests in Vietnam has continued to grow—primarily through partnerships between companies and household groups, or through direct investment by large enterprises on their own land. As of May 9, 2025, the area of planted forests certified under FSC and PEFC reached 469.5 thousand hectares (Figure 5) and 215.4 thousand hectares (Figure 6), respectively. Provinces with the largest FSC-certified areas include Tuyên Quang, Bình Định, Hà Tĩnh, and Quảng Ninh—regions where companies and wood processing factories primarily serving the export market are located, with acacia being the dominant species. In contrast, PEFC-certified forest areas are most concentrated in the South Central and Central Highlands regions, such as Bình Phước, Tây Ninh, and Gia Lai. These provinces have the largest rubber plantations in the country. Rubber plantations account for nearly 70% of the total PEFC-certified forest area nationwide. However, unlike other timber species, rubber trees are primarily cultivated for latex. Rubberwood is harvested only after the latex

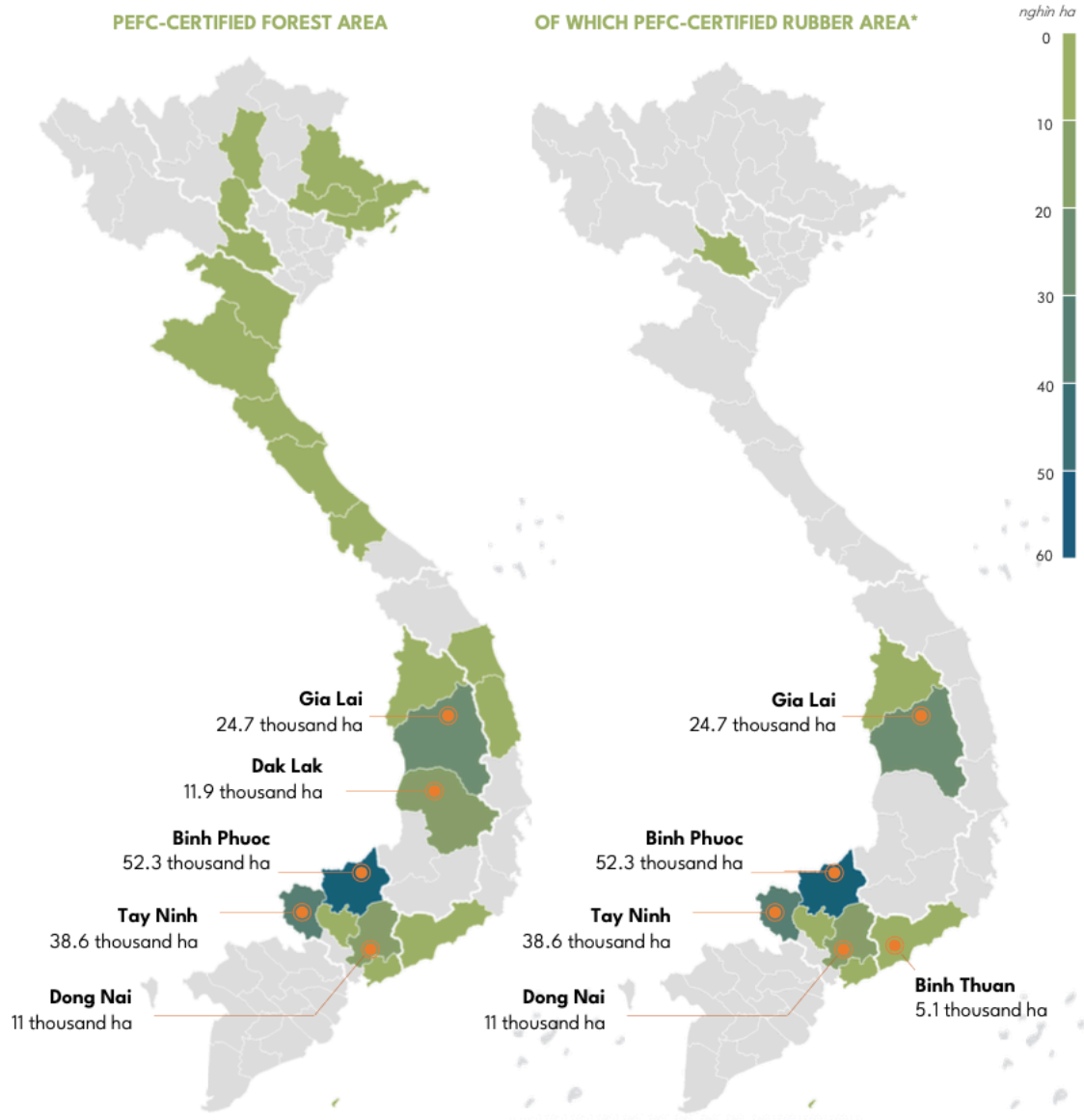
collection cycle ends—typically when trees reach 25 to 30 years of age. In recent years, the rising price of rubber latex has led farmers to limit the harvesting of rubberwood for timber sale.

