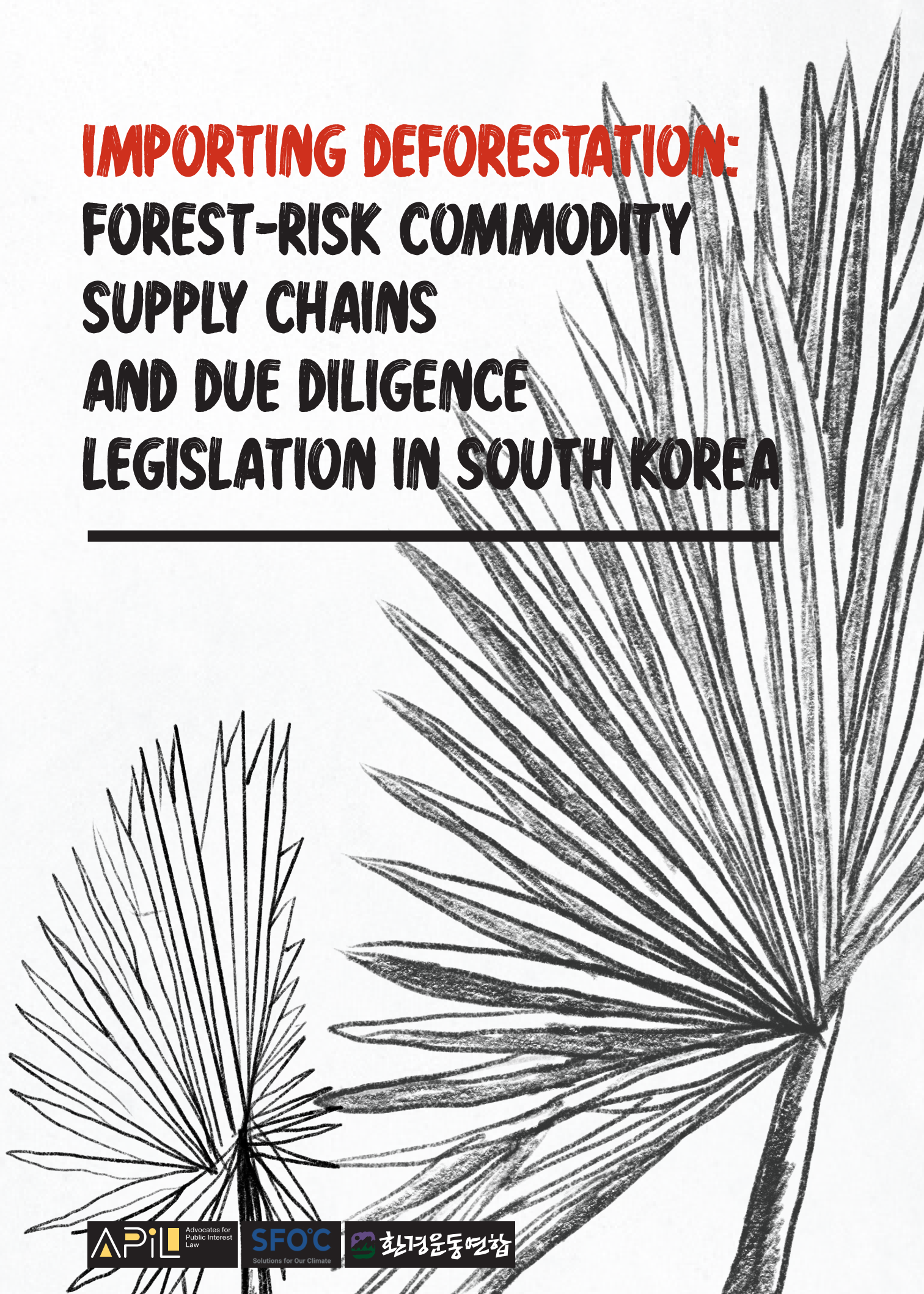
IMPORTING DEFORESTATION:

FOREST-RISK COMMODITY SUPPLY CHAINS AND DUE DILIGENCE LEGISLATION IN SOUTH KOREA



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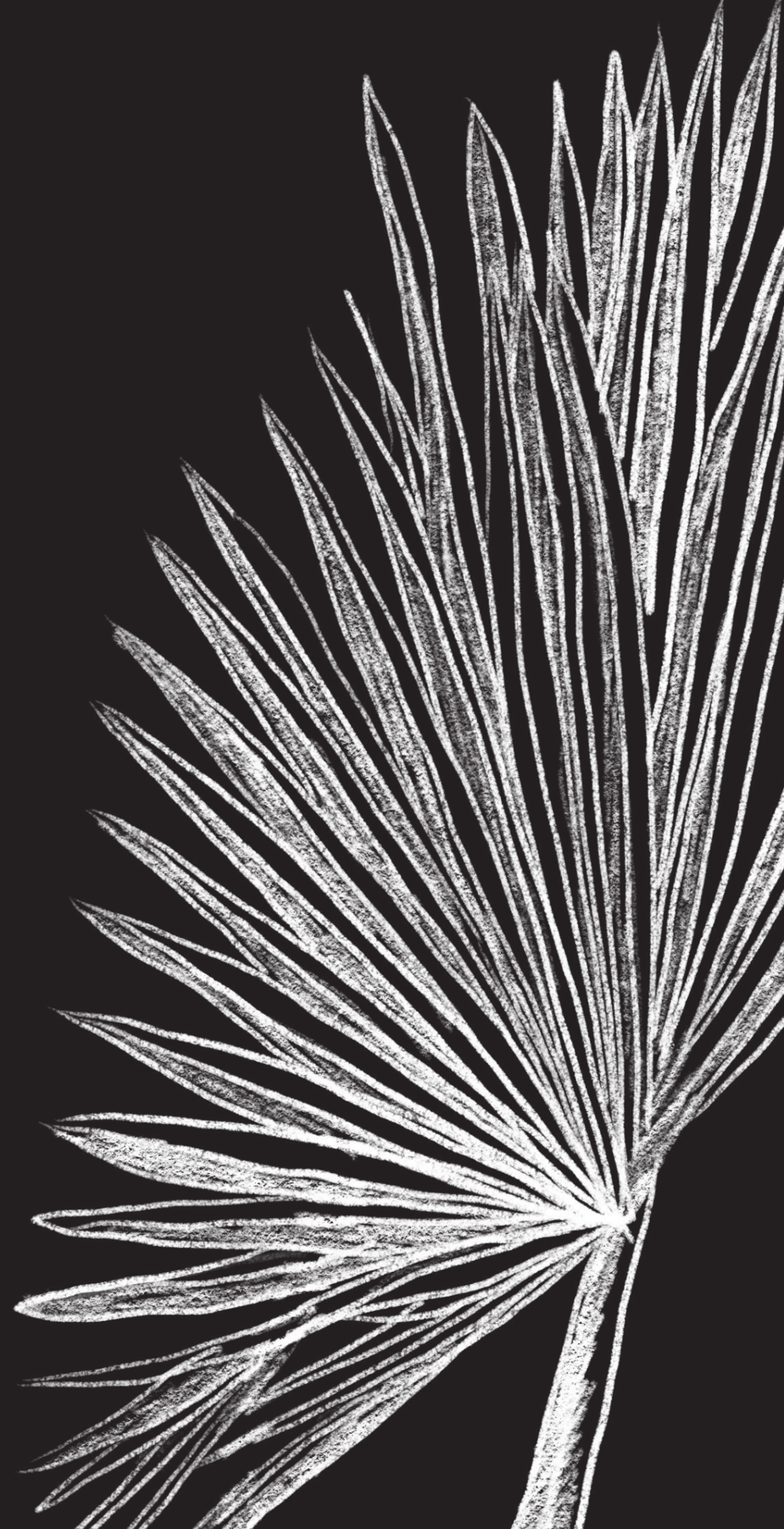

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APIL is a non-profit public interest law organization that defends the rights of vulnerable migrants and refugees in our society and monitors human rights violations by Korean companies in overseas markets. Our goal is a world of justice and peace where the innate dignity and inherent human rights of all people are guaranteed. To this end, we advocate for the human rights of refugees, detained migrants, stateless persons, and victims of human trafficking and monitor multinational corporations for human rights violations through litigation and petitioning, research and legislative campaigns, education and public relations, solidarity with national and international organizations, and the use of international human rights mechanisms.

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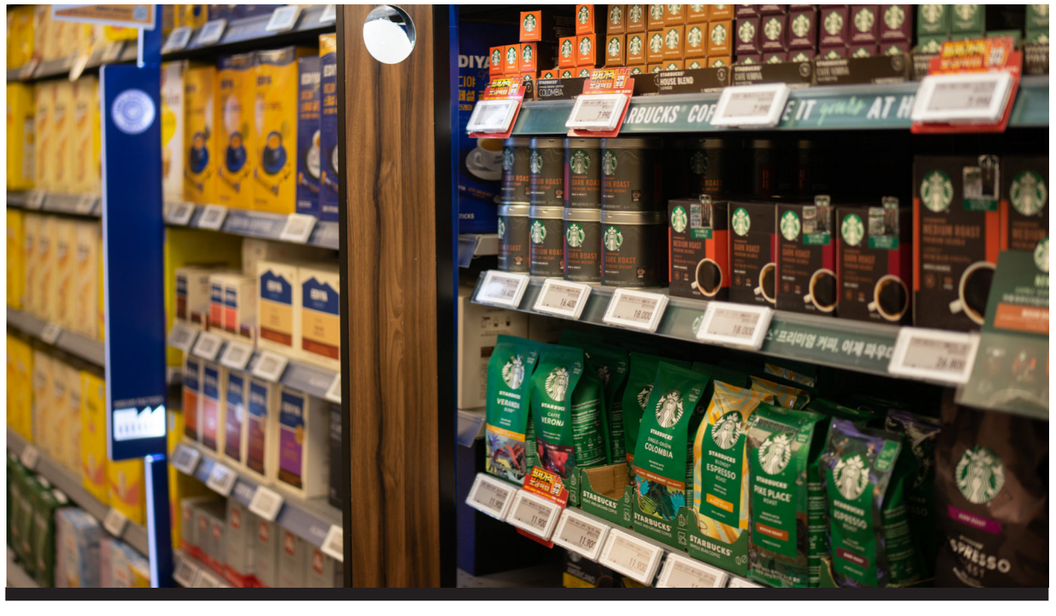
Products produced with forest-risk commodities ©SFOC



EXECUTIVE SUMMARY

Exported Deforestation

Every year, around 6 million hectares of forests vanish due to deforestation. 95% of this deforestation happens in tropical regions, with Latin America and Southeast Asia accounting for 59% and 28% respectively. Beef is the primary forest-risk commodity causing deforestation in Latin America, while palm oil, pulp, and paper are the major culprits in Southeast Asia. As demand for these commodities has grown globally, aggressive deforestation is taking place to secure land to produce these commodities. Identifying where our food and consumer products are produced and the processes involved remains one of our strongest means to address deforestation.

Of the deforestation in tropical regions, 71% is the result of production for domestic markets and the remaining 29% is for foreign trade. High-income countries are the largest importers of forest-risk commodities, accounting for 40% of the deforestation linked to foreign trade, or 12% of global deforestation.

Forest-risk Commodities: Wood Chips and Wood Pellets

South Korea imports the largest amount of wood chips (for pulp production) and wood pellets from Vietnam, while importing a notable amount of wood pellets from Canada and Indonesia. In the case of wood chip imports to Korea from Vietnam, there are five to six large companies involved in an effective oligopoly market. While some of these companies operate their own plantations, most source raw materials from local timber traders for primary or secondary processing.

In the case of wood pellets, Vietnamese pellets account for about two-thirds of total Korean imports, with about 2 million tons imported from Vietnam in 2021. Conversely, Korea is also Vietnam's largest consumer country for wood pellets, accounting for about 60% of Vietnam's total production of 3.5 million tons. Many businesses of assorted sizes are involved in the wood pellet supply chain, dealing with raw materials ranging from timber to forestry by-products. In the case of the Indonesian wood pellet industry, total exports to Korea remain low at 300,000 tons per year, but this has been steadily increasing. The trade of wood pellets between Korea and Indonesia is dominated by three large import-exporters, with most local companies being primary or secondary producers.

Research on the supply chain of timber producers in Indonesia and Vietnam showed the following generalized risks. Plantation smallholders are responsible for the majority of Vietnamese wood chip and pellet supply, but most are unaware of the requirements for legal logging. Fraud is also prevalent among timber traders in their reporting of the origin and volume of supplies. Poor workplace safety conditions and frequent fires caused by dust from wood chips and pellets were also identified as serious problems. Some companies blocked labor unionization efforts, and others purchased large areas of land, sanctioned by local governments, resulting in land disputes with local communities and farmers.

During the production, processing, and distribution of timber products, a wide spectrum of environmental issues arises, including air pollution from dust, alongside noise and water pollution. It was found that wastewater was often discharged without treatment or that waste was disposed without due notice. There were many cases in Indonesia where businesses operated without carrying out environmental impact assessments.

Illegal wood pellets and wood chips are frequently imported due to the limitations of domestic and international positive law. Determining the legality of products requires specific information on stakeholders involved in the supply chain. However, most companies do not disclose the information as it is considered confidential. Legality can be determined by obtaining third party certification (e.g., the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC)), but even these involve instances of false reporting. In the case of wood pellets, the actual amount of pellets exported with FSC 100% labels was ten times greater than the possible maximum production at FSC-certified plantations.

Forest-risk Commodities: Palm Oil and Its By-products

Korea imports all its palm oil and its by-products, which are used as a major raw material in various industries such as food, cosmetics, biofuels, and animal feed production. The import volume of palm oil increased almost tenfold between 2012 and 2021, particularly from Indonesia. In the last two years, four Korean importers have accounted for over 81% of the total imports of Indonesian palm oil, namely, JC Chemical, Dansuk Industrial, GS Holdings, and Aekyung Chemical. All are involved, either directly or through an affiliate, in the production of biofuels.

Since palm oil and its by-products are processed in a variety of forms in different industries, and have complex supply chains, it is hard to trace back to the farm of origin where environmental and human rights risks exist. In Indonesia, it is even more difficult to trace the exact place of origin because the Fresh Fruit Bunches (FFB) supplied by several farms can be mixed at the oil mills. Global palm oil plantation expansion has gone hand in hand with the destruction of natural ecosystems, increased greenhouse gas emissions and biodiversity loss. Alongside this, land disputes between plantation owners, local communities, and indigenous people have grown, as the right to food and water has been challenged. Violation of plantation workers' rights also remains rampant.

However, such serious environmental and human rights risks are hidden in the supply chain, and they persist due to corporate immunity. Korean importers are supplied with palm oil and its by-products through opaque supply chains, contributing to the formation of leakage markets where unsustainable palm oil is traded. Biodiversity loss, land grabbing, and the violation of indigenous peoples' and workers' rights have been continuously occurring across the supply chains of Korean palm oil importers.

Due Diligence Legislation in Response to the Supply Chains of Forest-Risk Commodities

In response to environmental and human rights risks prevailing in the supply chains of forest-risk commodities, such as wood chips, wood pellets, and palm oil, other countries are revising their laws. Governments have been responding to deforestation in supply chains through import bans on illegally logged timber, alongside voluntary commitments and certification systems. However, many governments have realized that forest-risk issues are difficult to resolve due to the low credibility of origin countries' verifications, as well as limitations in industry-led voluntary commitments and certification systems.

The EU, the UK, the US, and others are developing due diligence legislation to expand the scope of forest-risk commodities to include timber and agricultural products. These measures require active review and mitigation of risks arising from supply chains, rather than substituting these obligations with basic certifications. In particular, the EU's legislation requires not only reviews on the legality of production in the country of origin, but also due diligence on legal activities in that country if they lead to deforestation. In addition to the issue of illegal deforestation, the US legislation requires a wide range of human rights to be considered, including Free, Prior, and Informed Consent (FPIC) from indigenous peoples and local communities.

In addition to due diligence on supply chains for forest-risk commodities in Europe, laws have been enacted to require mandatory due diligence on the supply chain throughout corporate activities. France and Germany have adopted legislation requiring companies larger than a certain size to conduct environmental and human rights due diligence on the entire supply chain. The EU requires companies larger than a certain size to carry out due diligence on actual and potential adverse impacts on environmental and human rights across the company value chain.

Korea does not have a framework that requires companies to identify risks in the supply chains of forest-risk commodities, let alone requirements to take mitigating actions. Although the 'regulation to promote legal timber trade' was introduced in 2018, the regulation is limited to timber and unreliable as it solely depends on the legality determined by the country of origin. Rather, the Korean government is contributing to increasing the risk in the supply chain of forest-risk commodities by providing support to companies for the development of overseas agricultural and forest resources even when they are violating human rights and clearing forests. There is no discussion on due diligence legislation on supply chains, which can be a crucial means for companies to fulfill their responsibility to respect human rights. Victims of extraterritorial environmental and human rights violations also find it difficult to access judicial and non-judicial remedies in Korea

Suggestions

• ***Revise legislation on the trade of forest products:***
The limitations of the current regulation to promote legal timber trade should be recognized and it should be reformed extensively, as it is not effective in determining the legality, traceability, and sustainability of timber products. Customs clearance and monitoring processes should be significantly strengthened in this regard. It is necessary to recognize the precedents of neighboring countries, such as Japan, which

are now discovering the consequences of a false assumption that voluntary certifications, such as the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC), would solve supply chain risks.

• ***Introduce a supply chain due diligence law:***
Make due diligence an obligation for the trade of forest-risk commodities to allow their trade only when there are no associated risks of environmental and human rights violations. Such legislation should mandate corporate due diligence on environmental and human rights violations in all business operations along the entire supply chain.

• ***Enhance access to recourse for victims:***
Due diligence should not simply be a box for companies to tick, but should serve as grounds to hold companies accountable for environmental and human rights violations. Victims in extraterritorial jurisdictions should have a means of recourse in Korea. The Korean National Contact Point of the Organisation for Economic Co-operation and Development (OECD) should serve as a non-judicial remedy system by improving transparency and fairness.

• ***Revise energy legislation:***
Support for bioenergy should be reduced and the incentive program should be reformed. Renewable energy certificate weightings for large-scale biomass and palm oil-based bio-heavy oil should be gradually reduced, as they rely heavily on forest-risk commodities. Discussions should begin on when to phase out these fuels. In particular, the timing of an early phase-out of crop-based fuels should be set, and stringent sustainability criteria should be established for all fuels prior to the phase-out. All phase-outs must include consideration of a just transition.

• ***Revise finance and funding legislation:***
Companies linked to forest-risk commodities that receive support under the Overseas Agriculture and Forest Resources Development and Cooperation Act should be required to carry out due diligence on environmental and human rights risks. The "reduction" category in the Korea Green Taxonomy (K-Taxonomy), which makes it easier to issue green bonds to bioenergy businesses, should be withdrawn, and all large-scale bioenergy should be excluded from the K-Taxonomy. Screening and exclusion criteria that are not included in the current system should be prepared to minimize the risk of deforestation even if some bioenergy businesses are allowed to a limited degree.

• ***Implement international conventions:***
The Glasgow Leaders' Declaration on Forests and Land Use of the United Nations Climate Change Conference (UNFCCC) COP 26, and domestic Korean policy, must become aligned. Mechanisms and intergovernmental cooperation are also required to effectively implement the Post-2020 Global Biodiversity Framework, which is to be adopted by the Convention of Biological Diversity (CBD) in 2022. In addition, it is necessary to reduce dependence on overseas emission reductions in Korea's 2030 Nationally Determined Contribution (NDC) and 2050 Carbon Neutral Scenarios, while reducing the share of bioenergy that uses forest-risk commodities.

CHAPTER 1. EXPORTED FOREST-RISK

1. Drivers of Forest Loss and Exported Forest-Risk

Every year, 15 billion trees are cut down.[1] According to Global Forest Watch (GFW), which surveys global deforestation through satellite images, 2019 saw nearly 24 million ha of trees lost.[2] This is as much as the land size of the United Kingdom. Forest loss poses numerous negative effects on the environment and the ecosystem, including carbon emissions, and loss of species and biodiversity.

Forest loss entails two characteristics, namely deforestation and forest degradation. Deforestation entails completely removing trees in order to change the forest into land for a different land use, such as a farmland, mines, or residential use. Forest degradation means that the quality of the forest declines, although the purpose of the land itself remains as a forest. For instance, a natural forest may be destroyed to build a tree plantation. In this case, the land use of the area is still a forest, but the quality of the forest declines due to issues such as carbon emissions and damaged biodiversity.

According to a study done by Philip Curtis et al. (2018), published in Science, there are five main drivers of forest loss. The first driver is commodity-driven deforestation, which is permanently changing the land use for a different purpose, such as for agriculture (including palm oil and livestock farming), mining and operating energy infrastructure. The second driver is urbanization, in which a forest is permanently changed into urban infrastructure, such as a village, town or roads. The third driver is shifting agriculture. This means shifting from small-sized to medium-sized forest and scrubland for cultivating crops for a few years and then shifting to a different area when the current land loses fertility. The abandoned farmland is then restored through forest restoration. This can be commonly seen in regional subsistence farming systems, in which local farmers clear a forest to use for cultivating crops and then shift to a different area. The fourth driver is forestry production, which means cutting down trees in tree plantations that are managed and established to produce products such as timber, papers, and pulp. Lastly, wildfires temporarily destroy forests. Unless the lands destroyed by wildfires are used for a different purpose, the forests can be regrown again the next year.

Among these drivers, commodity-driven deforestation and urbanization are categorized as deforestation, because the forest is completely cleared, the purpose of the land changes, and the change is permanent. On the other hand, shifting agriculture, forestry production and wildfires are categorized as forest degradation, because although forests are temporarily destroyed, there is a high possibility that the forest will flourish again if left alone without changing the purpose of land use, and because the change is temporary. However, some forestry produced in tropical regions could be categorized as deforestation if trees are cut down from a primary rainforest to establish a tree plantation.

After categorizing the drivers of forest loss into five categories, Curtis et al. used satellite images to study the regions and the reasons for forest loss in the world from 2001 to 2015. They found that 27% of forest loss in the world came from commodity-driven deforestation, and the other 73% came from three drivers of forest degradation: forestry (26%), shifting agriculture (24%), and wildfires (23%).

Every year, approximately 6 million ha of forests disappear due to deforestation.[3] This means a forest as big as the size of Portugal is destroyed every two years. 95% of deforestation occurs in tropics, 59% in Latin America and 28% in Southeast Asia. As shown by Curtis et al., commodity-driven deforestation makes up one quarter of the world's forest loss (deforestation by urbanization only takes up 0.6%). Among the commodities, the demand for certain products, such as palm oil, soybeans, and beef, has increased rapidly throughout the world, and more forests are lost to secure land for producing these products. Therefore, understanding where and how the products we buy and the foods we eat are produced, and addressing the issues that arise from that process, are seen as the most powerful method for eradicating deforestation.

As mentioned earlier, most of today's deforestation occurs in tropical regions. In the case of deforestation, 71% is caused by the production of domestically-consumed products, and the other 29% is to produce products for foreign trade. High-income countries are the largest importers of products produced from deforestation, responsible for 40% of the deforestation for producing products for trade. This means that wealthy countries are accountable for 12% of the world's deforestation.[4]

We should pay attention to those products produced by destroying tropical rainforests, which are exported to wealthy countries. From 1990 to 2008, 27 EU member states imported 10% of the world's products linked to deforestation, and one third of the imported products were crops and livestock from heavily forested countries in the global south[5] 7.9 million ha of land are needed just for a years-worth of imported palm oil, beef, and beans for the UK. This land is often located in regions known for serious deforestation, land conflict, and human rights violations[6] This means that wealthy countries are contributing to the deforestation of the world, especially in poor countries, to satisfy their own citizens' consumer needs.

The Economics of Biodiversity: The Dasgupta Review, which was published at the request of the UK government in February 2021, pointed out that nature should be considered as an asset of economic activity and that the degree of damage in nature should be considered when determining economic accomplishments.[7] The Review points out that we can overcome the current ecosystem crisis if we can quantitatively show the degree of damage in nature, such as the reduction in biodiversity and carbon sinks, when measuring the wealth of nations. To engage in economic activities that consider nature as an asset, the cost of damage to the environment should also be included in the product price, instead of only including labor and material costs. This means that the environmental and social issues that arise from forest product trade are not confined to the producing countries only. It means that it is an international issue in which all countries that are trading parties are deeply involved.

Gas station selling diesel that includes biodiesel ©SFOC

2. Deforestation and Human Rights Violations

Large-scale deforestation negatively affects the environment and the climate as it damages biodiversity and emits carbon. In addition, deforestation threatens the lives of numerous indigenous peoples and local communities that depend on forests for their livelihood and causes serious human rights violations. Local communities that resist land seizures and forest clearing caused by deforestation are subject to forced evictions, harassment by the police, threats, murder, physical abuse, arbitrary arrest, retributive lawsuits against community leaders, human rights defenders and activists, and criminalization.

As such, community leaders and activists face all kinds of oppression in their attempts to protect their communities and forests. According to Global Witness, an international environment and human rights organization, more than 1,000 people from 25 countries were murdered, harassed, imprisoned, or threatened while fighting for the rights of their local communities in 2016. Half of the 281 people murdered were protecting their land and homes. About 40% of the civil rights activists who were killed were indigenous people who were fighting to protect their rights to their land and the environment.[8]

According to the report "Closing the Gap: Rights-Based Solutions for Tackling Deforestation" published in 2018 by Forest Peoples Program, an international environment and human rights organization that advocates the rights of forest communities and alternative forest management, it is indigenous peoples who are on the frontlines in the battle to protect forests. The rights of indigenous peoples to their lands, and to Free, Prior, and Informed Consent (FPIC) are violated every day by state authorities that designate forest areas and protected areas and issue land rights to companies and investors. Even when indigenous peoples are properly informed by state authorities, the information is often incomplete, biased, or sometimes even false. Local communities sometimes rent out land or even completely give up their right to the land, because they are pressured by or deceived by the government or companies.[9]

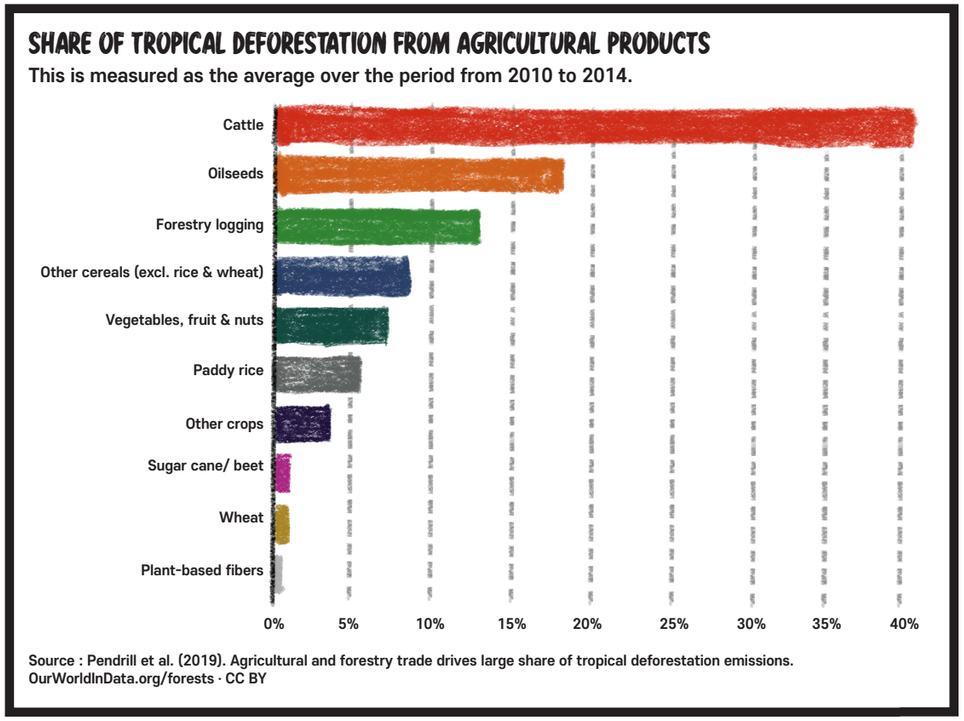
The livelihoods of local communities that have lost their forests are not only hard hit, but their traditions and cultures are also at stake. Local communities that have had their lands taken due to industrial agriculture and the expansion of monoculture farming face restrictions in access to important forest resources, which supply them with both food and medicines. Their right to water is violated, their everyday security is made vulnerable and sometimes they even face poverty and health issues, such as malnutrition. Changes in land use damage areas that were considered sacred and contribute to the loss of traditional knowledge and lifestyles.[10]

Indigenous people of Auuyu seeking firewood ©Albertus Vembrianto for The Gecko Project/Mongabay

In this report, we aim to illustrate that South Korea is also closely involved in global deforestation and human rights violations in the process of producing and importing forest-risk commodities. Given that most deforestation in Southeast Asia occurs to produce palm oil and wood pulp, this report will focus primarily on palm oil, wood pellets, and wood chips.[11]

Palm oil is a typical forest-risk commodity. Palm oil and soybeans are categorized as oilseeds alongside sunflower seeds and rapeseeds. Oilseeds make up 18% of the deforestation in tropical rainforests. Among the deforestation of tropical rainforests due to oilseeds, Indonesian palm oil makes up a large share at 6.4%. Forestry, which mainly produces paper and timber, is the third largest driver of deforestation in tropical regions at 13% (Figure 1).

[Figure 1] Share of Tropical Deforestation from Agricultural Products



Through research and on-site surveys, we have found that Korean companies are involved in deforestation and human rights violations in the process of producing and importing palm oil, wood pellets, and wood chips. In this report, we will analyze the trade details of the products above and the environmental and societal risks that occur in the supply chain. In addition, we will investigate the systems in place in other countries to address the global issue of exported forest-risk and discuss the need for Korea to revamp and modify relevant schemes as well.

CHAPTER 2.
DUE DILIGENCE RISK ANALYSIS OF THE SUPPLY CHAIN OF FOREST-RISK COMMODITIES: WOOD CHIPS AND WOOD PELLETS

1. Trade of Wood Chips

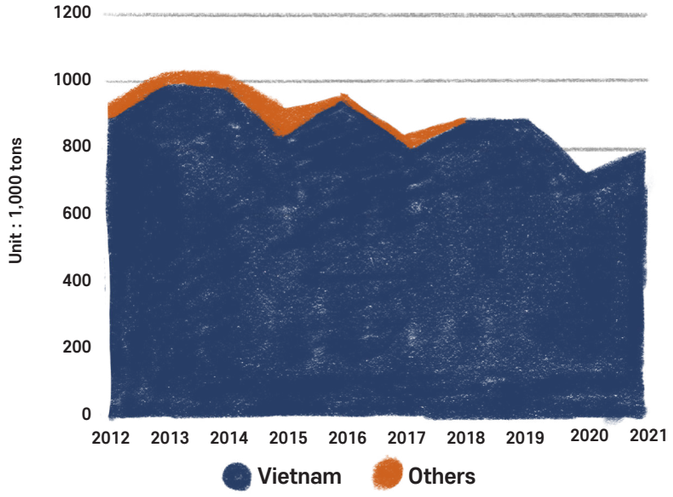
Wood chips are square and rectangular wood pieces made of shredded timber and by-products of logging. Wood chips can be divided between wood chips for pulps used to make paper, wood chips used for boards and wood chips used to produce heat or electric power. This chapter focuses on wood chips for pulps.

Wood chips ©Sebastian Ganso/Pixabay

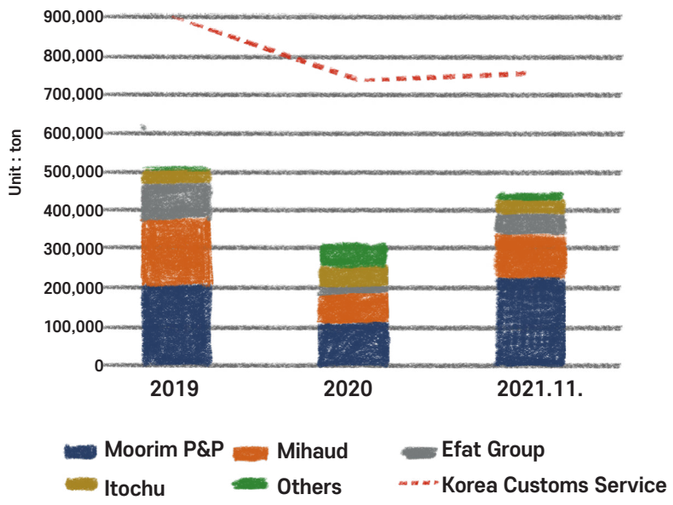
Timber Mill ©aleksandarlittlewolf/Freepik

Korean imports of wood chips for pulp reached its peak in 2013 with 1,038,455 tons, declining to 790,182 tons in 2021.[12] Korea's dependence on Vietnamese wood chips increased during this period (Figure 2).

[Figure 2] Import Volume of Wood Chips for Pulp by Year[13]



[Figure 3] Import Volume of Vietnamese Wood Chips for Pulp by Year[14]



According to customs data from the Korea Customs Service, total import volumes of Vietnamese wood chips in 2019 and 2020 were 897,628 tons and 742,700 tons, respectively. This data is represented by the green dotted line in figure 3 below, while the columns in figure 3 represent market intelligence data from IHS Markit, on which this report is based. The gap between the two sets of data is a result of the IHS Markit data not covering Vietnamese wood chips traded to Korea through a third country.

Moorim P&P, Mihaud, Itochu, and Efat Group are the four main importers to Korea, importing 94.2% of all Vietnamese wood chips imported to Korea (Table 1). Apart from Moorim P&P, a pulp and paper company, the rest are logistics companies. From this, we can assume that out of the 12 companies[15] producing wood chips for pulp in Korea, only Moorim P&P engages in parallel import. The supply of imported wood chips to Korean companies is usually done by import companies and agents.[16] In Vietnam, five major companies, namely Hao Hung Quang Ngai, Quang Nam Paper Material, Phu Dong, Thanh Hoa, and Cat Phu Quang Ngai, supply 83.6% of the total imported volume (Table 2).

[Table 1]
Import Volume of Vietnamese Wood Chips for Pulp by Company[17]

Rank	Company	Import Volume (ton)	Share (%)
1	Moorim P&P	551,850	43.2
2	Mihaud	363,080	28.4
3	Efat Group	157,199	12.3
4	Itochu	131,001	10.3
5	Daepyung	26,896	2.1
6	Mitsui	18,000	1.4
7	Shinhung	12,145	1.0
8	Jowoo Logis	2,982	0.2
9	Unimac	2,949	0.2
10	New One	1,479	0.1
	Others	9,034	0.7
	Total	1,276,615	

[Table 2]
Export Volume of Vietnamese Wood Chips for Pulp by Company[18]

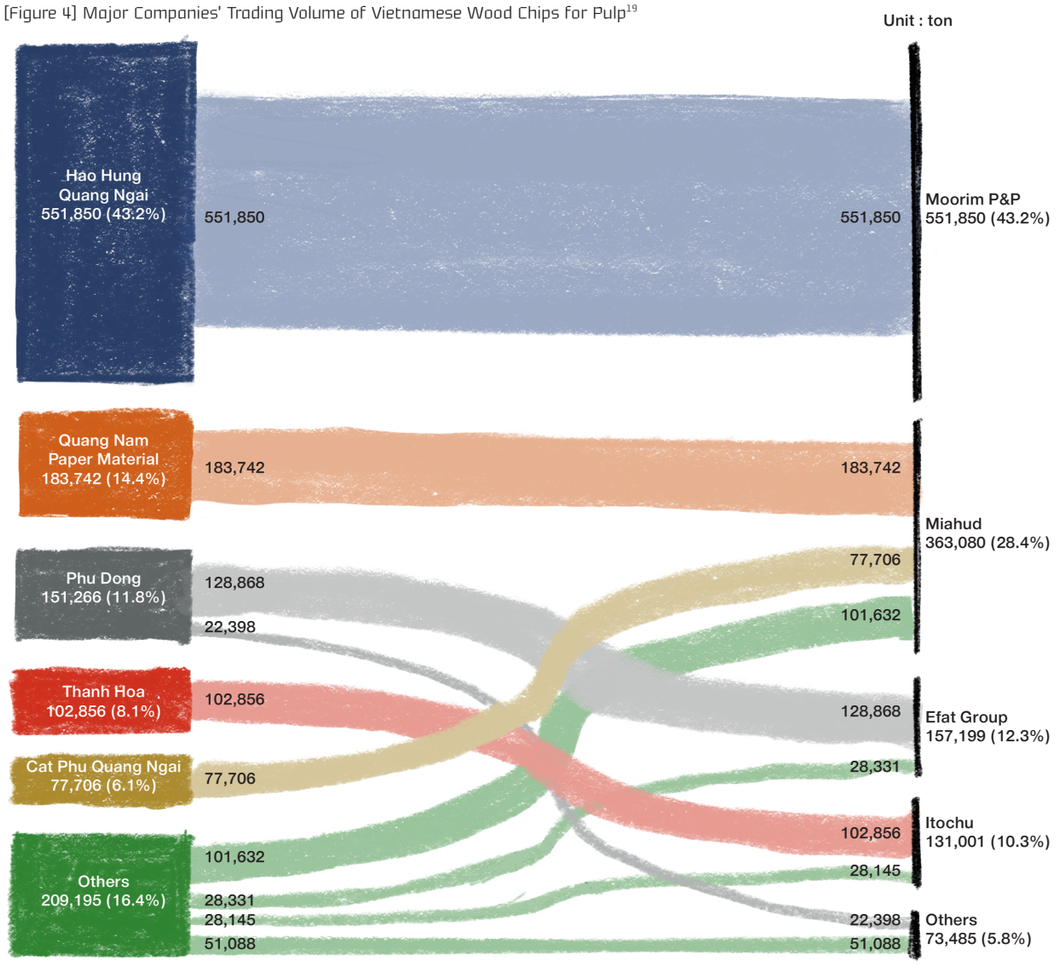
Rank	Company	Import Volume (ton)	Share (%)
1	Hao Hung Quang Ngai	551,850	43.2
2	Quang Nam Paper Material	183,742	14.4
3	Phu Dong	151,266	11.8
4	Thanh Hoa	102,856	8.1
5	Cat Phu Quang Ngai	77,706	6.1
6	Unspecified	42,138	3.3
7	Vietnam Supply	27,130	2.1
8	Nghe An Pp Paper Material	22,000	1.7
9	Binh An Phu Production and Trade	19,645	1.5
10	Venture	18,996	1.5
	Others	79,287	6.2
	Total	1,276,615	

When it comes to the supply chain of Vietnamese wood chips, the large share of Moorim P&P and Mihaud stand out. However, the customer structures of the two companies significantly differ. Over this period Moorim P&P had an exclusive supply chain structure with Hao Hung Quang Ngai who supplied its entire 551,850 tons of imported wood chips. On the other hand, Mihaud got half its supply (183,742 tons) from Quang Nam Paper, 77,706 tons from Cat Phu Quang Ngai and the remaining 101,632 tons from other companies. Itochu purchased 102,856 tons (78.5%) out of its 131,001 tons of import from Thanh Hoa, a wood chip producer. Efat Group bought 128,868 tons (82.0%) of its 157,199 tons of import from Phu Dong, a wood chip producer (Figure 4).

[Table 3] Major Exporting and Importing Companies of Vietnamese Wood Chips for Pulp

Importing Company	
Moorim P&P	(Paper) As the company in Korea that can produce pulp and paper at the same time through integrated production, Moorim P&P produces approximately 450,000 tons of bleached chemical pulp. The company established a corporation in Indonesia in 2014 and has been directly engaging in overseas afforestation.
Mihaud	(Production & Trade) As one of the largest groups in Singapore, Mihaud operates plantations, factories producing wood chips and wood pellets, and a fleet of transport ships. Moorim P&P is one of its customers.
Itochu	(Trade) As a comprehensive logistics and distribution company, Itochu's major business items are wood chips, paper, wood, raw materials, and food.
Exporting Company	
Hao Hung Quang Ngai	(Production) As a subsidiary of Hao Hung, a group that produces and sells wood chips and wood pellets, the company procures wood supplies from forest and plantation smallholders through broker/traders in Quang Ngai Province.
Quang Nam Paper Material	(Production) As a producer of wood chips and raw materials for paper, the company procures wood supplies from forest smallholders and broker/traders in Quang Nam Province.