Figure 5: Area of FSC-Certified Forests in Vietnam as of May 9, 2025



Source: Illustration by Forest Trends dựa trên số liệu của FSC

Figure 6 : Area of PEFC-Certified Forests in Vietnam as of May 9, 2025



Region	PEFC-certified forest area (thousand ha)	Of which PEFC-certified rubber area* (thousand ha)
Northern midlands and mountains	21.7	1.6
Red River Delta	8.6	0
North Central and South Central Coast	34.8	5.1
Central Highlands	40.5	28.5
Southeast	109.7	109.7
Nationwide total	215.4	145

*This is included in PEFC-certified forest area

Source: PEFC

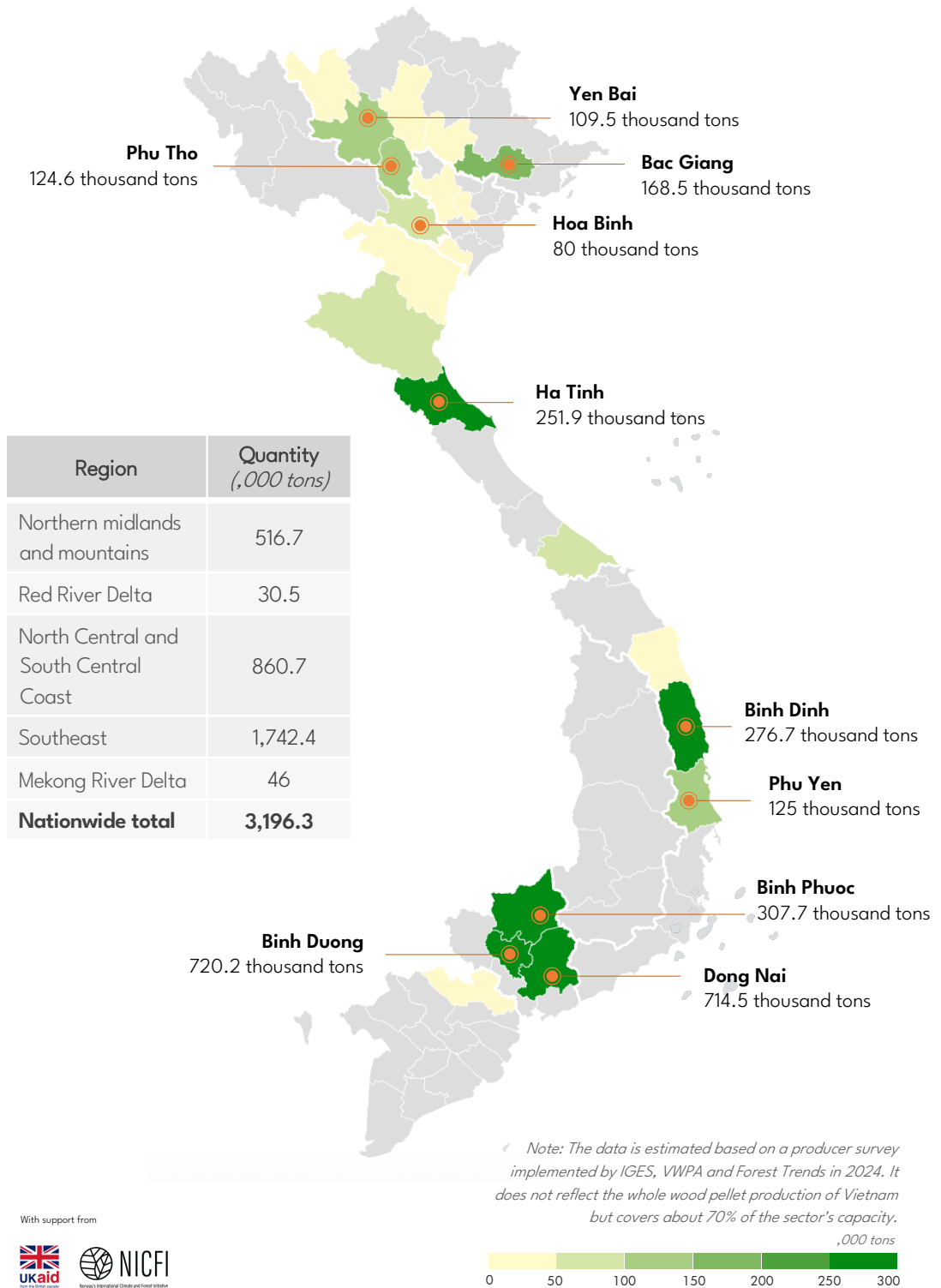
Source: Illustration by Forest Trends dựa trên số liệu của PEFC

Planted forests in Vietnam serve as the primary source of raw material for the country's wood processing and export industries. Due to the nature of wood pellet production, which relies heavily on inexpensive by-products from wood processing, the distribution of wood pellet manufacturing facilities closely mirrors that of major wood processing centers. In the northern midland and mountainous regions, which are hubs for the production of furniture, plywood, veneer, and wood chips, the raw materials for pellet production are primarily by-products such as branches, tops, sawdust, wood shavings, bark residues, and peelings. The central region, while possessing the largest area of planted forests in the country, lacks a high concentration of deep-processing enterprises—except for certain areas such as Bình Định Province and several industrial zones in Nghệ An and Thanh Hóa. In this region, the wood pellet industry largely operates in a symbiotic relationship with the wood chip sector in terms of raw material usage. However, competition between the two sectors can intensify during periods of price surges for both wood chips and pellets, as seen in 2022. This region is also frequently affected by natural disasters, and due to the dominance of the wood chip sector, farmers tend to plant trees at high densities and shorten harvest cycles to under five years. As a result, the harvested wood is typically small in diameter and of lower quality, suitable only for chips, pellets, and particleboard. In contrast, although the southern region does not possess large areas of planted forests, it is home to Vietnam's largest wood processing cluster—concentrated in Ho Chi Minh City, Bình Dương, and Đồng Nai—serving primarily export markets. Consequently, the volume of wood by-products is extremely abundant. This region also leads the country in wood pellet production volume (Figure 7).