[Figure 4] Major Companies' Trading Volume of Vietnamese Wood Chips for Pulp[19]



2. Trade of Wood Pellets

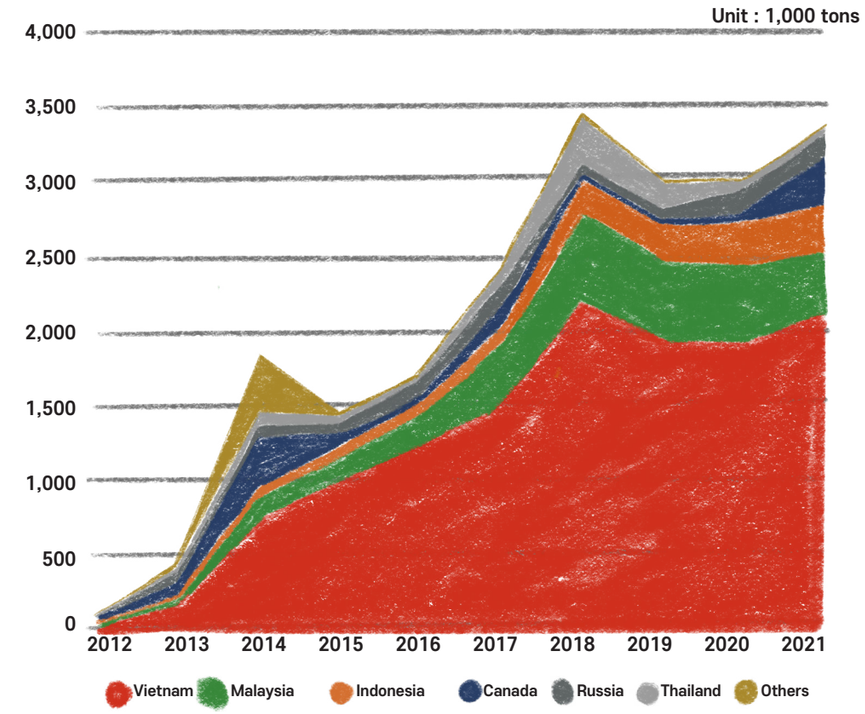
Hadong biomass co-firing power plant ©SFOC

Wood Pellets ©Kapilbutani (CC) Attribution-Share Alike 3.0 Unported

Wood pellets are a well-known biomass fuel that come in small, cylinder-shaped standardized form, and are made from roundwood, by-products of logging, and by-products of woodworking, by compressing and recycling them. Wood pellets for producing energy are burned in power plants to create electric power and for combined heat and power generation (CHP). Out of the total biomass energy generated in Korea in 2020, which is 7,010 GWh, 70.3% was produced by burning wood pellets.[20] 56.7% of this electrical generation was generated through co-firing at coal power plants, while the rest were generated by wood pellets alone.[21]

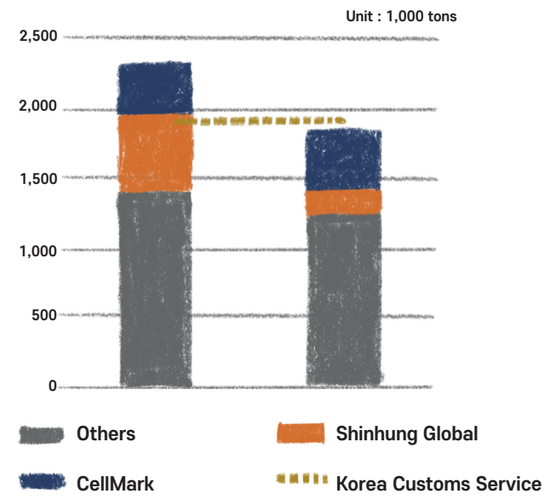
Korea's import volume of wood pellets grew significantly because of government support for biomass energy generation, and the Renewable Portfolio Standard (RPS) system. Even to this day, biomass generation is reaping policy benefits as the Renewable Energy Certificate (REC) weight for biomass is considered to be high at 0.5 to 2.0.[22] As such, the import volume grew 27-fold between 2012 and 2021, from 122,447 tons to 3,356,640. When it comes to the origin of the wood pellet, Vietnam, Malaysia, and Indonesia made up the largest share, at 61.6%, 14.6%, and 6.9%, respectively (Figure 5).[23] Import dependency for wood pellets is remarkably high at 89.8% as of 2020. In the same year, wood pellets produced in Korea amounted to 331,202 tons, while imported wood pellets amounted to 2,926,596 tons.[24] This report will analyze the supply chains for Vietnam and Indonesia. Malaysia and Canada were excluded from this research study, as there were constraints in accessing trade data.

[Figure 5] Import Volume of Wood Pellets by Year[25]



According to customs data from the Korea Customs Service, the volume of wood pellets imported from Vietnam in 2020, and from Jan. to Nov. 2021, were 1,912,405 tons and 1,933,472 tons, respectively (Figure 6). The data we used in this report from IHS Markit had the total volume slightly higher over this period, totaling 4,198,715 tons (Figure 6).

[Figure 6] Import Volume of Vietnamese Wood Pellets by Year[26]



Among the 4,198,715 tons of wood pellets imported from Vietnam, two major companies, CellMark and Shinhung Global, imported 36.4% of it (Table 4). The two companies are both logistics companies, which implies that most biomass power plants acquire their wood pellets from logistics companies rather than directly importing wood pellets themselves.[27] Indeed, 53.3% of imported wood pellets in 2020 were supplied by logistics companies.[28] In Vietnam, four major companies, namely Han Viet Han Mi Sa, Hoang Dai Vuong, An Viet Phat, and Eastwood, supplied 56.1% of all imported wood pellets to Korea (Figure 5).

[Table 4] Import Volume of Vietnamese Wood Pellets by Company[29]

Rank	Company	Import Volume (ton)	Share (%)
1	CellMark	794,516	18.9
2	Shinhung Global	734,771	17.5
3	GS Global	355,757	8.5
4	CNS	327,777	7.8
5	EcoEnergy One	259,287	6.2
6	Prinworks	229,205	5.5
7	OCI	157,650	3.8
8	SGC	141,521	3.4
9	Pioneer	79,697	1.9
10	MK Solar	77,185	1.8
	Others	1,041,349	24.8
	Total	4,198,715	

[Table 5] Export Volume of Vietnamese Wood Pellets by Company[30]

Rank	Company	Import Volume (ton)	Share (%)
1	Han Viet Han Mi Sa	614,196	14.6
2	Hoang Dai Vuong	603,743	14.4
3	An Viet Phat	593,778	14.1
4	Eastwood	541,917	12.9
5	Smart Wood	219,014	5.2
6	Green Energy	189,452	4.5
7	Unspecified	159,672	3.8
8	Long Hai Phat	146,955	3.5
9	Tan Phat	98,457	2.3
10	MJ Agri Vina	79,250	1.9
	Others	952,282	22.7
	Total	4,198,715	

The supply chain of wood pellets imported from Vietnam is more diversified than that for wood chips, with various exporting companies and importing companies involved. The top 10 importing companies of wood pellets are composed of a variety of business types. For instance, there are logistics companies, such as CellMark and Shinhung Global, and there are companies like GS Global, OCI, and SGC, in which their affiliates or subsidiaries operate power plants. In addition, there are companies like EcoEnergy One, which also produces its own wood pellets in Korea. A majority of these companies tend to have a main supplier that supplies most of the companies' imported wood pellets and then imports a smaller volume from various other suppliers. Likewise, exporting companies in Vietnam tend to have one to two main customers and supply lesser volumes to other customer companies.

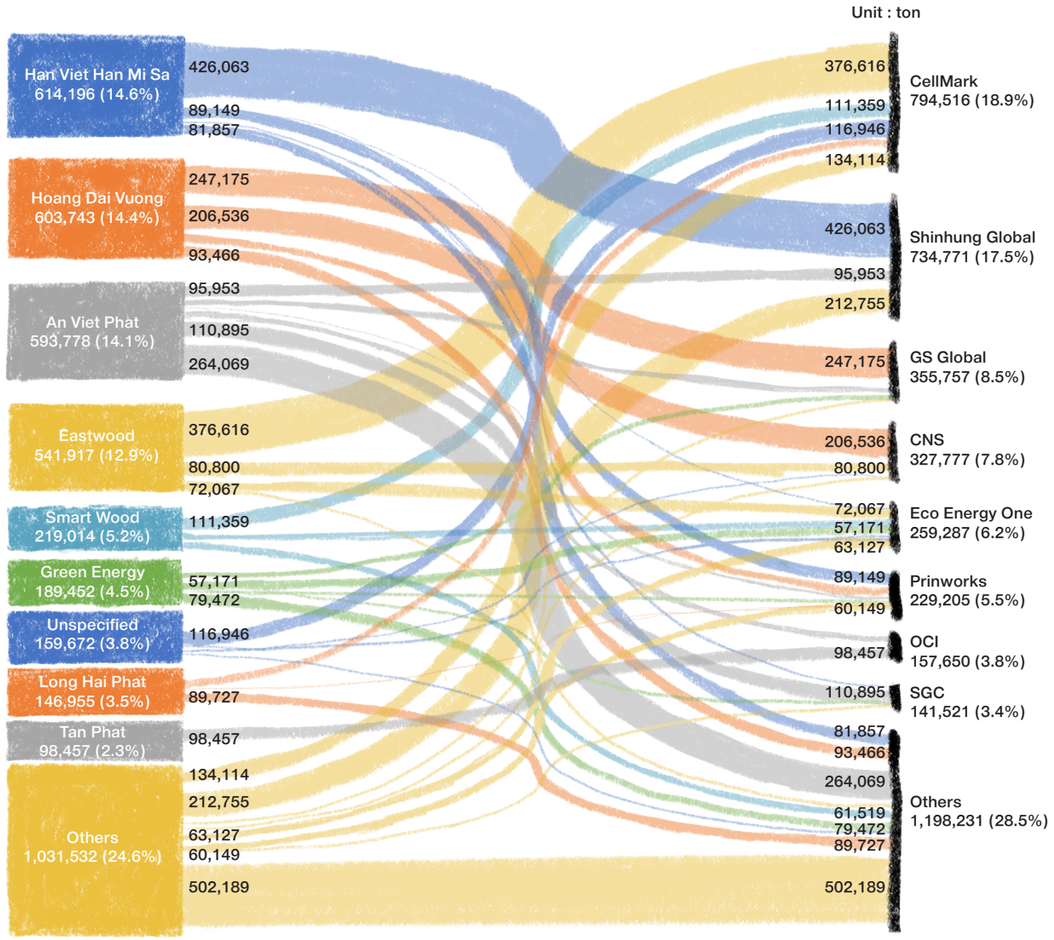
However, there are exceptions, as we can see in the case of An Viet Phat, which supplied 593,778 tons of wood pellets to various companies in an even manner. An Viet Phat has supplied 110,895 tons of wood pellets to SGC Energy, 95,953 tons to Shinhung Global, 61,937 to Hyundai Livart, 54,956 tons to OCI, 52,419 tons to GS Global, and 22,527 tons to Samsung C&T. The fact that SGC, OCI, and GS operate their own biomass power plants is worth paying attention to.

Out of its import volume of 794,516 tons, CellMark purchased 376,616 tons (49.3%) from Eastwood, which accounted for 69.5% of Eastwoods exports to Korea. Eastwood plans to supply at least 300,000 tons of additional wood pellets for export to Japan from 2021.[31] Out of its import volume of 374,771 tons, Shinhung Global purchased 426,063 tons (58.4%) from Han Viet Han Sa, which accounted for 69.4% of its export to Korea. Likewise, CNS and GS relied on the wood product producer Hoang Dai Vuong for more than half of their imported wood pellets. Out of its import volume of 355,757 tons, CNS imported 247,175 (69.5%) tons from Hoang Dai Vuong, while GS Global imported 206,536 (63.0%) tons from its total import volume of 327,777 tons. The wood pellets sold to these two companies were 75.1% of Hoang Dai Vuong's exports to Korea. Tan Phat Energy sold its entire 98,457 tons for export to OCI (Figure 7).

[Table 6] Major Exporting and Importing Companies of Vietnamese Wood Pellets

Importing Company	
CellMark	(Trade) CellMark is a comprehensive logistics company from Sweden that supplied 500,000 tons of energy sources to Korea as of 2019. The Asia branch, located in Singapore, procures wood pellets, wood chips, etc. from Vietnamese producers and supplies them to power generation companies.
Shinhung Global	(Trade) As a comprehensive logistics and distribution company, Shinhung Global deals with a range of consumable materials.
GS Global	(Trade) As a logistics and distribution company of raw materials, GS Global supplies wood pellets to its affiliate GS EPS, which operates two 105MW biomass power plants in Dangjin, South Chungcheong Province.
OCI	(Power generation) As a chemical, materials, and urban development company, OCI owns a 303MW biomass co-firing (cogeneration) power plant in Gunsan, North Jeolla Province.
SGC Energy	(Power generation) SGC Energy operates a 100MW SGC green power biomass thermal plant and a 250MW cogeneration plant in Gunsan, North Jeolla Province.
Samsung C&T	(Trade) After procuring wood pellets and its by-products, Samsung C&T supplies them to power plants in Korea and abroad.
Hyundai Livart	(Trade) After procuring wood products such as pellets, roundwood, lumber, and plywood, Hyundai Livart supplies them to power plants in Korea and abroad.
Exporting Company	
An Viet Phat	(Production) As one of the five largest wood pellets exporting companies, An Viet Phat procures raw materials such as wood pellets, wood chips, and plywood from local plantations or imports them from a third country and engages in primary and secondary processing.
Eastwood	(Production) As a wood pellets and wood chips producer, Eastwood procures roundwood, sawdust, chamfer, etc. from its own plantations, third party plantations, or forestry broker/traders.

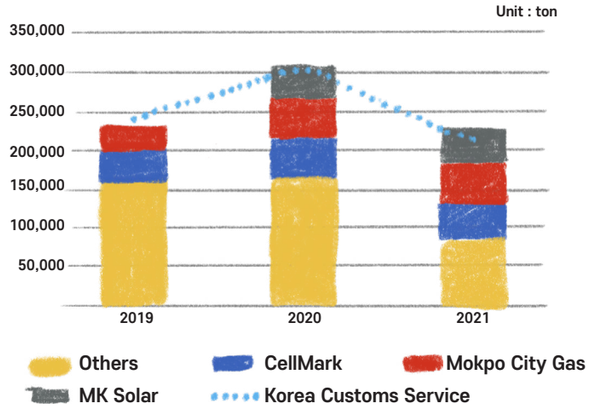
[Figure 7] Major Companies' Trading Volume of Vietnamese Wood Pellets[32]



According to the Korea Customs Service, Korea imported 239,037 tons of wood pellets from Indonesia in 2019 and 302,704 tons in 2020, as shown in figure 8. The columns in figure 8 represent data we used in this report from TradeData International, which recorded a total volume of 766,109 tons of wood pellets from January 2019 to September 2021.

Out of a total of 766,109 tons of wood pellets imported from Indonesia in this period, CellMark, Mokpo City Gas, and MK Solar imported 47.4% of this (Table 7). These three companies are logistics companies that import from Vietnam as well. As the rest of the top 10 importing companies are also logistics companies, we find that most wood pellets are distributed to power generation companies through logistics companies. In Indonesia, four companies, namely Sararasa Biomass, Berkah Agung Semesta Jaya, Yale Woodpellet Indonesia, and Buana Harum Kharisma, supplied 54.8% of imported wood pellets to Korea (Table 8).

[Figure 8] Import Volume of Indonesian Wood Pellets by Year[33]



[Table 7]
Import Volume of Indonesian Wood Pellets by Company[34]

Rank	Company	Import Volume (ton)	Share (%)
1	CellMark	143,311,633	18.7
2	Mokpo City Gas	136,938,760	17.9
3	MK Solar	83,225,430	10.9
4	Allied Resources	58,537,000	7.6
5	Shammah	53,131,044	6.9
6	GS Global	31,176,006	4.1
7	Jowoo Logis	27,970,965	3.7
8	SP Korea	25,340,700	3.3
9	Y&Resource	22,829,490	3.0
10	KGMS	17,656,800	2.3
	Others	165,991,346	21.7
	Total	766,109,174	

[Table 8]
Export Volume of Indonesian Wood Pellets to Korea by Company[35]

Rank	Company	Export Volume (ton)	Share (%)
1	Sararasa Biomass	143,311,633	18.7
2	Berkah Agung Semesta Jaya	105,426,710	13.8
3	Yale Woodpellet Indonesia	90,378,430	11.8
4	Buana Harum Kharisma	80,387,000	10.5
5	Hexa Mitra Globalindo	40,621,710	5.3
6	Kaliandra Merah Nusantara	38,615,000	5.0
7	Gouka Indo Energy	37,982,674	5.0
8	Sumber Mas Indah Plywood	28,358,700	3.7
9	Tanjung Kreasi Parquet Industry	21,029,019	2.7
10	Sumatera Bio Energi Utama	17,984,643	2.3
	Others	162,013,656	21.7
	Total	766,109,174	

When it comes to the supply chain of importing wood pellets from Indonesia, compared to importing from Vietnam, the trade volume is focused on the top three exporting companies and importing companies. Just like the case for imported wood pellets from Vietnam, CellMark was the largest importer and exclusively purchased the entire 143,312 tons from Sararasa Biomass.

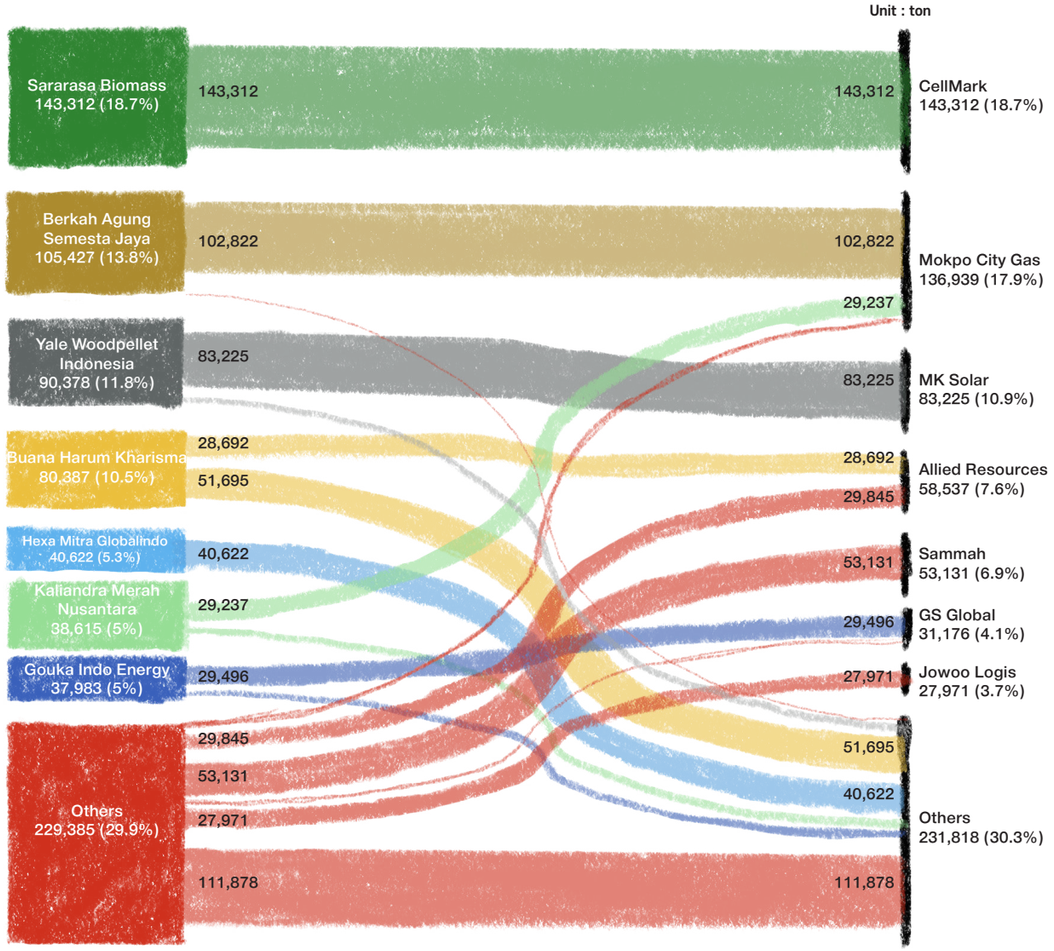
Out of a total of 139,939 tons of imported wood pellets from Indonesia, Mokpo City Gas purchased 102,822 tons (75.1%) from Berkah Agung Semesta Jaya and 29,237 tons (21.3%) from a wood pellet producer Kaliandra Merah Nusantara. Likewise, Mokpo City Gas purchased 97.4% of Berkah Agung Semesta Jaya's export volume and 76.6% of Kaliandra Merah Nusantara's export volume, thereby being the main customer for the two Indonesian companies (Figure 9). In addition, from MJ Agri Vina,[36] a wood pellet company established in Vietnam, Mokpo City Gas imported 102,130 tons of wood pellets during the same period.[37]

MK Solar has also imported its entire import volume of 83,225 tons from a wood pellet producer Yale Woodpellet Indonesia, purchasing 92.1% of its export volume. Out of its import volume of 31,176 tons, GS Global purchased 29,496 tons (94.6%) from a wood pellet producer Gouka Indo Energy, which represents 77.7% of its total export volume (Figure 9).