Ảnh 1: Một nhà máy viên nén ở Quy Nhơn. Nguồn: Forest Trends

Figure 7: Wood Pellet Production Output by Province in Vietnam, 2023



Source: Illustration by Forest Trends dựa trên dữ liệu khảo sát doanh nghiệp cùng VWPA và IGES

2.3. Wood materials from residues of imported wood

In addition to domestic plantation wood residues, by-products from imported wood also account for a significant proportion of the raw materials used in woodchip production. On average, Vietnam imports approximately 5–6 million cubic meters of raw wood annually, including logs and sawn timber. About 60–70% of these imports originate from countries with strong forest governance systems such as the United States and EU member states, including wood certified under sustainability standards like FSC and PEFC. The remaining 30–40% consists of tropical wood sourced from tropical regions such as Africa, Laos, and Papua New Guinea. Specifically:

- Imported wood from countries with strong forest governance is used to produce indoor and outdoor furniture for both domestic consumption and export. This group includes various species such as oak, ash, beech, birch, pine, eucalyptus, among others. Processing hubs for these wood types are primarily located in the Southeast region (Ho Chi Minh City, Dong Nai, Binh Duong), with smaller concentrations in the Central region (Binh Dinh) and scattered provinces in the North. A portion of this imported wood is already certified under FSC or PEFC schemes, making it suitable for markets with stricter requirements for legality and sustainability, particularly Japan.
- Imported wood from tropical regions is primarily used to supply the domestic market, replacing timber from Vietnam’s natural forests, which have been under a logging ban since 2016. This group includes many high-value hardwood species such as *Dalbergia* (rosewood), *Pterocarpus* (padauk), *Erythrophleum* (tali), *Diospyros* (ebony), and *Xylia* (ironwood). Processing is concentrated in traditional craft villages, mainly in northern provinces, producing a wide range of items including fine woodcrafts, furniture, structural components for residential and office buildings, and religious architecture. Since these materials originate from natural forests and are often sourced from countries with weak forest governance, they have faced significant criticism and concerns regarding legality and deforestation risks. As a result, wood pellets produced from this input are primarily exported to South Korea—a market with less stringent legal requirements than Japan—and partially consumed domestically.

2.4. Distribution of wood pellet materials by region and traceability capacity

Currently, there are no specific statistics on the volume of materials derived from domestically grown plantation wood and imported wood residues used in wood pellet production. Southern Vietnam accounts for approximately 50% of total wood pellet exports, the Central region contributes around 40%, and the remaining 10% comes from the Northern region.

- **Southern region:** The primary materials used in wood pellet production come from wood processing residues sourced from both domestically grown plantation forests and imported wood. Of this, approximately 50–60% originates from imported wood residues. In the context of the U.S. government imposing tariff barriers on Vietnamese wood products exported to the U.S.—currently the most important export market, accounting for nearly 60% of the wood sector’s annual export value—Vietnam’s wood processing activities have been severely affected due to a significant decline in orders. As a result, this material source has become unstable and increasingly dependent

on the export of wood products to China. The remaining 40–50% comes from domestic plantation forests and other local sources such as recycled wood and pruned branches.

In terms of wood species, in the southern region, acacia and *Melaleuca cajuputi* (water melaleuca) account for 50–60% of the supply, offering relative stability; however, they face strong competition from woodchip production. The remaining materials include rubberwood, cashew, eucalyptus, and others. Notably, the availability of rubberwood residues depends heavily on latex prices and the export performance of wood products. Currently, with rising latex prices and a slowdown in wood processing for export—driven by the U.S.'s tightening of tariff policies—the supply of rubberwood residues is showing a downward trend. Moreover, the area of plantation forests in southern Vietnam has reached its limit and cannot be further expanded. While some farmers have started planting acacia and water melaleuca on former rice land for timber sales, such practices remain small-scale, difficult to scale up due to government restrictions on converting rice-growing land to other forms of cultivation.

Overall, the raw material sources for pellet production in the South are relatively diverse but fragmented and inconsistent. The nature of bulk materials and reliance on multiple intermediary traders make the supply chain difficult to trace and manage. Consequently, many producers are unable to meet the stringent sourcing requirements of the Japanese market and instead focus primarily on exports to South Korea.

- **Central region:** As the wood processing industry in this region remains underdeveloped, the primary source of materials for pellet production comes from domestically grown plantation forests, many of which are certified. However, the Central region is also one of Vietnam's largest woodchip export hubs. As a result, the pellet sector often competes with woodchip producers for raw materials, depending on market conditions. In terms of wood species, the region predominantly cultivates acacia and eucalyptus. The Central Highlands also have areas of rubber plantations. One key advantage of the Central region is its extensive plantation forest area, with strong potential for expanding certified forest coverage—making it well-suited to serve demanding markets such as Japan. In fact, provinces in the Central region are currently the largest suppliers of wood pellets to the Japanese market.
- **Northern region:** The material for pellet production in this region come from both plantation forests and processing residues. However, unlike the southern region, in addition to imported materials from countries with strong forest governance (commonly referred to as “Western wood,” such as oak, ash, pine, beech, birch, etc.), the North also utilizes by-products from imported tropical natural wood originating from Africa, Laos, Papua New Guinea, South America, and other regions, particularly from traditional craft villages (see Section 1.3).

This region also has a large and expandable area of plantation forests, including certified sustainable forest areas. Currently, several large pellet plants are under construction in the North and are expected to commence operations soon. In the near future, the export volume of wood pellets from the northern region is projected to increase significantly.

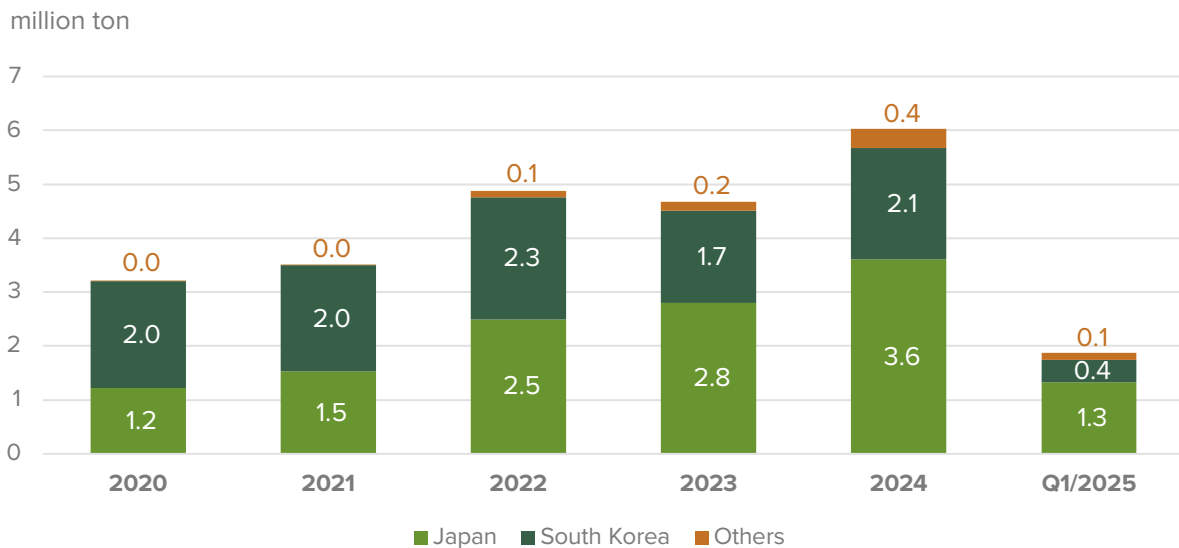


Picture 2: Wood materials for wood pellet production. Source: Forest Trends

3. Vietnam’s wood pellet export situation

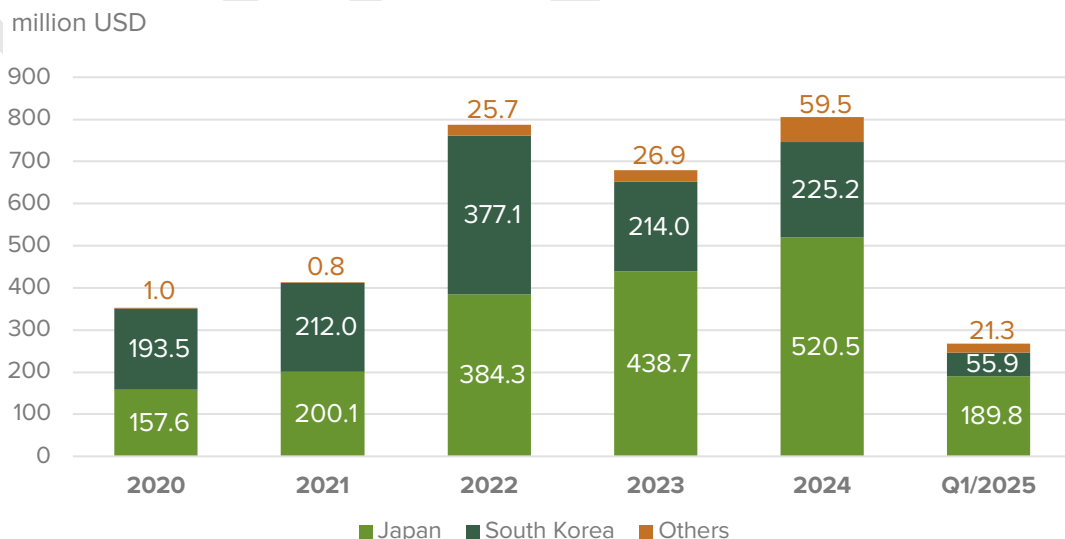
Although comprehensive statistical data is not yet available, nearly 100% of Vietnam's wood pellet output is exported due to more favorable purchasing prices compared to the domestic market. Vietnam is currently the world’s second-largest producer of wood pellets, after the United States. Its main export markets are Japan and South Korea, which together account for over 95% of the total export volume and value of wood pellets (Figures 8 and 9).