[Table 9] Major Exporting and Importing Companies of Indonesian Wood Pellets

	Importing Company
CellMark	(Trade) CellMark is a comprehensive logistics company from Sweden that supplied 500,000 tons of energy sources to Korea as in 2019. The Asia branch located in Singapore procures wood pellets, wood chips, etc. from Vietnamese producers and supplies them to power generation companies.
Mokpo City Gas	(Energy) As an energy company supplying city gas, LPG, and wood pellets in South Jeolla Province, Mokpo City Gas operates corporations in Malaysia and Indonesia producing wood pellets and imports wood pellets from its own factories and other companies.
MK Solar	(Trade) As a logistics company for sources of renewable energy, MK Solar procures wood pellets and supplies them to Woongjin Energy and five power generation companies of the Korea Electric Power Corporation.
GS Global	(Trade) As a logistics and distribution company of raw materials, GS Global supplies wood pellets to its affiliate GS EPS, which operates two 105MW biomass power plants in Dangjin, South Chungcheong Province.
	Exporting Company
Sararasa Biomass	(Production) As a wood pellets producer established through the investment of Finland's Dovre Group, Finnfund, and Navdata Oy, the company procures timber from local wood broker/traders and suppliers.
Berkah Agung Semesta Jaya	(Production) As a wood pellets producer, the company procures timber from various forest smallholders through broker/traders.

[Figure 9] Major Companies' Trading Volume of Indonesian Wood Pellets[38]



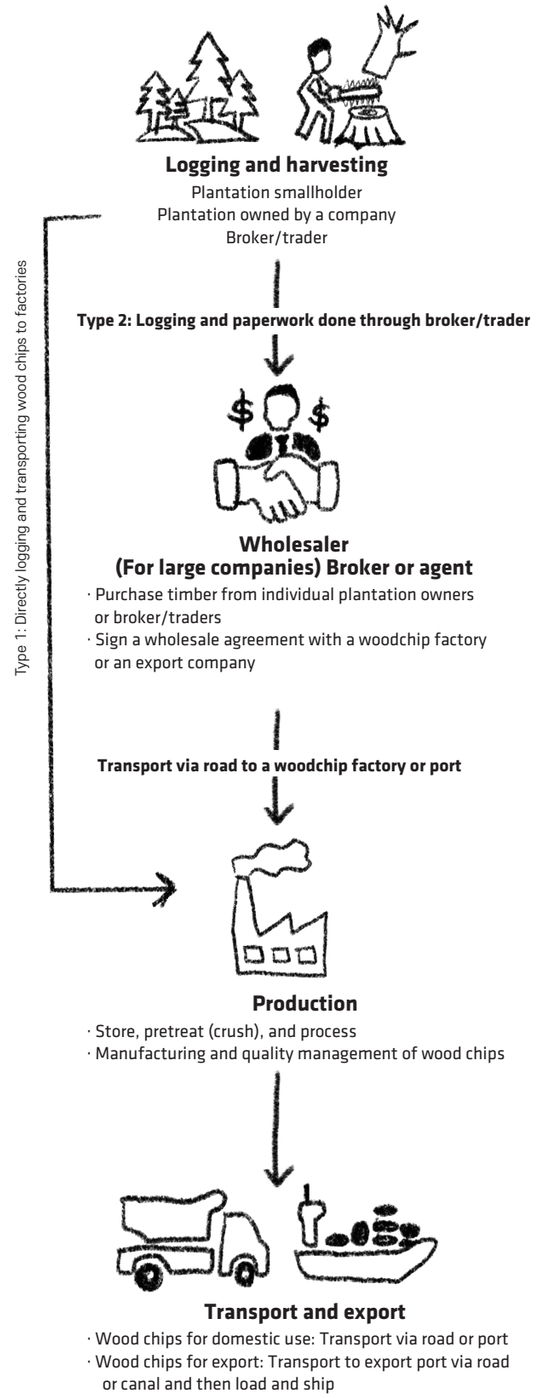
3. Supply Chain of Wood Chips

As the data above indicates, Vietnam is the largest exporter of wood chips used for pulp in Korea. Most of the wood chips in Vietnam are produced in plantations, and the most common tree species are acacia and eucalyptus, which are broad-leaf trees. The Vietnamese government began to allow private ownership of forest lands for its citizens in the 2000s, and as a result, approximately 2 million ha of plantations came under private ownership. Although public forest companies still own a sizable number of forests and fields, the lands under their ownership are mostly natural forests and are only approximately 400,000 ha. As such, most of the raw materials for wood chips are supplied by small, privately-owned plantations.

When we look at the business model of major wood chip exporters in Vietnam, most of the exporters tend to be primary processors that mainly use roundwood as the main raw material. There are also secondary processors that use other raw materials alongside roundwood. In addition to these two types, there are broker/traders as well, most of whom are broker/traders and sellers of products that they directly own. There are also broker/agents who only arrange contracts and do not directly manage the products. In some cases, wood chip producers also act as broker/traders as well. In this case though, the item traded is usually roundwood instead of wood chips.

When we look at the production process of wood chips, wood broker/traders in charge of wood trade form a team and visit several communes or districts and sign purchase agreements with the owners of privately-owned forest lands for timber. In most cases, the owners of the forests sign the agreement for standing trees, and then the broker/traders cut down the trees themselves and take those trees with them. After the trees are cut down, the broker/traders categorize the trees into lumber[39] and other materials before transporting them via trucks to the nearby lumber mill or wood chip factory to turn them into wood chips. In most cases, there are one to two lumber mills or wood chip factories per district, but in some cases, the lumber is transported to the nearest port before being sawed, particularly for export.

[Figure 10]
Flowchart of the Supply Chain of Vietnamese Wood Chips



Timber plantation in Vietnam ©FAO

4. Supply Chain of Wood Pellets

(1) Supply Chain of Vietnamese Wooed Pellets

According to the Food and Agriculture Organization of the United Nations (FAO), Vietnam was the third largest exporter of wood pellets, after the United States and Canada, and Korea was the largest importer of Vietnamese wood pellets.[40] Despite the large export volume of Vietnamese wood pellets, the Vietnamese government does not impose taxes on exported wood pellets, which means customs clearance is not thoroughly managed. The Vietnamese wood pellet supply chain is typified by numerous and various producers, exporters, and other stakeholders.

The main raw materials for Vietnamese wood pellets are acacia, rubber trees, eucalyptus trees, or by-products of roundwood from lumber mills. Sometimes, pine trees, cashew trees, or their by-products are used as well. Most of them are logged from small, privately-owned forests nearby. In some cases, wood pellet businesses own their own plantations as well.

When we look at the businesses of the largest wood chip exporters in Vietnam, most of the exporters tend to be primary processors that mainly use roundwood as the main raw material. There are also a sizable number of secondary processors that use other raw materials alongside roundwood. In addition, there are two types of broker/traders – those who sell the products that they directly and physically own, and those who do not directly own them. There are also broker/agents who only arrange contracts and do not directly manage the products. In such cases, wood chip producers also act as broker/traders. In this case though, the items of trade are usually roundwood and lumber instead of wood pellets.

Most wood pellet factories are located close to the export ports, as well as in central Vietnam and the Mekong Delta region in the south, where various furniture industries are located. These locations are responsible for approximately 80% of all production.[41] Most of the raw materials used in these factories are by-products of deforestation or by-products from the timber industry. However, this trend is not likely to continue. Recently, the production volume of Vietnamese wood pellets grew rapidly, and Vietnam became the second largest exporter in 2021, after the United States. The Vietnamese government predicts that the production volume will increase by approximately 250% within 10 years.[42] In particular, since wood pellets are more expensive than wood chips, there is a possibility that roundwood may be used instead of by-products if the increased demand for wood pellets renders by-products alone insufficient. Subsequently, there is a high possibility that the competition for supplying raw materials to the wood chips industry will grow.

There are five major supply chain processes in regards to Vietnamese wood pellets. They are signing the agreement to supply raw materials, logging and collecting, production, transportation, and export.

[Figure 11]
Flowchart of the Supply Chain of Vietnamese Wood Pellets

Logging and harvesting
· Plantation smallholder
· Plantation owned by a company
· Broker/trader

Sign a raw materials sourcing agreement
· Plantation smallholder
· Forestry company
· Wood processing

⟷

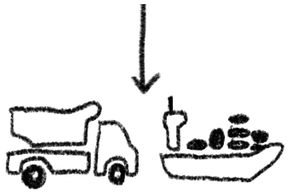
Wood pellet factory

Type 1: Individual plantation owner and forestry company log trees directly
Type 2: Logging and paperwork done through broker/trader
Type 3: Wood pellet company logs from its own plantation

Logging and harvesting raw materials
· Plantation timber and timber by-products
· Woodworking by-products of imported timber and by-products of timber/wood industry

Type 1: Directly transport wood pellets to a factory after logging
Type 2: Wood pellet factory provides vehicle for transport

Production
· Store, pretreat (crush), and process
· Manufacturing and quality management of wood chips



Transport & export
· Wood chips for domestic use: Transport via road or port
· Wood chips for export: Transport to export port via road or canal and then load and ship

Wood pellet factory in South Korea ©SFOC

In the supply chain of Vietnamese wood pellets, the number of wood pellet factories that are certified for sustainable forest management, such as through FSC or PEFC, is lower compared to wood chip companies. However, a sizable number of the top 11 exporting companies maintain their certification status regarding the FSC Controlled Wood Standard or FSC Chain of Custody.

(2) Supply Chain of Indonesian Wood Pellets

In addition to Vietnam, Korea also imports palm kernel shell pellets and wood pellets from other countries, such as Canada and Indonesia. According to the UN, Indonesia exported more than 300,000 tons of wood pellets in 2020, and Korea was the largest importer of Indonesian wood pellets from 2017 to 2020, with Korea importing more than 90% of Indonesian wood pellets.[43] Just like Vietnam, Indonesia has signed a Voluntary Partnership Agreement (VPA) with the EU regarding the Forest Law Enforcement, Governance and Trade (FLEGT) action plan. In addition, Indonesia is the only country among those that have signed the FLEGT-VPA that has the FLEGT certification system in place, and began trying to guarantee the legitimacy of timber production and supply processes in 2016.[44] However, according to the 2020-2021 on-site survey by the Indonesian civil society group Independent Forest Monitoring Network (Jaringan Pemantau Independent Kehutanan, JPIK), illegal logging and transactions that violate the Legitimate Wood Certification system (Sistem Verificasi Legalitas Kayu, SVLK) are still rampant throughout Indonesia.[45]

Many loggers hire local residents to engage in illegal logging in return for money. Moreover, many cut down trees in areas where they are not legally permitted to do so, but still put certificates on those trees as if they were cut down legally. In addition, illegal practices, such as reselling trees by lying about the origin of trees or manipulating the certificates, have been discovered and reported to the Ministry of Environment and Forestry in Indonesia.[46] In particular, exporters can easily reap profits with forged certificates. Since all kinds of wood materials from various places are used to produce wood pellets, it is difficult to track the supply chain of wood pellets.

Through a presidential decree, Indonesia has implemented a system to make mandatory for coal power plants to generate power through biomass cogeneration from 2020. Due to this change, it is expected that the production of Indonesian wood pellets will increase dramatically.[47] As a result of the biomass cogeneration mandate, 114 power plants under Indonesia's state electricity company PLN (Perusahaan Listrik Negara) carried out 1%-5% trial cogeneration schemes in 2021.

To meet the expected increase in domestic and overseas demand, the Indonesian government has revamped its forestry policy and has enabled plantation owners to produce forest biomass even without an additional permit, if they make a change to their formal business plan. The size of forests with business plans to produce biomass in plantations is approximately 160,000 ha. According to analysis done by the environmental organization WALHI (Wahana Lingkungan Hidup Indonesia) with data from Indonesia's Ministry of Environment and Forestry, approximately 700,000 ha of new forest plantations for biomass will be created over the next 5 years.[48]

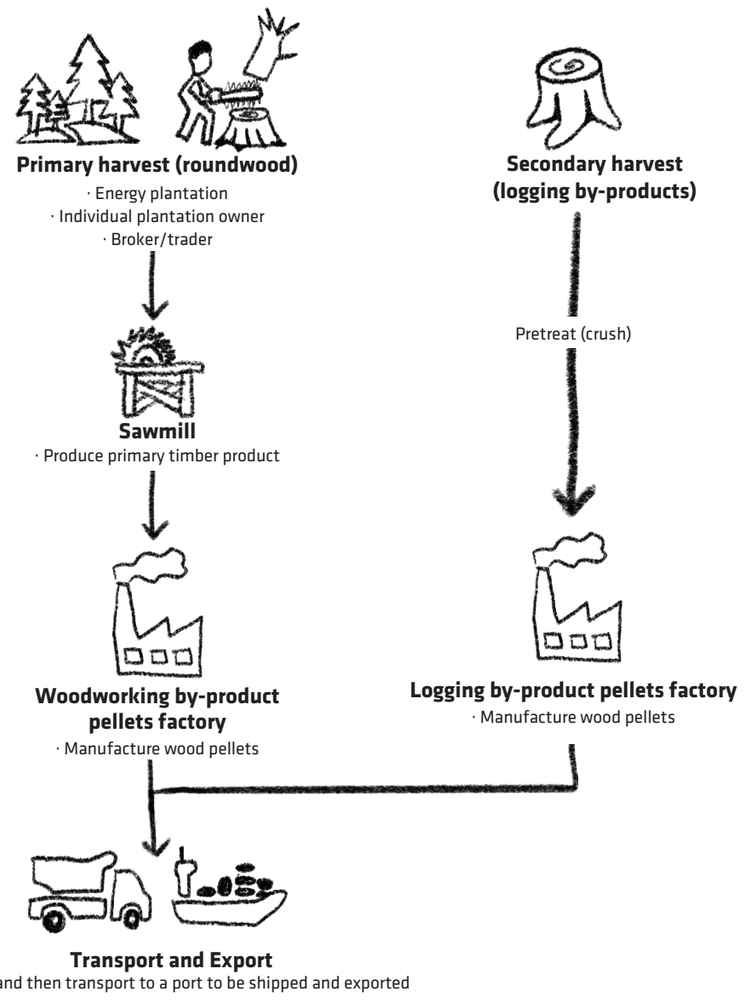
Tropical rainforest in Indonesia ©Dukeabruzzi (CC) Attribution-Share Alike 4.0 International

Korean companies are beginning to invest in plantations that produce Indonesian wood pellets for energy production. Some well-known examples are Bioenergy Indoco, Bara Indoco, and Solar Park Indonesia. These three companies have been given permission to use approximately 200,000 ha of forests in the islands Sulawesi, Sumatra, and Java. The Medco Group invested in wood pellet energy plantations, such as Medcopapua Industri Lestari, and Selaras Inti Semesta. Most of these companies' shares are currently owned by LX International (formerly known as LG International Corp.), and the size of the plantations amounts to 300,000 ha.[49]

Most Indonesian wood pellet companies that export to Korea are operating in Sumatra, with some others operating in Borneo. Most of them are legally allowed to cut down trees, but supply chain information from Indonesia's Forest Product Administration Information System (Sistem Informasi Penatausahaan Hasil Hutan), and the certification assessment companies is not fully disclosed. The increase in domestic and overseas demand is expected to exacerbate the vulnerabilities in Indonesia's wood pellet supply chains.

Many wood pellet producers sign an agreement with a few broker/traders that supply timber, and those broker/traders supply the raw materials for pellets by acquiring timber or cutting down trees from company-owned or privately-owned forests. In some pellet factories, there were cases where timber materials were directly supplied through individual suppliers as well. In addition, although most wood pellet producers are described as secondary processors that use roundwood and other raw materials, on-site surveys are needed to verify this.

[Figure 12] Flowchart of the Supply Chain of Indonesian Wood Pellets



Deforestation in Indonesia ©Mighty Earth

5. Due Diligence Risk Analysis of the Supply Chain of Timber Products

After conducting human rights, social, and environmental risk assessment regarding the production and distribution process of Vietnamese wood chips and wood pellets, as well as Indonesian wood pellets, we have found several common risks. To analyze the risks of the supply chain of forest-risk commodities in this report, the following analysis framework was created (Table 10). This analysis framework sets standards and provides examples of human rights, social, and environmental risks that may occur in the supply chain of forest-risk commodities. The framework was used to compare and analyze the risks that are present in each industry and the degree of those risks. The subcategories of risks that are listed in the analysis framework are referenced from the cases suggested in the Supply Chain Due Diligence Law that is under consideration for enactment in the EU. The checked risks below are the result of the online survey that was conducted firsthand and the collection of interviews with stakeholders. The list was made with the examples of some companies rather than through a complete enumeration survey of the process of cutting trees for raw materials, production, and distribution of wood pellets and wood chips. As such, there can be much more diverse types and degrees of risks that are not on the list.