Figure 8: Export volume of wood pellets from Vietnam to key markets (2020 – Q1/2025)



Source: Compiled by Forest Trends research team and wood associations from customs data

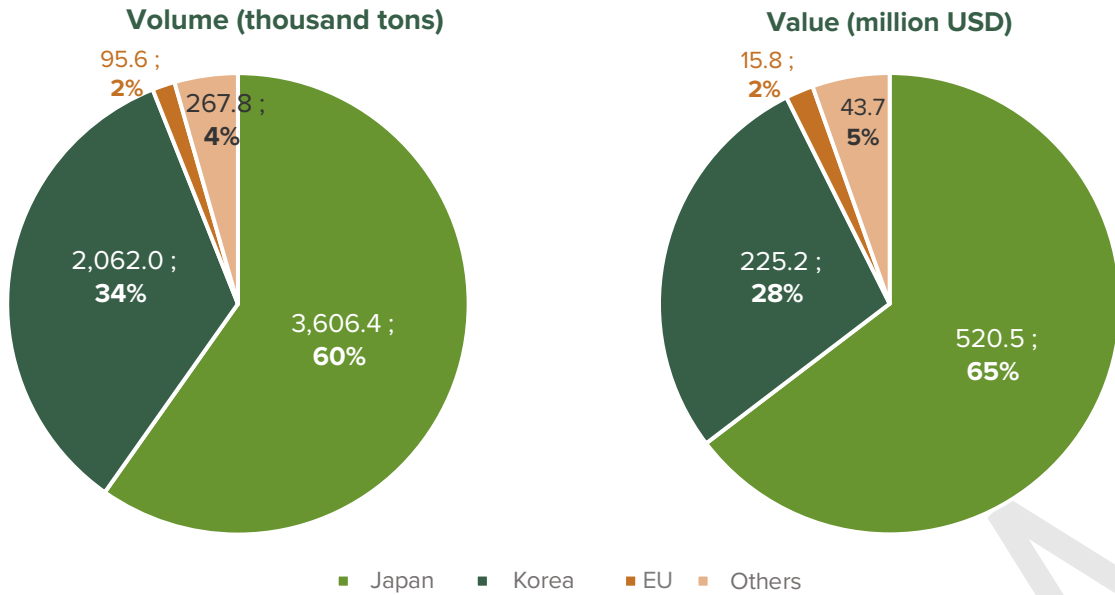
Figure 9: Export value of wood pellets to Vietnam’s major markets (2020 - Q1/2025)



Source: Compiled by Forest Trends research team and wood associations from customs data

In 2024, Vietnam’s wood pellet industry exported a total of over 6 million tons, generating an export value of more than USD 805.2 million—an increase of 29.1% in volume and 18.5% in value (Figure 10). Of this, the Japanese market accounted for 60% of the volume and 65% of the value, while the Korean market made up 34% of the volume and 28% of the value. This reflects a notable disparity in the import prices of Vietnamese wood pellets between the two markets (Figure 11).

Figure 10: Export volume and value of Vietnam’s wood pellets in 2024



Source: Compiled by Forest Trends research team and wood associations from customs data

Figure 11: Monthly average export price of Vietnam’s wood pellets to Japan and South Korea, 2022–Q1/2025



Source: Compiled by Forest Trends research team and wood associations from customs data

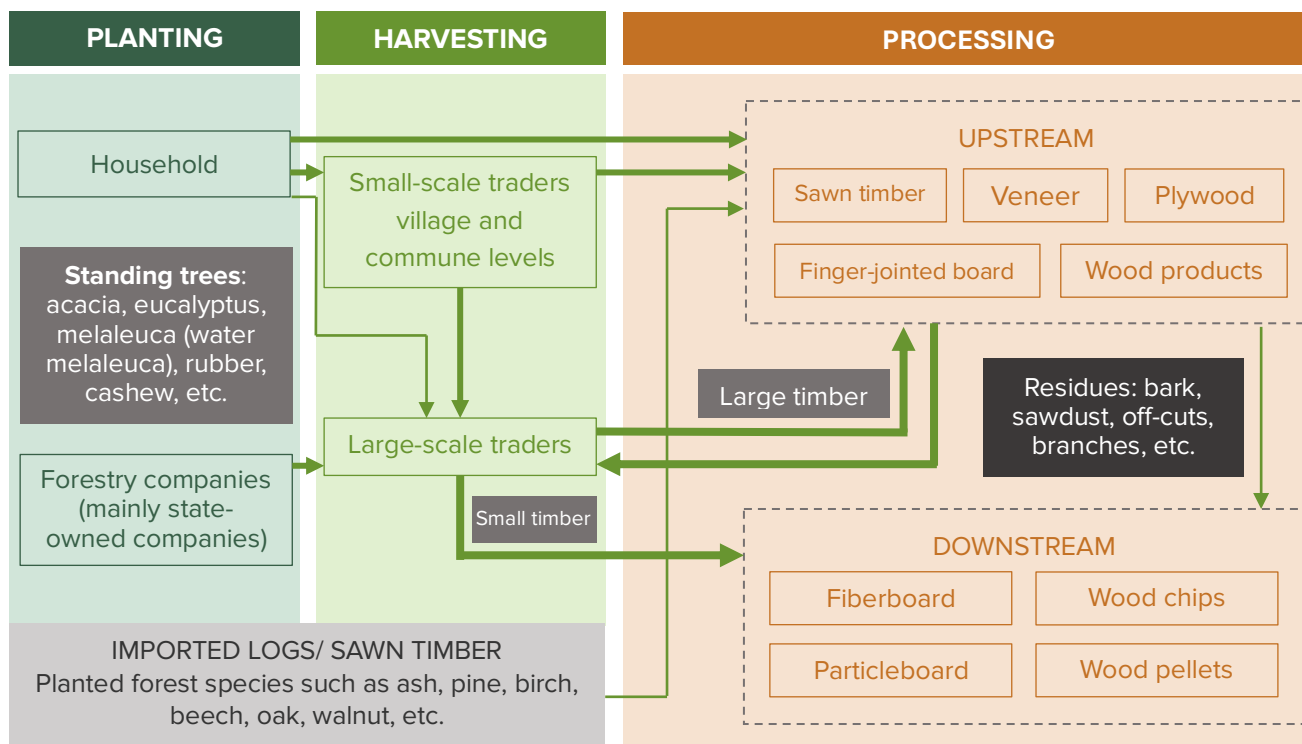
Compared to 2023, the export price of wood pellets continued to decline in 2024. In 2024, the average export price of wood pellets reached approximately USD 133.5 per ton, down 8.2% compared to 2023. At the two main markets—Japan and South Korea—the average export prices were around USD 144.3 and USD 109.2 per ton, respectively. However, while the price slightly declined in Japan, the average import price in South Korea rose significantly starting from September 2024. This increase was driven by improved bidding prices in South Korea and the renewed scarcity of wood processing materials. The shortage is attributed to a decline in wood processing activities following the U.S. government’s proposal to raise tariff barriers on imported wood products from early 2025.

4. Some shortcomings in Vietnam’s wood pellet supply chain

4.1. Unstable and unsustainable material supply

Vietnam's wood pellet industry has yet to establish a dedicated and independent material supply chain. Instead, it relies heavily on secondary sources from other wood processing sectors. As a result, pellet production is significantly influenced by the operational capacity, seasonality, and by-product pricing of these industries. For instance, during unfavorable periods such as the rainy or humid seasons in the North, logging and wood processing activities decline, leading to a sharp drop in material availability for pellet production in the region.

Figure 12: Wood pellet raw material supply chain in Vietnam



Note: The direction of the arrows indicates the flow of products. The width of each arrow reflects the relative volume of the supply stream. Small-diameter wood includes branches, tree tops, and logs with a diameter of less than 6 cm. The actual supply chain may vary depending on the specific characteristics of each region.

Source: Forest Trends

On the other hand, wood pellets represent the final component of the supply chain when viewed from the perspective of harvested trees and imported timber sources (Figure 12). When the downstream markets for products higher up in the wood industry supply chain—such as wood furniture, various types of panels, and wood chips—decline, the supply of by-products and residues for pellet production also immediately contracts. This was observed after the COVID-19 pandemic in 2022 and again from early 2025, when the United States announced plans to impose tariff barriers on imported goods to reduce its trade deficit. Moreover, the pellet sector must compete for raw materials with the wood chip and engineered wood panel industries, especially particleboard, which has driven up input material costs in recent years.

The instability of raw material supply, combined with strong market demand—particularly from Japan—directly affects the development opportunities of Vietnam’s pellet industry. Therefore, securing a stable, high-quality, and sustainable material supply is vital for the sector. The pellet industry needs a strategic approach to ensure raw material stability. This is a challenging task, especially given its reliance on other industries. This issue can be partially addressed through industry planning—for example, local authorities may grant permits only to a limited number of pellet plants that have access to sufficient raw materials within the locality, thus avoiding procurement conflicts. Additionally, pellet enterprises should proactively establish their own material sourcing areas. To maximize benefits, businesses should develop an integrated wood product ecosystem that makes full use of the entire tree—such as sawn timber, wood panels, and pellets. However, this requires significant investment resources. Small enterprises lacking such resources will struggle to survive in the long term and may be forced to form alliances to improve competitiveness and production efficiency.

4.2. The pellet quality remains inconsistent

In addition to the raw material supply, pellet quality has also been a key concern repeatedly raised in bilateral (B2B) meetings between the Vietnam Wood Pellet Sub-Association and export partners since 2023. In November 2024, at a B2B meeting held in Ho Chi Minh City, the Japan Biomass Power Association (BPA) issued a warning regarding the quality of Vietnamese pellets, citing issues such as contamination and chemical residues (e.g., sodium, potassium, chlorine, etc.) that can damage machinery during co-firing operations. In fact, in 2024, several biomass co-firing power plants in Japan experienced fires and explosions, leading to temporary shutdowns. As a result, Japan’s demand for wood pellets stagnated during the year. Some Japanese sources alleged that contamination and chemical residues in pellets imported from Vietnam were the cause of these incidents. BPA also presented images of various contaminants and waste—such as plastic bags, metal rods, and plastic fragments—found in pellet shipments arriving at Japanese ports.