[Table 10] Analysis Framework of the Supply Chain of Forest-Risk Commodities (Vietnamese and Indonesian Timber Products)

Category	Subcategory	Example	Identified
1. Social and human rights risk	Child labor	Hiring children who are subject to compulsory schooling; violating the ILO Minimum Age Convention; abusive forms of labor for those under 18 (undermining health and safety)	
	Forced labor	Violating the ILO Forced Labour Convention; labor due to debt collateral or human trafficking	
	Slavery	Slavery and practices similar to slavery; state of servitude and dominance; exercise of oppression	
	Neglecting labor protection requirements	Insufficient safety standards for working conditions; lack of adequate protection measures for chemical, physical, and biological substances; inappropriate working hours and system	✓
	Neglecting union rights	Prohibiting organization and joining of labor union (including right to strike and right to collective bargaining)	✓
	Unequal treatment in employment and compensation	Unfair treatment based on nationality, ethnicity, social background, disability, sexual orientation, age, gender, political opinion, religion, etc.	✓
	Forced eviction	Illegal forced eviction; neglecting the FPIC process	✓
	Limiting access to land, forest, and water	Illegal deprivation of access to land, forest, and water when acquiring land, forest, water, and when cultivating or using for other purposes	✓
	Inhumane treatment through dispatching private or public armed forces	Torture, inhuman or degrading treatment; violating one's body and right to life; violating freedom of association and right to organize	
	Legal investigation and trial for violating local positive law	Cases when violation of local social, human rights, or environmental regulations during business activities leads to investigation or trial, or when a fine is imposed	✓
2. Environmental risk	Land degradation and land use change	Changing a forest to another land use, or changing a primary forest into a secondary forest or a plantation; loss of forest ecosystem and soil due to unsustainable logging	✓
	Reduction in biodiversity	Destruction of ecological niches and reduction in biodiversity due to deforestation; when habitats of species listed in the IUCN Red List are included; when endemic flora that hold an important value ecologically is logged or have their habitats destroyed	✓
	Soil pollution and erosion	Significantly damaging natural foundation needed for sustainable food production	✓
	Water pollution and excessive use	Hampering access to safe drinking water	✓
	Air pollution and greenhouse gas emissions	Causing climate change because of air pollution from fine particulate matter and dust and excessive CO2 emissions	✓
	Noise pollution and other environmental health issues	Causing noise pollution to nearby residents and harming their health	✓
	Fire risks in and outside the worksite and in plantations	Harm from neglecting safety education and response measures regarding fire accidents caused by dust in the worksite; including cases when a forest is cleared or a new plantation is established because of fire caused intentionally or by accident at a plantation	✓
	Violation of sustainability certification and/or legality requirements defined by national and international regulations	When there is evidence of violating the principles of sustainability certification (e.g., FSC, PEFC, RSPO) in production, processing, or distribution of timber or palm oil, forest management, etc.; when there is evidence of violating international law or guidelines (e.g., Lacey Act, FLEGT, SVLK, regulation to promote legal timber trade) regarding legal timber trade	✓

(1) Environmental, Social, and Human Rights Risks in the Supply Chain of Timber Products

A. Violation of Laws on Legal Logging and Suspension of Sustainability Certification

Approximately 10 to 30% of the world's timber products are estimated to be produced through illegal logging.[50] In order to prevent this, there are voluntary or mandated legal trade conventions enforced regarding timber products, such as the EU's FLEGT and the United States' Lacey Act (Table 11). Since there were many cases of illegal wood pellet imports to Korea that were discovered by customs officials in 2015–2016, the regulation to promote legal timber trade was implemented in 2018 and was enforced in earnest from the following year.[51] What these systems have in common is that they guarantee the legitimacy in logging, transaction, and trade of timber products, prevent trade of products produced through illegal logging, and create penalty provisions regarding the relevant parties involved.

[Table 11] Systems Related to Timber Legality

Various legal provisions regarding extracting, producing, and using timber are listed below.
(US) Lacey Act (2008): prohibits using, distributing, transporting, and consuming illegal timber within the country.
(EU) EU Timber Regulation (EUTR, 2013): holds the importers and exporters accountable for distribution of illegal timber.
(Korea) Regulation to promote legal timber trade: requires proof of legal logging to be submitted when it comes to trade of forestry products. Pilot implementation took place in 2018, and the system has been in enforcement in earnest since 2019.

Tropical rainforest in Vietnam ©Hallial/Pixabay

1) Legitimacy and Sustainability of Vietnamese Timber

For the past 20 years, Vietnam has been dividing up forest lands for private ownership. In addition, Vietnam has set in place and enforced relevant laws, such as a law prohibiting logging in natural forests, to strengthen the legitimacy of harvested and produced timber products, but illegal timber trade is still a big environmental and social issue.[52] According to Vietnam's Sustainable Forest Management Institute, the availability of proof of the right to land use according to the EU's FLEGT differs by region. In general, the provinces in the north show high availability at 80% to 90%. On the other hand, provinces in the central region, such as Quang Tri, Quang Nam, and Binh Dinh, show lower availability at 40-70%

In addition, we have found that the level of awareness regarding the documents demanded for legal logging by forest owners and land use right holders[53] in most provinces was very low. 60%-80% of the residents in the provinces of Quang Nam, Binh Dinh, Ca Mau, and Dong Nai have responded that they are not aware of the documents required for legal logging.[54] Most of the forest owners in these provinces do not directly engage in the felling of trees, especially in Ca Mau and Dong Nai where almost no one does. Rather, they sell standing trees to broker/traders. Therefore, it can be explained that in many cases, those broker/traders take care of the documents and take the responsibility for logging. Due to the information asymmetry, the profit for the forest owners is reduced, and the possibility that timber products that do not meet the government's legitimacy standard are distributed becomes greater due to the inaccuracy in the amount of logging and information asymmetry.

In the private sector, forest certifications are granted by organizations such as the FSC, which certifies the sustainability of forestry products and grants labels. According to the FSC, more than 170,000 ha of forests are certified in Vietnam as of 2022, and most of them are in the north or the central regions. However, more than half of the timber product exports travel through the export ports in the southern region. When it was discovered that there was a serious inconsistency between the area of certified forests and the volume of timber products that are exported with the sustainability certification, the FSC conducted an investigation on the wood pellets exported from Vietnam in 2021 and found that there was a volume of non-certified products that were falsely reported as certified products.[55] The audit and verification on them mainly focused on cases of supplying raw materials from illegally logged forests or products that are distributed with certifications on them even though they were produced by non-certified businesses. As a result, An Viet Phat, one of the biggest wood pellet companies in Vietnam, had its FSC certification suspended.[56] As more verification results are coming out as well, it is expected that more cases of Vietnamese companies exporting to Korea having their certifications suspended or taken away would be made known to the public.

FSC Certification Labels ©FSC

2) Legitimacy and Sustainability of Indonesian Timber

Thorough verification and confirmation of legitimacy in Indonesia's wood pellet industry are demanded as well. Businesses are supposed to renew the legitimacy verification demanded by the Indonesian government each year, but illegal logging and forged certification are common, although SVLK and even FLEGT certification are implemented. A majority of Indonesian companies exporting to Korea also have not been renewing their legitimacy verification documents for many years. Bumi Indawa Niaga, a subsidiary of the Korindo Group, is a timber and palm oil producing company that has had its FSC certification revoked because of logging natural forests, damaging high conservation value areas, and violating the rights of indigenous peoples. Although the company is facing such legitimacy issues, it consistently supplies wood pellets to Korea to this day.

B. Environmental Pollution

Environmental issues across various spectrums emerge in the process of producing, processing, and distributing timber products. Biodiversity is lost and greenhouse gasses are emitted when natural forests are logged and turned into production forests in the process of acquiring raw materials, and when land use is changed to agricultural land. In particular, the residents who live near these worksites suffer from various environmental issues, such as water pollution, air pollution, and noise pollution. However, in many cases, these issues are not broadly discussed or punished. For instance, the dust that is produced during the transport and open storage of wood pellets and wood chips is very harmful to the health of the residents of nearby areas. However, even when complaints were filed regarding this matter, they were often not properly taken care of due to a lack of sufficient regulation and inadequate punishment for violations. Furthermore, environmental crimes, such as unpermitted discharge of untreated wastewater into nearby streams, are quite common in wood pellet and wood chip factories. One of the largest wood pellet companies in Indonesia was caught by the regional environment agency for engaging in business without conducting an Environmental Impact Analysis (Analysis Mengenai Dampak Lingkungan, AMDAL) regarding waste management.[57]

C. Labor and Safety Issues in Worksites

Due to the characteristics of wood pellets and wood chips, there is lots of dust at the worksites, and fire and other safety-related accidents occur frequently. However, in many cases, adequate safety training to prevent and respond to fire accidents in worksites are not provided. There were cases when emergency procedures during fire accidents and evacuation plans were not even in place, although they are required by law in Vietnam. In addition, the storage and worksites of these businesses were not well-ventilated due to managing the moist content of timber products, which can pose serious problems for the workers' health. Unlike wood chip companies, many wood pellet companies in Vietnam and Indonesia are small and medium-sized businesses and have relatively lower profit margins. Some workers at these worksites are paid little, about $2.5 a day. In addition, acts of companies intentionally preventing organization of labor unions or disturbing labor union activities were also found.

Wood pellet factory in South Korea ©SFOC

Logging for wood pellets in South Korea ©SFOC

D. Land Disputes

As forestry businesses requires large areas of land, many primary producers/processors of timber products have their own forest lands, pellet producing factories, and open storage yards for convenient supply. Among these businesses, companies with large market share have had land dispute issues with local communities and farmers as they purchased large tracks of land aggressively. Subsequently, there are numerous cases when the companies were penalized by the local government in Vietnam for this matter. In addition, there were many disputes and conflicts between Vietnamese forestry companies and local communities regarding land use rights. In most cases, the issues that were commonly found included competition over access to natural resources including high-quality timber, unfair profit-sharing systems, customary deprivation of land use rights, restriction in agricultural activities, and lack of arbitration by the local government.[58]

In Indonesia, where there are many cases of forest concessions for the purpose of establishing plantations, there are even more diverse cases of land disputes between indigenous peoples and local communities against large companies. One of them involves a subsidiary of Moorim P&P. This company was mired in a land dispute issue with the local indigenous peoples when it cleared a forest and began to establish a forest plantation without a sufficient FPIC process. This case is now under the review of the FSC.

Forest Land Conflicts in Vietnam

Land disputes in Vietnam are a serious problem. Among them, there have been many reports on disputes between local communities and forestry companies due to acute conflict over the distribution of mountain areas and access to forest resources. Below are the summaries of some well-known cases in Quang Binh, Lang Son, Dak Lak, and Lam Dong Provinces.

1. Lang Son Province: Dong Bac

The forests owned by Dong Bac were places where ethnic minorities held customary land rights. However, the company ignored the rights of the indigenous peoples and signed large-scale plantation contracts with outsiders, and the company also denied profit-sharing for the timber they planted. When the local communities' opposition intensified, the company promised to give them approximately 13,000 ha of land, but only 1,500 ha have been allocated, while the local government ignored this conflict rather than addressing it.

2. Quang Binh Province: Long Dai

The Vietnamese government gave 100,035 ha of forest land to this company, which was about 96% of the forest in Truong Son Commune. As a result, the residents of this area had no choice but to trespass on the company's land due to lack of forest land and grounds available for them. In 2010, Long Dai allocated about 1,000 ha of this land to the residents, but there has not been any more progress since then.

3. Dak Lak Province: M'Drak

This company was given the rights to natural and production forest covering about 27,000 ha of Dak Lak Province by the government in the 1990s. It is known that about 70% of the residents living near the company's land are ethnic minorities who migrated from outside areas, but since there was no land available for them, they carried out subsistence farming activities on the company's private land to make a living. M'Drak company hired the residents to plant trees, but many of them continued their farming activities instead of forestry activities. In 2007, the company handed over about 3,000 ha of land to another private company, and during this process, the conflicts with local residents intensified.

4. Lam Dong Province: Loc Bac

The local government of Lam Dong allowed Loc Bac to change the use of 5,000 ha of forest land owned by the company into a farmland and allowed 19 rubber tree companies to rent the farmland. In the process, Loc Bac gained profit by harvesting high-quality roundwood, and this incurred the resentment of the local communities. The residents requested that the government return the land, as the government had granted permission based on the premise that the land use was unchangeable unless the forest had already been destroyed. The request was not accepted.[59]

E. Carbon Emissions

While many companies assert that their wood pellets and chips are produced sustainably from forestry by-products, whole roundwood are still an important material for these products due to required heating values and quality management. Although the degree of roundwood usage differs in each case, data from the Korea Forest Service shows that even in the biomass industry in Korea, which is known to use mostly by-products, roundwood accounts for at least 30% of consumed products.[60] The proportion of roundwood is higher for imported biomass.

Although there are some differences when it comes to the logging methods or the type of forest and soil, large-scale harvesting of roundwood inevitably boils down to carbon emissions due to the reduction of carbon sinks. When natural forests are cut down, both the stored carbon in the above ground biomass and the carbon locked away in the forest soil is released immediately into the atmosphere. This is in addition to indirect emissions from the production of timber products and biodiversity loss in the affected area.

The problem is that the roundwood produced through logging is used to make wood chips or wood pellets, which have a short carbon half-life and lifespan. If timber is made into products with higher added value and longer life spans, such as furniture or buildings, the carbon storage duration would be much longer. However, since the roundwood is made into pellets that are burnt in power plants immediately it leads to CO2 emissions. This is not much different from wood chips that are processed into paper and tissue.

Although new trees, such as fast-growing trees, are planted in deforested areas to minimize the reduction of carbon sinks, there are numerous scientific studies that show that wood pellets are not an effective alternative to fossil fuels. When accumulated CO2 emissions are measured per energy unit, wood pellets are known to produce more emissions compared to coal for about the first 50 years.[61] This is because wood pellets are less energy-intensive than coal, and much more fuel is needed to produce the same amount of energy. In addition, too much energy is lost in the process of producing pellets and burning them. The degree of loss is greater in power plants that only produce electricity without using heat.

GHG emissions from an industrial facility ©Chris Leboutillier

(2) Environmental, Social, and Human Rights Risks in the Supply Chain of Korean Timber Products

Below are cases of issues that arose in the supply chain of Vietnamese and Indonesian companies exporting timber products to Korea and relevant Korean companies.

Water Pollution and Fire Accidents at Hao Hung Quang Ngai

Hao Hung Group, which produces and supplies wood chips and wood pellets, operates more than 30 worksites throughout Vietnam. Its largest factory is in Quang Ngai Province, where Hao Hung Quang Ngai is the number one wood chip supplier to Moorim P&P in terms of trade volume. In 2019, Hao Hung Quang Ngai was fined for causing marine pollution by raising the total amount of suspended solids by up to nine times the acceptable levels by discharging its wastewater into the sea in front of its own dock without permission.[62] In the same year, the company had already violated environmental protection measures[63] and faced land dispute issues with the local government, the military authority, and local farmers in the process of expanding its development business.[64]

The most significant issue was the fire problem at its worksite. Due to the characteristic of wood pellets, which are produced to be burned at thermal power plants, it is difficult to extinguish fires at factory or on transport equipment once they start. In particular, the ash and dust in closed spaces can cause short circuits and ignition, making wood pellet equipment even more vulnerable to fire. Hao Hung Quang Ngai had a large fire incident in 2020, and hundreds of people worked day and night for 3 days to extinguish the fire.[65] In 2021, Indonesia's wood pellet producer Berkah Agung Semesta Jaya was burned down due to fire.[66]

Poor Working Conditions at Cat Phu Quang Ngai

Cat Phu Quang Ngai is the fifth largest exporter of wood chips to Korea and supplies its entire volume to Mihaud. The company is based in Quang Ngai Province and acquires acacia, eucalyptus, etc. from 264 individual forest owners in the region as a raw material processor of timber products and a broker/trader. Cat Phu Quang Ngai was investigated by the labor authority due to issues regarding labor unions and working conditions. The company did not sign a labor union agreement until 2020, and the company was reprimanded because it did not adequately fulfill the demands of the government to establish emergency evacuation plans and provide work safety and professional training. In addition, unfair treatment of foreign workers was also mentioned as a problem.[67]

Plasma Nutfah Marind Papua's Land Disputes and Conflict with Local Residents

Plasma Nutfah Marind Papua is a pulp timber plantation in Indonesia's West Papua and is operated by Korea's Moorim P&P. Between January 2021 and May 2021 the company removed 965 ha of forest, and in 2020 another 1,685 ha were removed. During the process of forest loss, peatlands were damaged, and land disputes arose as the company did not carry out the proper FPIC process with the local indigenous peoples.[68] For the Plasma Nutfah Marind Papua business, the Korea Forest Service provided loans amounting to 9.1 billion KRW (7.50 million USD) in three phases to be used for overseas forest resource development.[69] The Korea Forestry Promotion Institute predicts that approximately 420,000 tons of wood chips will be produced per year in 2030 at the worksite.[70]

Plasma Nutfah Marind Papua Plantation ©PUSAKA

Tropical forests and pastoral land ©SFOC

Suspension of Forest Certification and Environmental Pollution at An Viet Phat

An Viet Phat Group is one of the top four companies in export volume that supplies Vietnamese wood pellets to Korea's leading energy and logistics companies, such as SGC Energy, Hyundai Livart, OCI, GS Global, and Samsung C&T. This company operates wood pellet factories throughout Vietnam, and as of 2021, the company had a total of six valid FSC Chain of Custody certifications for An Viet Phat Energy and forestry cooperatives in five different regions. However, because of an FSC audit of An Viet Phat in 2021, the company was found to have falsely declared the number of certifications obtained, which was much less than the actual number of certifications. As such, the company-wide Chain of Custody certification for An Viet Phat Energy, excluding the certification for cooperatives, was suspended.[71] As a result, there was an incident where the buyer rejected the fleet of An Viet Phat wood pellets, but the company regained the Chain of Custody certification in less than a month.

In addition, the An Viet Phat Phu Tho factory located in Phu Tho Province, which is built in a residential area, faced disputes with the local communities of the Tri and Le My districts after less than a month of operation. The residents argued that they had not been informed in advance regarding the factory's potential environmental impacts, and protested that fine particulate pollution, air pollution, noise, and odor made their daily lives difficult after the wood pellets facility started to operate around the clock.[72] Eventually the local environment authority conducted an investigation, and An Viet Phat Phu Tho was found to be storing the pellets improperly by using open storage without a cover, discharging untreated wastewater and industrial waste without permission, and using equipment that did not comply with regulations. As a result, the company was fined, ordered to take corrective action, and was temporarily suspended from operation.[73] However, the company appealed against this decision and continued to operate, and the environmental pollution worsened for over a year.[74]

Particulate Pollution 1,325 Times Limit at MJ Agri Vina

MJ Agri Vina is a corporation in Vietnam owned by Mokpo City Gas. It operates wood pellet factories in two locations: Dak Nong Province in the highlands of central Vietnam and Dong Nai Province near Ho Chi Minh City.[75] Almost the entire volume of wood pellets produced by MJ Agri Vina is supplied to its parent company Mokpo City Gas and GS Global, which are then supplied to Korea's biomass power plants. In 2021, the Dong Nai regional authority caught MJ Agri Vina emitting particulate pollution that exceeded the country's environment standard by 1,325 times, managing hazardous waste in a manner that falls below the standard, and not fulfilling its environment protection plan. As such, fines were imposed on the company. Even though the company armed local community economic activities by emitting a large amount of particulate pollution, it side stepped responsibility by avoiding the inspection group and suspending operations at the factory.[76]

Illegal Discharge of Wastewater by Sararasa Biomass

Sararasa Biomass, which has its office in Singapore and produces wood pellets in Indonesia, supplies its entire export volume for Korea to CellMark, the largest wood pellet importer. Foreseeing an increase in Asia's wood pellet market, especially the Korean market, Sararasa Biomass began producing pellets using palm skin and kernel in Riau, Indonesia in 2014.[77]

Since it began operations, Sararasa Biomass was suspected of illegally discharging its wastewater into the streams and straits of the nearby Bokor village for nearly a year.[78] Local fishermen could not fish due to water pollution, and their income was reduced by approximately 80%.[79] In addition, local residents consistently protested that the company kept operating its business even without going through the Environmental Impact Analysis (Analysis Mengenai Dampak Lingkungan, AMDAL), and they demanded compensation for not being able to fish anymore. However, Sararasa Biomass did not take any action.[80] The company moved its factory to Surabaya to shift its supply chain the following year.[81]

Sararasa Biomass acquires sawdust and wood shavings as raw materials from individual suppliers, Intertrend Utama, and Interkfraft. These businesses harvest raw materials from forest business sites Belayan River Timber and Narkata Rimba. FSC-certified Belayan River Timber intentionally discharged waste oil without permission and caused soil pollution in 2018. When the company was caught doing so, the company placed the blame on its subcontractor.[8283]

Large Korean Companies Importing Illegal Wood Pellets

Although Korea's Act on the Sustainable Use of Timbers exists, the law is not strictly enforced. Since the Renewable Portfolio Standard (RPS) system began in 2012, there have been numerous cases of the import and distribution of fake wood pellets (aka rice husk pellets). Several large companies, including GS Global, Hanhwa, and Hyundai Livart (known as Hyundai H&S at the time) were prosecuted. Hanhwa's case went all the way to the Supreme Court and with a final decision made in 2020. Hanhwa imports wood pellets and supplies them to the national power utility KEPCO's power generation subsidiaries. Although Hanwha was caught importing approximately 5,600 tons of wood pellets without quality inspection in 2014, the company was fined only 3 million KRW (2,460 USD).[84]