At present, although enterprises have made efforts to address contamination in wood pellets, chemical residue remains a major issue. These residues, including heavy metals, are closely linked to the type of input materials used in production. According to Mr. Nguyễn Thanh Phong, Chairman of the Vietnam Wood Pellet Sub-Association, removing tree bark during pellet production can help meet the chemical and metal residue standards of importing markets—particularly Japan—by eliminating substances such as sodium and potassium. However, stripping bark from the raw material significantly increases input costs. Given the current low export prices, this additional cost burden threatens the viability of production and business operations for many enterprises.

On the other hand, some opinions suggest that wood pellets made from rubberwood or other plantation species sourced from the southern and central regions of Vietnam tend to have higher levels of chemical residues, largely due to the more intensive use of fertilizers in these areas. In contrast, plantation wood sourced from the northern region generally contains lower levels of chemical residues, making it more suitable for meeting international market requirements. This highlights the need for scientific studies to assess the proportion and quality of various input materials and to identify solutions to address this issue. At the same time, pellet producers should engage in discussions with importers regarding purchasing prices that both meet quality requirements and ensure the profitability of their operations.

4.3. The ability to meet higher quality and sustainability requirements in export markets remains limited.

Export markets for wood pellets—particularly Japan and South Korea—are increasingly tightening regulations on both quality and the legality and sustainability of agroforestry products. In South Korea, importers have recently begun enforcing stricter quality requirements for imported wood pellets, which has driven up export prices for Vietnamese enterprises. In Japan, buyers are demanding sustainability certifications such as FSC and PEFC for feedstock, and are now gradually expanding these requirements to include low-emission supply chains certified under the SBP scheme. This market is also trending toward aligning with the European Union in controlling supply chains and may in the future impose traceability requirements similar to those under the EU Deforestation Regulation (EUDR). This trend is inevitable for the wood industry as a whole. To maintain access to advanced export markets, Vietnam's wood pellet sector must begin preparing to meet these requirements—especially through the development of traceable supply chains. This is a critical, existential issue for the sector. Enterprises must face this reality and consider restructuring their business models if they wish to sustain and grow their operations in the long term.

In addition, Vietnam's wood pellet industry is facing strong competition from emerging supply sources such as Thailand, Indonesia, and Malaysia. These competitors offer similar price ranges but higher pellet quality compared to Vietnam. In the short term, this may not pose a significant challenge, as Vietnam currently holds the leading position in pellet exports to Japan and South Korea—particularly for companies with long-term contracts. However, over the next 2–3 years, if Vietnamese enterprises fail to adapt and improve the competitiveness of their pellets in terms of quality, pricing, and compliance with legality and sustainability requirements, the industry may face significant disadvantages—even in its traditional key markets.

4.4. Dependence on export markets

The output of Vietnam's wood pellet industry is entirely dependent on two export markets: Japan and South Korea. These are the two countries that have been actively promoting favorable policies for biomass energy in recent years and are geographically close to Vietnam, resulting in favorable export prices for wood pellets. However, this high level of dependence on these markets also poses significant risks for the industry.

In 2022, the export price of wood pellets to South Korea surged sharply from around USD 140 per ton to nearly USD 200 per ton. This spike also pushed up prices in the Japanese market, leading to intense

competition and a wave of speculative investments in Vietnam's wood pellet industry. However, prices then plummeted to below USD 100 per ton in 2023 and have yet to recover to pre-2022 levels. As a result, many enterprises were forced to cease operations or shut down entirely after a short period of activity. From 2023 to the end of 2024, export prices to the South Korean market remained persistently low, placing significant pressure on Vietnamese exporters.

In the Japanese market, although pellet prices did not experience as steep a decline as in the South Korean market, import volumes in 2024 saw little growth compared to 2023. This was largely due to several biomass co-firing plant explosions and growing concerns over the quality of wood pellets imported from Vietnam. In February 2025, the Ministry of Economy, Trade and Industry (METI) announced that new biomass energy projects would no longer be eligible to participate in bidding under the FIT/FIP program starting from fiscal year 2026, although already approved projects would continue to receive subsidies. Nevertheless, this policy shift significantly limits the growth prospects for Vietnam's wood pellet exports to Japan in the coming years.

4.5. Lack of industry linkages and development strategy

Vietnam's wood pellet industry is currently developing in a rather fragmented manner, with a few large enterprises accounting for over 70% of the sector's total export volume, while many small-scale businesses and facilities operate across various localities throughout the country. The production capacities of pellet processing units vary widely, ranging from households producing a few thousand tons per year to factories with outputs exceeding 50,000 tons annually. However, producers and exporters in the sector face intense competition for raw materials and customers, yet lack the necessary linkages and cooperation to develop raw material zones or expand market access. In the Korean market, some companies have reported cases of price dumping during pellet supply tenders for thermal power plants. This has driven prices to rock-bottom levels—sometimes even below production costs—in 2023, leading to significant losses for many businesses.