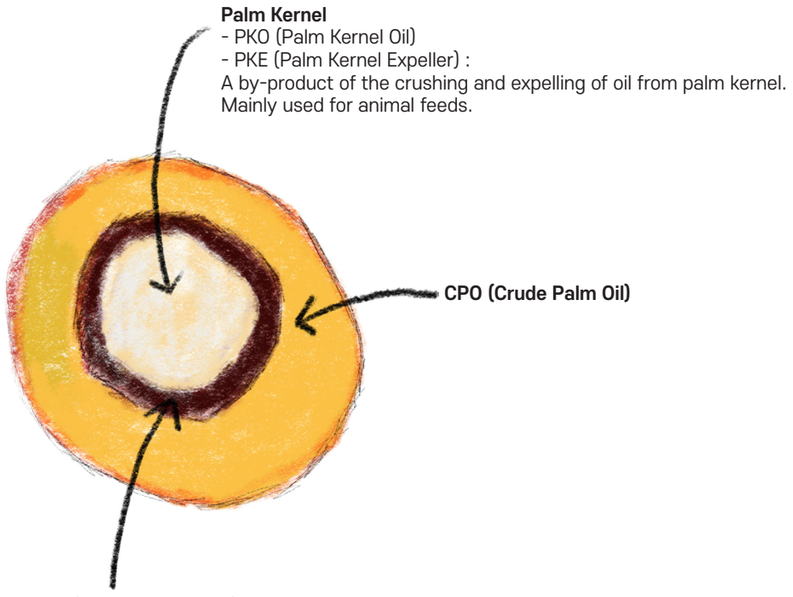
CHAPTER 3. DUE DILIGENCE ANALYSIS OF THE SUPPLY CHAIN OF FOREST-RISK COMMODITIES: PALM OIL AND ITS BY-PRODUCTS

1. Trade of Palm Oil and its By-Products

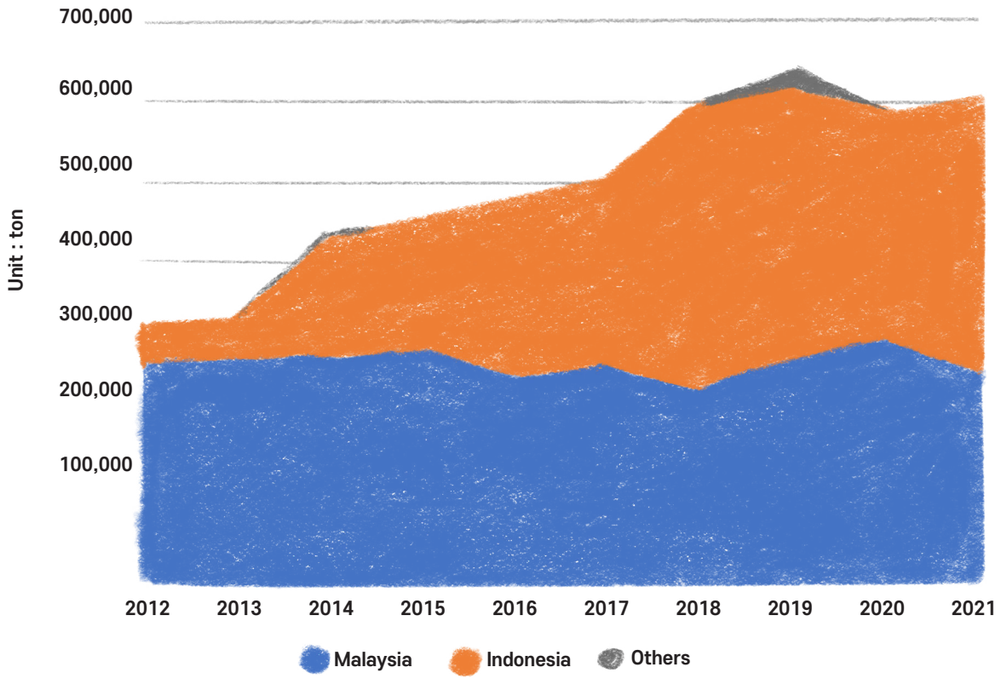
Oil palm (tree) is a plant that grows in the tropics and is well-known as for a source of vegetable oil. Palm oil and palm kernel oil can be extracted from oil palm fruit's pulp and kernels. After the refining process, various forms of oils and fats, including refined oil, can be derived. The leftovers and skins from the extracting and refining processes are also processed into various products for use in biofuels and livestock feed.

Palm oil and palm by-products are used in various industries in Korea. Korea relies entirely on imported palm oil and palm by-products that are used to produce food, cosmetics, household items, biofuel, and livestock feed. Their import volume increases year on year.

[Figure 13] Various Usages of Oil Palm Fruit



[Figure 14] Import Volume of Palm Oil by Year[85]

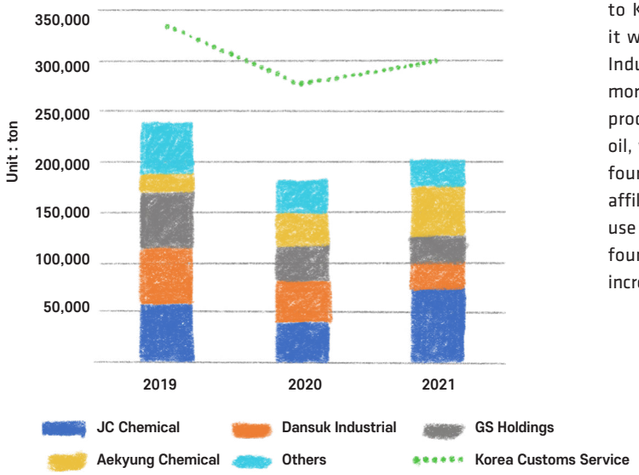


According to the Korea Customs Service, the import volume of palm oil approximately doubled over the past 10 years, from 324,956 tons in 2012 to 605,700 tons in 2021.[86] Korea imports most palm oil from Malaysia and Indonesia. In 2021, those two countries supplied 43.5% and 56.4% of palm oil, respectively (Figure 14). In particular, the import volume from Indonesia grew approximately 10 times in the last decade, from 37,370 tons in 2012 to 341,802 tons in 2021. In the process Indonesia overtook Malaysia and became the number one exporter of palm oil to Korea.[87]

Oil palm is mainly harvested near the equator due to the required climate conditions, and 84% of global production comes from Indonesia and Malaysia. As such, Korean imports are dominated by these two countries.[88] In this report, we have analyzed the supply chain of Indonesian palm oil, which continues to grow in significance. We excluded Malaysia from our analysis, as there were restraints in accessing trade data.

According to customs data from the Korea Customs Service, the import volume of Indonesian palm oil in 2019 and 2020 was 334,549 tons and 277,342 tons, respectively.[89] Among these imports we have market intelligence data on 625,131 tons of materials imported from January 2019 to September 2021 that was categorized under Indonesia's HS Code 1511.10, 1511.90.[90] The Korea Customs Service data is represented by the green dotted line in figure 15 below, while the columns in figure 15 represent company-specific data from Panjiva, on which this report is based. The gap between the two sets of data is a result of the Panjiva data not covering Indonesian palm oil traded to Korea through a third country (Figure 15).

[Figure 15] Import Volume of Indonesian Palm Oil by Year[91]



After analyzing the supply chain of palm oil exported to Korea from Indonesia from 2019 to September 2021, it was found that four companies (JC Chemical, Dansuk Industrial, GS Holdings, and Aekyung Chemical) imported more than 81% of Indonesian palm oil (Table 12).[92] The main product that these four companies imported was refined oil, which is used as a main source for biodiesel. All these four companies produce biofuel either directly or through affiliates. Aside from palm refined oil, these companies also use various palm by-products to produce biofuel, and it was found that the import volume of palm by-product is also increasing.[93]

[Table 12] Import Volume of Indonesian Palm Oil by Company[94]

Rank	Company	Import Volume (ton)	Share(%)
1	JC Chemical	174,885	28.0
2	Dansuk Industrial	122,344	19.6
3	GS Holdings	117,168	18.7
4	Aekyung Chemical	97,394	15.6
5	Daekyoung O&T	26,459	4.2
6	LG Household & Health Care	18,499	3.0
7	Just Oil Grain	18,490	3.0
8	Excelic Food Technology Nanjing	12,000	1.9
9	SK Chemicals	9,997	1.6
10	Hyosung TNC	6,500	1.0
	Others	21,394	3.4
	Total	625,131	

[Table 13] Export Volume of Indonesian Palm Oil by Company[95]

Rank	Company	Export Volume (ton)	Share(%)
1	Selago Makmur Plantation	129,220	20.7
2	Intan Sejati Andalan	85,249	13.6
3	Astra Agro Lestari	76,615	12.3
4	First Pacific Company	51,490	8.2
5	Intibenua Perkasatama	45,998	7.4
6	Jardine Matheson Holdings	41,419	6.6
7	Kutai Refinery Nusantara	39,034	6.2
8	Agrowiratama	32,804	5.2
9	Tunas Baru Lampung	24,800	4.0
10	Smart	22,008	3.5
	Others	76,493	12.2
	Total	625,131	

From 2019 to September 2021, JC Chemical, which is the largest importer of Indonesian refined palm oil, imported 174,885 tons of refined palm oil from numerous companies. Among those companies, JC Chemical imported more than half the volume from Selago Makmur Plantation and Intan Sejati Andalan. Selago Makmur Plantation supplied refined palm oil to Dansuk Industrial, GS Global, SK Chemicals, and SK Eco Prime, becoming the largest supplier to Korea's biofuel producers. Intan Sejati Andalan also supplied refined palm oil to Dansuk Industrial and GS Global, becoming the second largest supplier to Korean biofuel producers (Figure 16).

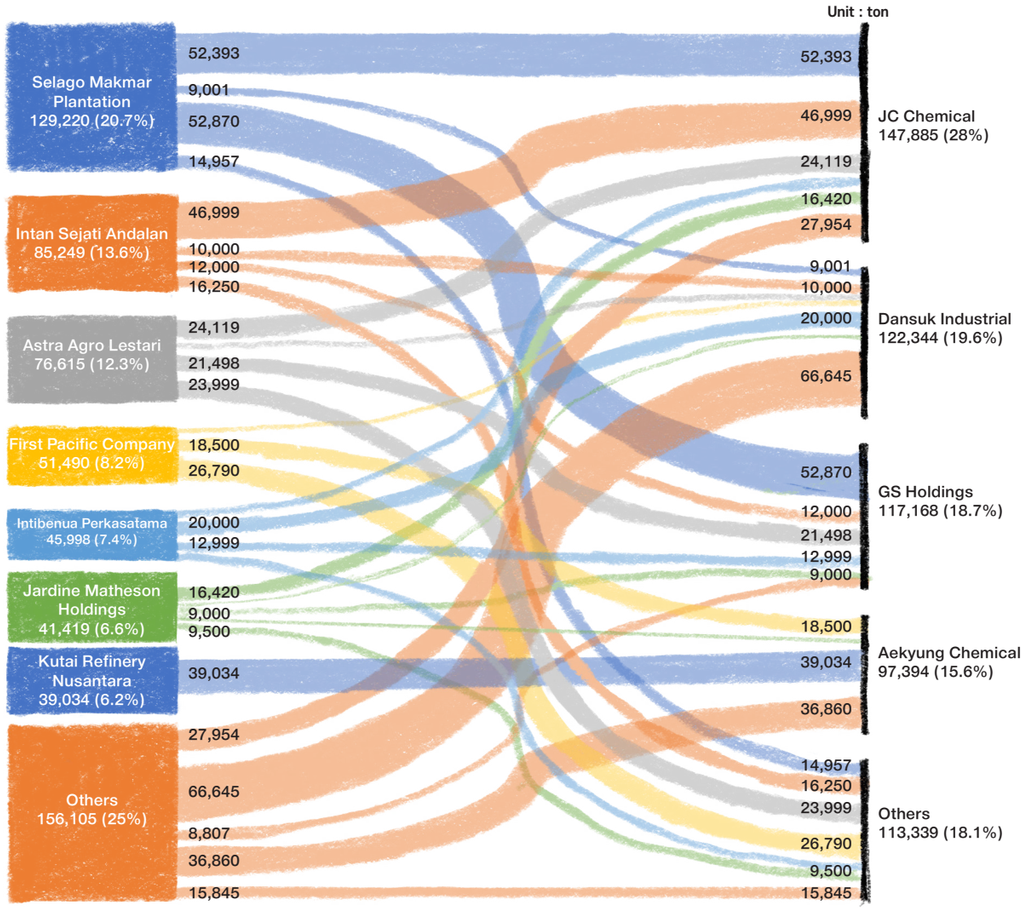
In addition to these Indonesian companies, Astra Agro Lestari also became one of the main suppliers to Korean companies from 2019 to September 2021. Along with Selago Makmur Plantation and Intan Sejati Andalan, these three Indonesian companies exported approximately half of all refined palm oil exported to Korea (Table 13).

Beside biofuel producers, Daekyoung O&T, which refines cooking oil and supplies raw materials to biofuel companies, and LG Household & Health Care, which produces cosmetics and household items, are the fifth and sixth largest Korean importers of refined palm oil (Table 12).

[Table 14] Major Exporting and Importing Companies of Indonesian Palm Oil

Importing Companies	
JC Chemical	(Biofuel production) JC Chemical produces biodiesel, bio heavy fuel oil and supplies oil-to-oil refining companies and power generation companies. The company operates a palm oil plantation in Kalimantan, in eastern Indonesia
Dansuk Industrial	(Biofuel production) Dansuk Industrial is the largest producer of biodiesel in Korea, producing 340,000 kl per year. With 18% of domestic market share, it is the second largest supplier in Korea. The company exports biodiesel based on waste cooking oil to the United States and Europe.
GS Global	(Trade) GS Global imports palm oil and supplies materials for biofuel to GS Bio. The company exports biodiesel to the United States, and it plans to expand its investment in a palm oil production and refining company.
Aekyung Chemical	(Biofuel production) Although Aekyung Chemical is a petrochemical company, it began its bioenergy business in 2007. In November 2021, Aekyung Hwahak (chemical) and AK Chemtech merged and becoming Aekyung Chemical.
Exporting Companies	
Selago Makmur Plantation	(Plantation, extracting and refining oil) Located in the south of Sumatra, the company mainly exports refined palm oil and PFAD (Palm Fatty Acid Distillate). to Korea, China, and India.
Intan Sejati Andalan	(Refining) Intan Sejati Andalan is a refining company located in Riau province. It mainly exports refined palm oil, and PFAD. to Korea, Malaysia, and the United States.
Tanjung Sarana Lestari	(Refining) As a subsidiary of Astra Agro Lestari, the company mainly exports Crude Palm Oil and refined palm oil to Pakistan, China, and the Philippines. It exports refined oil, PFAD, etc. to Korea.
Intibenua Perkasatama	(Processing and distribution) Intibenua Perkasatama exports palm oil and palm oil processed products throughout the world. The company also exports diverse products, such as refined palm oil, PKE, and PFAD to Korea.

[Figure 16] Major Companies' Trading Volume of Indonesian Palm Oil[96]



As seen above, most Indonesian refined palm oil products were imported mainly for producing biofuel. However, the refined palm oil imported by SK Eco Prime (formerly SK Chemicals), the number one biodiesel producer in Korea, was only 1.6% (Table 12). This is because SK Eco Prime mainly produces biodiesel from palm fatty acid distillate (PFAD), which is a palm by-product.[97] According to trade data on PFAD, which falls under Indonesia's HS Code 3823.19, from January 2019 to September 2021 a total of 582,374 tons of PFAD was exported to Korea.[98]

During this period, SK Chemicals, the predecessor of SK Eco Prime, imported 254,979 tons of Indonesian PFAD, which accounted for 43.8% of the entire import volume. During the same period, Dansuk Industrial imported 75,922 tons of Indonesian PFAD, which was 13% of the entire import volume. As for Indonesian PFAD exclusively imported by SK Eco Prime since 2020, the volume stood at 2.9% with 17,024 tons (Table 15).[99]

[Table 15] Import Volume of Indonesian PFAD by Company[100]

Rank	Company	Import Volume (ton)	Share(%)
1	SK Chemicals	254,979	43.8
2	Dansuk Industrial	75,922	13.0
3	Woojung Eco	22,961	3.9
4	Ecogreen Oleochemicals Singapore	22,702	3.9
5	Virgoz Oils & Fats	20,672	3.5
6	SK Eco Prime	17,024	2.9
7	Astra-KLK	16,299	2.8
8	Gideon Agri	15,000	2.6
9	Aekyung Chemical	14,971	2.6
10	SK Discovery	14,250	2.4
	Others	107,593	18.5
	Total	582,374	

[Table 16] Export Volume of Indonesian PFAD by Company[101]

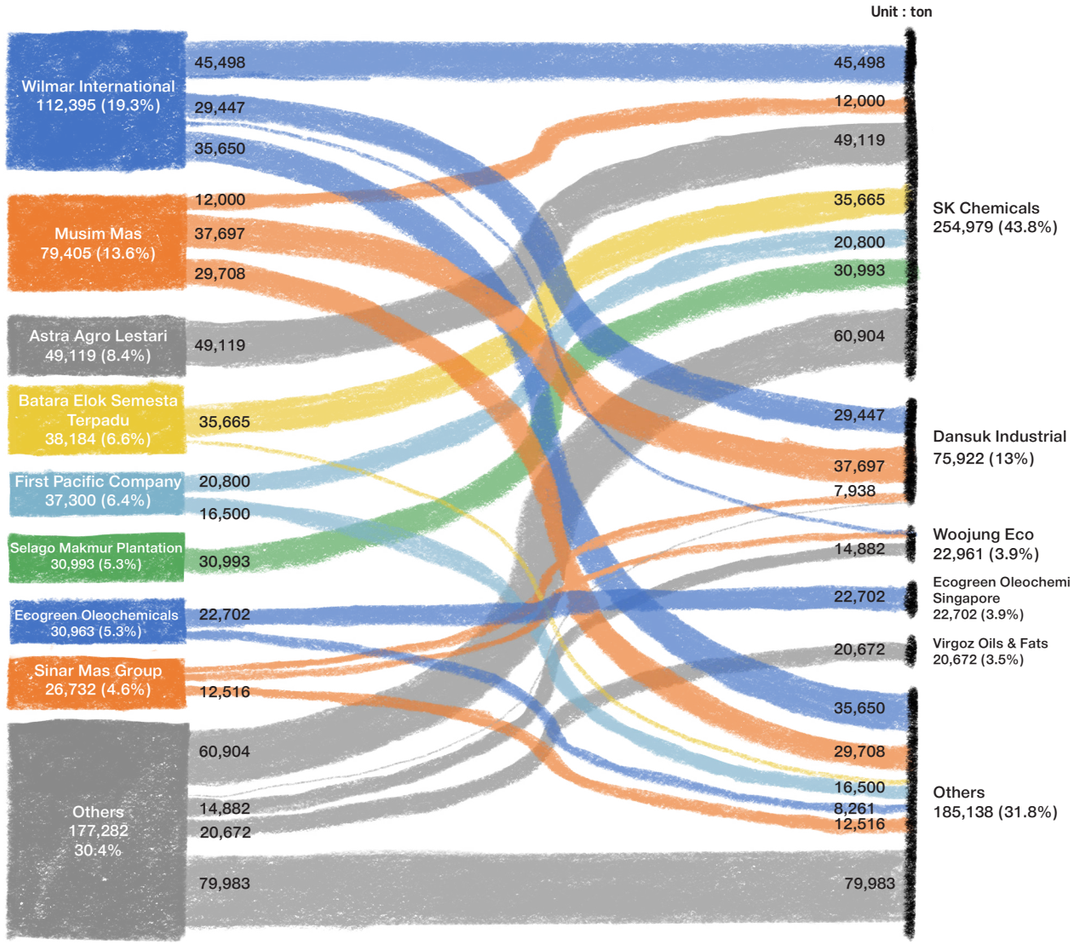
Rank	Company	Export Volume (ton)	Share(%)
1	Wilmar International	112,395	19.3
2	Musim Mas	79,405	13.6
3	Astra Agro Lestari	49,119	8.4
4	Batara Elok Semesta Terpadu	38,184	6.6
5	First Pacific Company	37,300	6.4
6	Selago Makmur Plantation	30,993	5.3
7	Ecogreen Oleochemicals	30,963	5.3
8	Sinar Mas Group	26,732	4.6
9	Soci Mas	19,762	3.4
10	Tunas Baru Lampung	19,626	3.4
	Others	137,895	23.7
	Total	582,374	

The main suppliers of Indonesian PFAD to Korean biofuel producers are subsidiaries of Wilmar International and Musim Mas. These companies supply palm oil globally and are the world's largest palm oil traders (Table 17).