In general, wood pellet enterprises in Vietnam lack a unified vision or common development goals for the entire sector, instead focusing primarily on their individual company operations. In the short term, this may generate high profits for certain firms, but in the long run, it undermines the overall competitiveness of Vietnam's pellet industry in both domestic and export markets. Domestically, the market share for wood pellets remains extremely limited due to the absence of mechanisms and policies that prioritize this type of fuel. Without government subsidies for pellets—as seen in Japan and South Korea—and with the Vietnamese government continuing to maintain low electricity prices to support industrial production, wood pellets have virtually no opportunity to compete in the local energy market. Nonetheless, some pellets are currently being used at a small scale by companies in the food, pharmaceutical, textile, and footwear industries—especially foreign direct investment (FDI) firms—in boilers to meet sustainable supply chain requirements set by customers, mainly in developed markets such as the U.S. and EU. In light of Vietnam's deep commitments to international agreements on greenhouse gas emissions reduction and climate change mitigation—such as the Paris Agreement and the Glasgow Declaration at COP26—the wood pellet industry should seize this opportunity to advocate for policies that promote and prioritize the use of biomass energy domestically. Doing so would help reduce the industry's heavy dependence on export markets.

In export markets, instances of unhealthy competition—such as undercutting and selling low-quality pellets at cheap prices—have severely damaged the reputation of Vietnam's wood pellet industry. This

also sets a precedent for lowering Vietnam's pellet prices relative to other countries, undermining long-term market positioning. To address this, enterprises—represented collectively by the Vietnam Wood Pellet Sub-Association—must strengthen collaboration and form a unified voice on critical industry issues. These include timely responses to concerns about the risk of Vietnamese pellets causing fires or explosions at Japanese biomass power plants, and coordinated actions against price dumping and coercive pricing. Such unity is essential for maintaining a stable, fair, and sustainable market for Vietnamese pellets.

5. Recommendation

5.1. Building a sustainable raw material supply for the wood pellet sector within the wood industry ecosystem

Enterprises are encouraged to consider investing in the development of their own raw material areas in order to reduce dependence on other processing sectors, while meeting buyers' requirements for legality and sustainability. At present, several companies have taken the lead in investing in group-based forest certification models, with the aim of exporting wood pellets to more demanding markets. However, if such efforts are undertaken solely for pellet production, the associated costs are relatively high and may be difficult to sustain, especially in the absence of stable prices and sufficient demand in the pellet market. Therefore, these activities can only be viable if enterprises succeed in building an ecosystem in which multiple companies utilize the same pool of legal and sustainable raw materials to manufacture a range of wood products, including pellets. This calls for stronger collaboration among enterprises as well as with other stakeholders throughout the pellet supply chain and broader wood product supply chains—from smallholder forest owners to exporters.

5.2. Promoting domestic demand for wood pellets

The government is currently promoting initiatives aimed at increasing the added value of plantation timber from smallholder forests through various policies, such as encouraging the cultivation of large-diameter timber, providing support for improved seedling varieties, and offering incentives for enterprises to establish processing facilities in local areas. At the same time, Vietnam has set a clear direction toward building a low-emission economy, in which the energy sector plays a pivotal role. Amid a growing number of international commitments on emissions reduction and climate change—made by the Vietnamese government to the international community and increasingly codified into domestic law—biomass energy in general, and wood pellets in particular, have significant potential for growth in the domestic market. However, the current policy of maintaining low electricity prices to support industrial production remains a major obstacle to attracting investment in wood pellet-based power generation projects. A special incentive mechanism for biomass power should be established, similar to those previously applied to solar and wind energy projects. This requires the wood pellet industry to engage in research and policy advocacy efforts to facilitate the development of biomass power.

In addition to thermal power generation, wood pellets have been widely used in light industries and urban residential systems worldwide, primarily for heat-generating applications such as boilers, heaters,

and dryers. In Vietnam, although still limited in number, some enterprises in sectors such as food and beverages, textiles, and footwear have adopted wood pellets as fuel for industrial boilers. While some businesses have turned to wood pellets as a substitute for coal during periods of high coal prices, many have proactively shifted part of their fossil fuel consumption to pellets in order to reduce emissions. This shift not only helps enterprises comply with increasingly stringent government regulations on greenhouse gas inventory and reduction, but also reflects corporate social responsibility, thereby enhancing brand value. Such practices are commonly observed among global corporations like Samsung, Heineken, and others, indicating significant untapped potential for development. Furthermore, the carbon market may become a driving force for domestic wood pellet production and consumption in the near future. If wood pellet enterprises are able to research and understand domestic demand as a basis for advocating for favorable policy support in fuel transition, this could pave the way for entering the domestic market and reducing reliance on exports.

6. Conclusion

Over the past decade, Vietnam's wood pellet industry has experienced significant growth, emerging as one of the country's key wood product exports. However, this report highlights numerous persistent challenges affecting the industry's development—most notably, the lack of sustainable raw material sources, complex and non-transparent supply chains, inconsistent pellet quality, heavy dependence on export markets, and weak linkages among industry players. These issues call for a concerted effort from both the government and pellet enterprises to review and address core constraints, such as the development of sustainable raw material zones and ensuring product quality. In addition, there is a pressing need for macro-level policy support, including the formulation of a development strategy for the wood pellet industry within the broader wood sector ecosystem, the promotion of incentive policies for biomass energy, and assistance in transitioning from fossil fuels to biomass energy as part of Vietnam's commitment to greenhouse gas emission reduction. All of these efforts require strong coordination and cooperation among pellet enterprises in order to formulate and implement a common development strategy for the entire industry. This includes establishing quality and price assurance mechanisms, fostering fair competition, and enhancing the role of enterprises in policy advocacy both domestically and internationally.



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