[Table 17] Major Exporting and Importing Companies of Indonesian PFAD

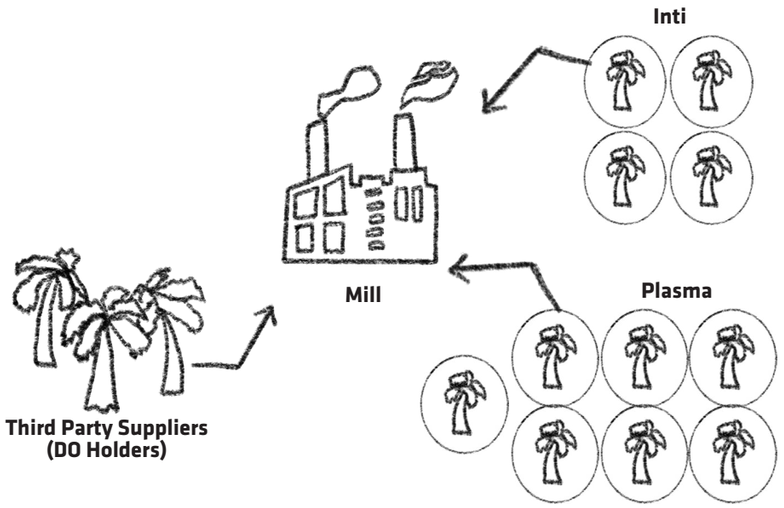
Importing Company	
SK Chemicals	(Petrochemical) Began bioenergy business in 2008 and boasted the largest market share in the industry, but sold the relevant business unit to Hahn & Company in early 2020.
SK Eco Prime (formerly SK Chemicals)	(Biofuel production) Produces 140,000 tons (as of May 2021) of biodiesel and has the largest share in the market, at 33% (as of June 2021). SK Eco Prime supplies to companies including SK Innovation, and S-OIL.
Exporting Company	
Wilmar Nabati Indonesia	(Refining, biodiesel production) As a subsidiary of the world's largest palm oil trader and agribusiness, Wilmar International, the company supplies refined palm oil and its by-products throughout the world.
Wilmar Bioenergi Indonesia	(Biodiesel production) As a subsidiary of Wilmar International, the company produces and supplies biodiesel throughout the world.
Musim Mas	(Trade) As the world's largest palm oil trader and agribusiness, the company supplies refined palm oil and its by-products throughout the world.

[Figure 17] Major Companies' Trading Volume of Indonesian PFAD[102]



2. Supply Chain of Palm Oil and its By-Products

[Figure 18] How FFB is Supplied to Factories/Mills in Indonesia

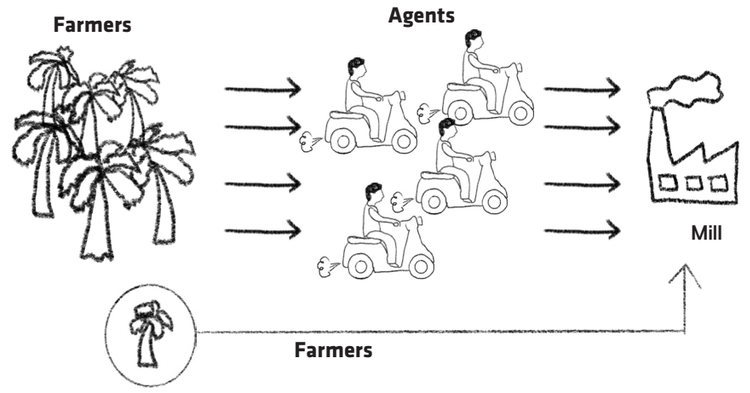


The fresh fruit bunches (FFB) harvested in palm oil plantations are transported to nearby palm oil mills for extraction within 24 hours. In Malaysia, the supply chain is simple because only those that own palm oil plantations that are at least 4,000 ha or subsidiaries of these companies can operate oil extraction and kernel crushing factories. However, in Indonesia, the supply chain is more complex because even those who do not own plantations can operate oil extraction and kernel crushing factories. In oil extraction facilities that do not directly own plantations, FFB is purchased from third parties. In this case, the supply chain becomes even more complex.[103]

In Indonesia, there are three main ways for factories to source FFB. First, FFB can be harvested from the plantations owned by the company (Inti). Second, FFB can be supplied by "plasma" plantations. Plasmas are plantations operated by companies with plantations that are at least 250 ha and provide at least 20% to the local community as required by Indonesian law.[104] Lastly, palm oil mills without plantations purchase FFB from a third party, which can take place in numerous ways.

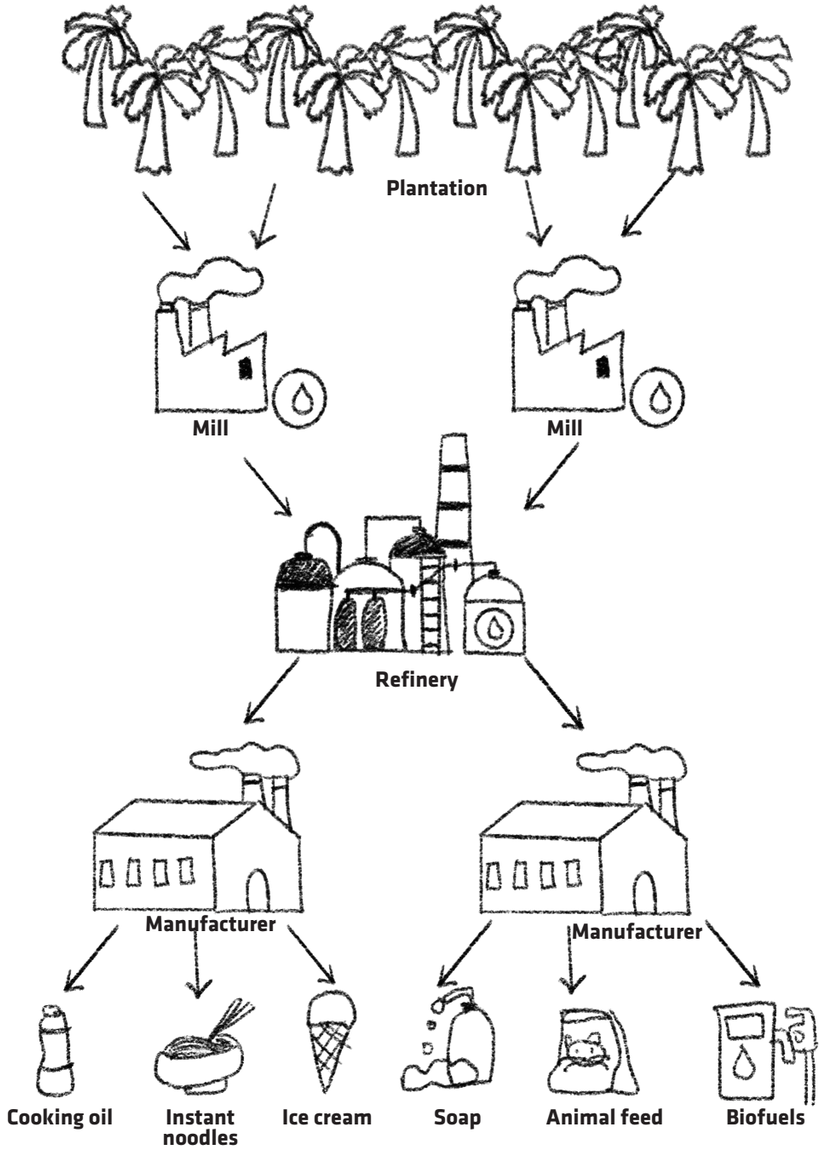
There are three ways the FFB is supplied through a third party: the FFB supplier owns a palm oil plantation and can therefore directly supply FFB; the FFB is purchased from small-sized farm owners; and the FFB is purchased in large quantities from broker/traders. In this process, broker/traders categorize the FFB purchased from various farms and plantations before supplying them, so it is difficult to accurately know its origin. In addition, there are currently no grounds under Indonesian law to manage broker/traders. Therefore, although they play a significant role in the supply chain, they are not regulated and their activities are not officially tracked.[105]

[Figure 19] How Third Party FFB Sourcing Works



The supply chain of palm oil and its by-products show numerous and varied departure points and destinations – referring to first producer/processors and final consumers. However, there are few refining companies and traders in the middle, so the supply chain structure is an hourglass-shaped structure. Refining and processing of palm oil usually takes place in Indonesia, Malaysia, and Singapore.[106] Afterward, an even smaller number of refining companies sell refined palm oil and its by-products to various companies that produce food, cosmetics, fuel, and livestock feed. This process makes the supply chain of palm oil and palm by-products complex and difficult to track.

[Figure 20] Supply Chain of Palm Oil and its By-Products



3. Due Diligence Risk Analysis of the Supply Chain of Palm Oil

In this chapter, we will outline the risks present in the supply chain of palm oil and its by-product and find out more about actual risk cases present in the supply chain of Indonesian palm oil imported by Korean palm oil companies.

[Table 18] Analysis Framework of the Supply Chain of Forest-Risk Commodities (Indonesian Palm Oil)

Category	Subcategory	Example	Identified
1. Social and human rights risk	Child labor	Hiring children who are subject to compulsory schooling; violating the ILO Minimum Age Convention; abusive forms of labor for those under 18 (undermining health and safety)	✓
	Forced labor	Violating the ILO Forced Labour Convention; labor due to debt collateral or human trafficking	
	Slavery	Slavery and practices similar to slavery; state of servitude and dominance; exercise of oppression	
	Neglecting labor protection requirements	Insufficient safety standards for working conditions; lack of adequate protection measures for chemical, physical, and biological substances; inappropriate working hours and system	✓
	Neglecting union rights	Prohibiting organization and joining of labor union (including right to strike and right to collective bargaining)	✓
	Unequal treatment in employment and compensation	Unfair treatment based on nationality, ethnicity, social background, disability, sexual orientation, age, gender, political opinion, religion, etc.	✓
	Forced eviction	Illegal forced eviction; neglecting the FPIC process	✓
	Limiting access to land, forest, and water	Illegal deprivation of access to land, forest, and water when acquiring land, forest, water, and when cultivating or using for other purposes	✓
	Inhumane treatment through dispatching private or public armed forces	Torture, inhuman or degrading treatment; violating one's body and right to life; violating freedom of association and right to organize	✓
	Legal investigation and trial for violating local positive law	Cases when violation of local social, human rights, or environmental regulations during business activities leads to investigation or trial, or when a fine is imposed	✓
2. Environmental risk	Land degradation and land use change	Changing a forest to another land use, or changing a primary forest into a secondary forest or a plantation; loss of forest ecosystem and soil due to unsustainable logging	✓
	Reduction in biodiversity	Destruction of ecological niches and reduction in biodiversity due to deforestation; when habitats of species listed in the IUCN Red List are included; when endemic flora that hold an important value ecologically is logged or have their habitats destroyed	✓
	Soil pollution and erosion	Significantly damaging natural foundation needed for sustainable food production	✓
	Water pollution and excessive use	Hampering access to safe drinking water	✓
	Air pollution and greenhouse gas emissions	Causing climate change because of air pollution from fine particulate matter and dust and excessive CO2 emissions	
	Noise pollution and other environmental health issues	Causing noise pollution to nearby residents and harming their health	
	Fire risks in and outside the worksite and in plantations	Harm from neglecting safety education and response measures regarding fire accidents caused by dust in the worksite; including cases when a forest is cleared or a new plantation is established because of fire caused intentionally or by accident at a plantation	✓
	Violation of sustainability certification and/or legality requirements defined by national and international regulations	When there is evidence of violating the principles of sustainability certification (e.g., FSC, PEFC, RSPO) in production, processing, or distribution of timber or palm oil, forest management, etc.; when there is evidence of violating international law or guidelines (e.g., Lacey Act, FLEGT, SVLK, regulation to promote legal timber trade) regarding legal timber trade	✓

2016. 6. 4. Deforestation in PT Papua Agro Lestari (Korindo) Plantation ©Mighty Earth

(1) Environmental, Social, and Human Rights Risks in the Supply Chain of Palm Oil

A. Ecosystem Damage as a Result of Change in Land Use

In Malaysia and Indonesia, the expansion of palm oil plantations was found to be the main cause of deforestation. According to a 2016 study, 45% of the areas now used for palm oil plantations in Malaysia and Indonesia were forests 30 years ago.[107] Some researchers estimate that the average annual area of forest converted to palm oil production between 2000 and 2011 was 270,000 ha. [108]

As the environmental and social risks of palm oil plantations in Southeast Asia are gaining international attention, many companies are trying to expand palm oil plantations in Latin America. As such, Latin America is also experiencing ecosystem destruction and harm to the lives of indigenous peoples and local communities.[109]

Companies Related to Korea that Destroy Primary Rainforests in Indonesia

POSCO International destroyed a total of 26,500 ha of forest when it created palm oil plantations in the province of Papua in Indonesia.[110] Regarding this issue, the Government Pension Fund of Norway stated that there was an unacceptable risk that the company was responsible for severe environmental damage, and excluded POSCO International and its parent company POSCO from the pension fund in 2015.[111] In 2018, a Dutch pension fund also divested from POSCO International for the same reason.[112]

Korindo, an Indonesian-Korean company, destroyed more than 50,000 ha of forest in Papua province and North Maluku province in Indonesia.[113] A complaint was filed with the FSC regarding Korindo's deforestation and violations of the rights of indigenous peoples. The FSC concluded that for the past 5 years, Korindo had destroyed more than 30,000 ha of tropical rainforests and violated the traditional rights of the indigenous peoples.[114] However, Korindo refused to agree to the process for addressing this issue, and the FSC stripped Korindo of its sustainability status in July 2021.[115]

B. Increase in Greenhouse Gas Emissions

Expanding farmland by clearing forests severely damages soil and trees that absorb CO2, which causes an increase in the concentration of greenhouse gases in the air. According to a 2018 study, every 1 ha of tropical rainforest that is changed into palm oil plantation produces 174 tons of carbon.[116] Peatlands play an especially significant role in regards to greenhouse gas emissions. Peatlands are wetlands that are formed over several centuries with dead plants that are deposited without being decomposed. As 18 to 28 times more carbon is preserved in peatlands compared to forests, peatlands play the role of a natural carbon sink. However, peatlands in Indonesia and Malaysia have been damaged in the process of creating palm oil plantations releasing vast amounts of greenhouse gases into the atmosphere.[117]

2018. 12. 5. Peatland in Central Kalimantan ©KFEM

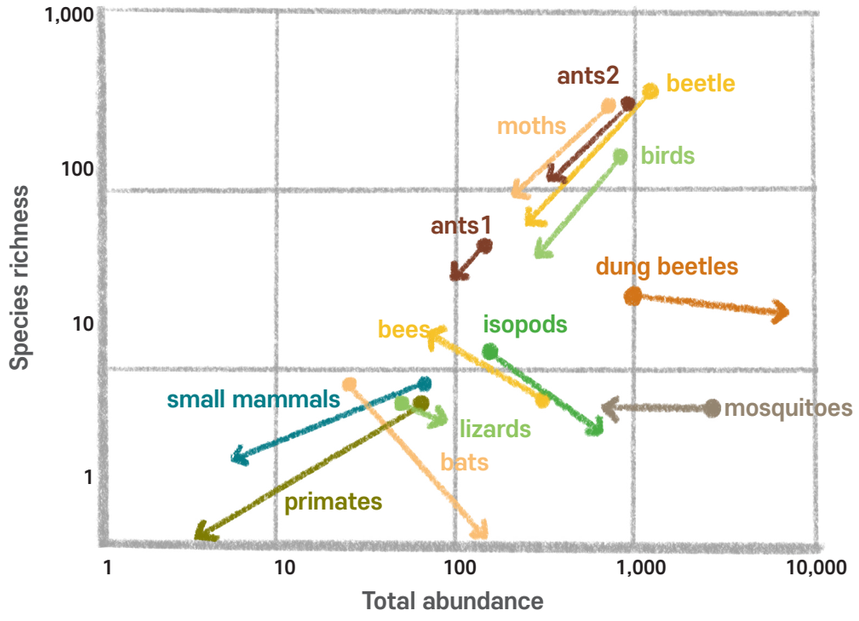
C. Damage to Biodiversity

Peatlands and tropical rainforests are rich in biodiversity. Their destruction poses an existential threat to the species that live there. In addition to the destruction of habitat, the discharge of plantation chemicals, such as fertilizers and pesticides, affect aquatic organisms in nearby waterways. Furthermore, the poaching of birds, mammals, and snakes in plantations also causes biodiversity loss.

In plantations that harvest a single crop, the number of species and diversity or species is dramatically affected. Plant diversity in palm oil plantations is less than 1% of that of natural forests, and animal diversity is also only 10-35% of that of natural forests. The richness and abundance of threatened mammal species, as listed in the International Union for Conservation of Nature (IUCN) Red List, declined by as much as 85% around plantations. Endangered species, such as orangutans, tigers, elephants, and rhinoceros face ever greater adversity.[118]

2018. 12. 5 Orangutan Protection Area, operated by Borneo Orangutan Survival Foundation (BOSF) in Central Kalimantan ©KFEM

[Figure 21] The figure shows the difference in diversity and population of animal species when primary rainforests are turned into palm oil plantations. The starting point of arrows represents when the lands were primary rainforests, and the endpoint of arrows represents when those forests have turned into palm oil plantations. (Source: Meijaard, E. et al (2018), "Oil palm and biodiversity. A situation analysis by the IUCN Oil Palm Task Force," T.M. Brooks, Ed., IUCN



Indigenous people protesting against plantation companies' seizure of Papua indigenous people's forests and lands ©PUSAKA

D. Land Disputes

As palm oil plantations expand into lands held in common by local communities for generations, land disputes occur frequently. Land disputes keep arising among indigenous peoples, local communities, small plantations, and companies in Indonesia, where there is 14 million ha of palm oil plantations. Although the pandemic brought economic slowdown in 2020, it was found that companies are acquiring land more aggressively and causing more disputes.

According to the Indonesia's NGO consortium Konsorsium Pembaruan Agraria (KPA), in 2020 there were 241 cases of land disputes. Among them, 122 were land disputes due to expansion of plantations. This figure is a 28% increase from 87 cases in 2019. This differs from the normal pattern during economic slowdowns when land disputes normally decrease. The KPA has concluded that this is intricately linked to how the large companies producing palm oil and pulp timber are aggressively acquiring land.[119]

"Because [plantations and forestry], which have become a classic source of agrarian problems in Indonesia, actually had a significant increase [in conflicts in 2020]. The plantation sector is very land-hungry and it often clashes with people's settlements, agricultural lands, and locals' plantations."

– KPA secretary-general Dewi Kartika[120]

[Figure 22] List of Companies that Caused Land Disputes in 2020 (Source: Konsorsium Pembaruan Agraria(2021.1.6), "Catatan Akhir Tahun 2020 Konsorsium Pembaruan Agraria
Edisi Peluncuran I: Laporan Konflik Agraria di Masa Pandemi dan Krisis Ekonom")

Oppression of Land and Environmental Defenders

The people who fight against business or government violations of the rights of indigenous peoples, local communities, and residents during land disputes are called land and environmental defenders. According to statistics by Global Witness, 1,540 land and environmental defenders were killed from 2012 to 2020.[121] According to the KPA, there were 134 cases of criminalization of land and environmental defenders due to land disputes, and 11 defenders have died as a result.[122]

2016. Local residents protesting against PT. Sintang Raya's land seizure in West Kalimantan ©Agra Kalimantan Barat

E. Violation of the Right to Food

In areas where oil palm plantations are being established, many of the indigenous peoples and local communities have maintained self-sufficient lifestyles based on traditional knowledge. However, it becoming difficult for them to obtain food as the forests and lands that they used to rely on are being turned into plantations or being polluted by chemicals from the plantations.[123]

Even when indigenous peoples or local communities are hired to work at plantations and receive wages to earn food, it is still difficult to make a living as the wages are low. In some cases, companies or the government provide alternative food staples, rather than the staples the people have traditionally eaten. Nonetheless the new plantations strip them of access to traditional food staples and thus violate their right to food.

"Now, oil palm eats our land. Our skin is dry and grey, and our bodies are weak. Our children are small and frail. Many die before they have even learned to walk the forest. Now, Marind eat rice and instant noodles. Since oil palm arrived, everyone is hungry. This hunger never goes away."

– A Marind Woman in Papua who lost her forest to an oil palm plantation.[124]

Friska Basik-basik, whose youngest is suffering from malnutrition, in Kindiki village ©Albertus Vembrianto for The Gecko Project/ Mongabay

F. Violation of the Right to Water

Residents who live near palm oil plantations, especially the indigenous peoples and local communities that have lived in the region for a long time, can easily notice change in water quality resulting from plantation operations. in the change can be seen in the types of fish being caught in the river and the species and number of plants growing in the area. Considering the large volumes of herbicides, pesticides, and chemical fertilizers used in plantations and the wastewater produced in palm oil mills, it is inevitable that that the quality of water in nearby rivers and lakes worsens.

Regarding this issue, palm oil companies assert that they do not cause water pollution, as the degree of change in water quality is considered acceptable under local waste regulations and pollution standards. However, the local residents' right to water is being violated because they can no longer use the water for drinking or residential purposes.

G. Violation of Labor Rights of Palm Oil Plantation Workers

Workers on palm oil plantations harvest FFB, spray chemicals, maintain the plantation, and transport FFB. These workers are given a certain number of tasks to complete each day, which is called their "target." These targets are often difficult to achieve and workers are known to bring their wives and children along to help complete the tasks.

Female workers are usually given the task of spraying chemicals, and are often ill informed about the dangers of the chemicals involved, or given inadequate protective equipment. In addition, it has been reported that sexual exploitation of female workers in plantations is prevalent.[125]

2016. 11. Female worker in PT. Incenda farm in Riau, Indonesia © APIL

(2) Environmental, Social, and Human Rights Risks in the Palm Oil Supply Chain of Korean Companies

Concealed Environmental, Social, and Human Rights Risks in t Non-Transparent Supply Chain

To identify such risks, the producers of palm oil products should have an accurate understanding of the supply chain, and they should perform due diligence when risks are found. However, there is no law that requires the companies to identify environmental and human rights risks in the supply chain and address them, so we can only rely on the companies' voluntary policies regarding this matter at this point.

However, major palm oil companies in Korea do not even implement voluntary measures to respond to risks in the supply chain, and it was found that the same is true for their Indonesian suppliers. Such trade practices contribute significantly to the formation of the leakage markets, where unsustainable palm oil products are traded.[126]

Indeed, in the supply chain of palm oil for Korean companies, the following environmental and human rights issues were found.

PT Selago Makmur Plantation: Customary Rights Disregarded

Between 2019 to September 2021, PT Selago Makmur Plantation (PT SMP) exported 129,220 tons of refined oil to Korea. The company mainly exports to JC Chemical and GS Holdings, and it became the main supplier for Korean biofuel production companies.

PT SMP owns and directly operates a plantation in West Sumatra, and it also owns a refining facility. When PT SMP began its business in 1998, there were reports that the local residents' customary rights were not fully recognized. Afterward, in the region of Dharmasraya, where PT SMP is located, there was a fast transition of forests into plantations between 2000 and 2014. As a result, the size of secondary forest was reduced by more than 67%.[127]

In addition, there were news reports on how PT SMP's palm oil factory had wrongfully dismissed 61 workers in 2020, due to reduced profits after the outbreak of COVID-19, and had attempted to disrupt labor union activities.[128]

PT Intan Sejati Andlan's Factory in Protected Area: High Risk of Deforestation

PT Intan Sejati Andlan (PT ISA) exported 85,249 tons of refined palm oil to Korea between 2019 and September 2021, making it the second largest exporter after PT SMP. Just like PT SMP, PT ISA mainly supplies refined palm oil to biofuel production companies.

The location of PT ISA's factory was categorized as a region at substantial risk of deforestation in 2016 by Global Forest Watch. The factory is located near the Siak Kecil protected area and Balai Raja wildlife reserves in Riau province. As such, many endangered wild animals live in the region, which boasts rich biodiversity and is an important store of carbon. However, 200,000 ha of deforestation occurred in the area near the factory since 2009, and it is expected that there could be up to 300,000 ha of deforestation going forward as well.[129]

Through a list of cases under investigation at Gakkum, an affiliated institution of the Ministry of Environment and Forestry, we were able to find out that PT ISA was reported to Gakkum for violating the Environmental Act in 2020 and is under investigation.[130] Mahkota Group, the parent company of PT ISA, has adopted a No Deforestation, No Peat, No Exploitation (NDPE) policy, and has stated that it will secure transparency, respect the rights of the indigenous peoples, and eradicate forced labor. However, the full supply chain and list of factories of each company have not been disclosed, and there is no system in place for monitoring the status of the NDPE either.

Kutai Refinery Nusantara's Deforestation and Violation of the Rights of Local Residents Despite NDPE Policy

Kutai Refinery Nusantara (KRN) began to supply refined palm oil and refined palm stearic acid to Aekyung Chemical in 2021. KRN is a subsidiary of Apical Group which implemented an NDPE policy in 2014. However, environmental and human rights issues still arise in the supply chain of its subsidiary.

Since 2016, 1,600 ha of deforestation occurred in one of KRN's suppliers, PT Kayan Plantation, in North Kalimantan. Among the 1,600 ha, 160 ha of deforestation occurred in 2020.[131] At PT Waru Kaltim Plantation, which is a supplier to KRN and located in East Kalimantan, 1,800 ha of land that belonged to the local residents were taken, and land disputes have been ongoing since 2011.[132]

2018. Greenpeace campaigners protesting at Wilmar Oil Refinery at Sulawesid
©Rendra Hernawan / Greenpeace (Top, Bottom),
Jurnasyanto Sukarno / Greenpeace (Middle)

Relentless Deforestation and Human Rights Violations by Wilmar Indonesia, the World's Largest Palm Oil Company

Wilmar Nabati Indonesia and Wilmar Bioenergi are subsidiaries of Wilmar International, the world's largest palm oil producing, refining, and distribution company. From 2019 to September 2021, the company exported 112,395 tons of PFAD to Korea, becoming the largest exporter of PFAD.

In 2004, Wilmar International acquired the Roundtable on Sustainable Palm Oil (RSPO) certification, and in December 2013, it implemented an NDPE policy. The company shares detailed information regarding its supply chain and policy implementation on its website.

However, as environmental and human rights issues consistently arise in the supply chain of Wilmar International, there is criticism that their voluntary commitments or certifications are simply greenwashing. Although it is difficult to identify all the problems that arise among the large spectrum of producers and suppliers, some of the typical environmental and human rights issues that arise are as follows.

Continued Deforestation

Even after declaring the NDPE policy, Wilmar International continues to be involved in deforestation. In 2020, it was reported that one of its suppliers, PT Medcopapua Hijau Selaras located in the Papua region in the easternmost part of Indonesia, had destroyed a natural forest.[133]

Expansion of Land Grabbing

Wilmar International continues to expand palm oil production sites not just in Indonesia and Malaysia but also in Africa. As part of this effort, it is reported that Wilmar International grabbed the lands of Nigerian and Ugandan farmers.[134]

Maintaining Member Status despite Violating the RSPO Standard

When Wilmar International was establishing a plantation in the West Sumatra region in Indonesia, the RSPO determined that the company had violated the FPIC right of the Kapa indigenous peoples.[135] However, Wilmar International still maintains membership status with RSPO to this day.

Structural Violation of Labor Rights

It has been reported that in Kalimantan and Sumatra plantations that supply to Wilmar International, there are instances of workers' rights violations, child labor, the use of the highly toxic pesticide paraquat, long working hours due to excessive targets, and extremely low wages.[136]

CHAPTER 4. RESPONSES TO RISKS IN THE SUPPLY CHAIN OF FOREST-RISK COMMODITIES: CASES OVERSEAS AND IN KOREA

In this chapter, we will investigate the systems in place for importing countries to respond to environmental and human rights risks in the supply chain of forest-risk commodities. We will share the limitations of the systems that exist in Korea and aboard and describe laws and proposals that are being newly discussed.

1. Changes in Other Countries' Systems for Responding to Deforestation

Until now, there were attempts in many countries to address deforestation through banning the import of illegally logged timber. However, countries have recognized that deforestation occurs in the process of producing not only timber, but also agricultural products, biofuel, and livestock feed. As a result, that have started to include these products when considering forest-risk commodities. In addition, many countries are now not simply accepting products that abide by laws in the country of origin, but reviewing whether the products are linked to deforestation or human rights violations. Legal frameworks are being introduced that require stakeholders directly and actively review the risks in the supply chain, rather than simply reply on country-of-origin documentation and third-party certification.

(1) Limitations of Current Systems

A. Limitations of Government Policy

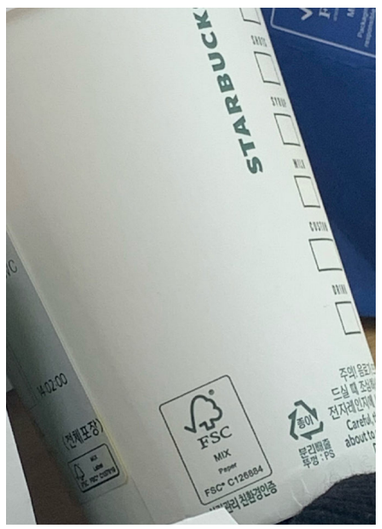
Many countries importing forest-risk commodities have enacted laws that prohibit the import of illegally logged timber in response to deforestation. After the US made it illegal to import and distribute illegally logged timber in 2009, similar systems have been put in place in Australia, the EU, Malaysia, and Japan. Systems that require legal timber for public procurement and make due diligence mandatory for importers have been implemented as well. Furthermore, bilateral agreements between countries of origin and importing countries have been signed which allow for mutual recognition of legally logged timber.

However, such systems make the importing country rely solely on the judgment of the country of origin regarding the legality of logged timber. However, depending on how the law of the country of origin defines "illegal logging," as well as the willingness to control and enforce regulations on illegal logging, the acts that should be regulated may not be regulated. In addition, in major countries of origin for timber, it is quite common to see documents certifying "legality" being issued through illegal means, such as through forged documents or bribery. Therefore, the Corruption Perceptions Index is often incorporated when considering the risk of illegal logging, as there are limits to the credibility of documents issued in countries of origin.[137]

B. Limitations of Voluntary Commitments and Certification Systems

The industry has been responding to the deforestation issue through either voluntary commitments or certification by third parties. However, the limits of companies' voluntary commitments are clear, as the innate characteristic of voluntary measures means that there is no external mechanism to enforce implementation. Certification by third parties is also criticized because even companies that have violated human rights have gained certification and many issues still arise even after companies become certified.

Products with the FSC logo ©SFOC



Third Party Certification System Reduced to Greenwashing

The FSC certification that can be found on many consumer goods is the most widely used certification system in the forestry industry. FSC claims that the products with its certification logo are certified as "products that use timber produced in a forest that is managed in a legal and sustainable manner." However, there are still issues of deforestation and human rights violations among businesses that are FSC-certified, and NGOs have been criticizing this point since the early years of the FSC. However, the FSC has always been defensive about such criticisms and has not adequately responded to them.[138]

In the palm oil industry, which in the last 30 years has been the largest cause of tropical rainforest destruction, RSPO is the most well-known third-party certification system. However, numerous cases have shown that the RSPO has been ineffective in protecting forests and peatlands nor preventing land grabbing and violations of labor rights. NGOs have long complained to the RSPO about these issues, but the response has been lacking.[139]

"Third-party certification and labels alone are not effective in preventing forest and ecosystem-risk commodities and products from entering the Union internal market…The multitude of existing certification schemes and labels leads to consumers' confusion and impairs their chances to make an informed choice…A policy measure that is dependent solely on consumer choice unduly shifts the responsibility to purchase deforestation-free products to consumers, which is insufficient in its effectiveness to mainstream more sustainable production."

– European Parliament resolution with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (Oct. 22, 2020)

(2) Legislation on Due Diligence in Supply Chains to Regulate Forest-Risk Commodities

In 2021, legal frameworks to respond to deforestation abroad were proposed or enacted in the EU, the UK, and the US. The frameworks of all three countries focus primarily on banning the regional import of certain products produced in deforested regions.

A. The EU

As the second largest market for the import of products produced through deforestation,[140] the EU has consistently shown interest in addressing global deforestation issues. In 2020, the European Parliament determined that voluntary, third-party certification systems were ineffective, and that the scope and enforcement level of the EU Timber Regulation was not enough to stop global deforestation. As a result, the European parliament concluded that a stricter legal framework regarding supply chain due diligence was needed, and the parliament adopted a resolution recommended that the European Commission create a legal framework for halting and reversing EU-driven global deforestation.[141]

In response, the European Commission published its Proposal for Regulation on Deforestation-free Products.[142] The proposal recommends designating products linked to deforestation and forest degradation, banning agricultural products and derivative products produced in those regions from being imported to the EU, and making sure that such products are not exported from the EU.

Regarding deforestation-free products, the proposal defines relevant commodities and products, as well as timber. They are defined as products produced in deforestation-free soil and products manufactured with such products after the cut-off date (Dec. 31, 2020). A stricter definition is applied for timber, as deforestation-free timber products are defined as products harvested without causing forest degradation after the cut-off date (Dec. 31, 2020).

The proposal covers deforestation with a large scope. Deforestation refers to a forest that is converted to a different land use for agricultural purposes. Forest degradation has a broader meaning. It is defined as a long-term reduction of the overall scope of benefits of forests, such as timber and biodiversity, due to the reduction or loss of biological and economic activities as well as complexity in the ecosystem of the forest because of unsustainable harvesting.

In the list of products identified as the most frequently associated with deforestation, there are six main products: beef, cocoa, coffee, palm oil, soybean, and timber. The list includes derivative products, as well as the derivative products produced by livestock that were fed with such agricultural products. According to the proposal, designated products must be: 1. deforestation-free; 2. the production process of the product must abide by all laws of the country of origin; and 3. should be reviewed according to the due diligence statement in order for those products to enter and be exported from the EU market.

Businesses that deal with deforestation-free products are obligated to conduct due diligence on the country of origin and collect and submit relevant information. They should also prove that the products are not produced in deforested regions through GPS coordinates or satellite images. The degree of deforestation risk is assessed through the collection of such information. When it is found that deforestation has occurred in producing the products or if there are risks that deforestation laws or relevant laws are not abided by to a certain extent, and also when due diligence is not conducted, the entry and export of such products is banned. When deforestation risks are identified, businesses should adopt mitigation procedures.

Such provisions are stricter than those adopted in the US and the UK, which will be introduced below. The mandatory provisions regarding forest-risk commodities in the US and the UK only deal with illegal deforestation, but the EU regulation also deals with legal deforestation and bans deforestation after a cut-off date. In addition, the fact that the EU regulation goes beyond importing companies and covers all companies that deal with the distribution and export of designated products is a notable point.

Each member country should audit whether companies have abided by the laws of the country of origin and whether the information reported regarding the cut-off date for land that has not been subject to deforestation earlier than Dec. 31, 2020 is true or not. When a company is suspected of violating its obligations, activities, such as import or export, can be suspended as a temporary measure. If the violation is verified, then measures such as a ban on market entry or export, product recall or destruction. can take place. As punishment for the violation, penalties such as imposing fines, confiscating products, and confiscating trade profits, can be established and enforced.

Although the European Parliament and the European Council still need to approve this for the proposal to be enacted, the European Commission expects the proposal to be enacted in 2023. When the proposal is enacted, a 12-month grace period for large companies and 24-month grace period for SMEs will be granted. In addition, in the report of the European Commission that will be published within 2 years after the enactment of the proposal, the possibility of including high carbon stock lands with high biodiversity, such as peatlands, will be reviewed.

However, the European Parliament and civil society point out that it would be difficult for the proposal to effectively prevent deforestation. In particular, the parliament's Committee on the Environment, Public Health and Food Safety expressed its concern that: the proposal does not include corn and rubber in its list of designated products; it only deals with forests and excludes other natural ecosystems; it does not consider protection of the rights of indigenous peoples and local residents; and it does not consider the role of the financial sector and investors.[143] Civil society groups pointed out that more products, especially corn and rubber, should be included in the proposal, as reducing the scope of designated products at high risk of deforestation would only lead to deforestation from other products.[144]

B. The UK

With its exit from the EU in 2020, the UK has amended its Environment Act to make it possible for the country to respond more flexibly and quickly to fast-changing environmental issues after moving away from the environmental regulations led by the EU before Brexit. Schedule 17[145] in the new Environment Act of 2021 states that forest-risk commodities specified by the Secretary of State that are produced without compliance with local laws are banned from being used in the UK for commercial activities.

Unlike specifying products that are subject for import ban in the law, as the EU or the US did, the UK delegated the right to specify forest-risk commodities to the Secretary of State, securing flexibility. The Secretary of State can designate products in which a forest is turned into a farmland for producing them or bear such possibility as forest-risk commodities. According to the agreed points so far, it is expected that products such as cow-related products including beef and leather, as well as cocoa, coffee, corn, palm oil, and soybean will be included in the list of forest-risk commodities. The scope of the products includes not just the designated forest-risk commodities, but also their derivative products and products produced by animals that were fed with such derivative products. In addition, the amended Environment Act deals with the entire commercial activities of these designated products, such as producing, manufacturing, processing, and distributing in the UK. Therefore, the law applies to all companies that import from and export to the UK and their subsidiaries as well.

Unlike the framework of the EU that bans market entry and export of products produced through deforestation regardless of the legality of production process in the laws of the producing country, the Environment Act of the UK centers on legality. This is also the case for the mandatory due diligence system for companies that use forest-risk commodities in commercial activities within the UK. Companies are obligated to identify forest-risk commodities through due diligence systems, collect relevant information, self-assess the risk that the products may not have been produced legally according to the law of the producing country, and take measures to mitigate the risk. Furthermore, a report on establishing such due diligence systems and conducting due

diligence should be regularly submitted to the authority, and the authority will disclose the report. If obligations regarding due diligence are violated or the ban on using forest-risk commodities is violated, then the company may be subject to civil penalty or criminal fine.

The Environment Act of 2021 became a law after receiving royal assent on Nov. 9, 2021, but the details are still left to be confirmed through subordinate statutes. The Environment Act of 2021 focuses on establishing a general framework for how the environmental regulatory system of the UK should be regulated, and the Act gives the Secretary of State the power to decide many aspects of the details through consultation. As such, we will need to wait for the subordinate statutes to be passed to understand the actual scope of application of the law as well as the method of enforcement and supervision.

The UK's Environment Act of 2021 is meaningful in a sense that obligates companies to mandatory due diligence of supply chain regarding a comprehensive list of applicable products to eradicate commercial use of forest-risk commodities in the UK's supply chain. However, it is criticized as still not being enough to achieve the actual objective of the legislation.[146] Considering the fact that approximately one third of deforestation in the world occurs legally, civil society groups have criticized the import ban, or the mandatory due diligence based on "legitimacy," as not appropriate. Especially because several amendments to acts are being proposed at the same time to legalize deforestation in Brazil, the amended Environment Act is helpless against the deforestation of the Amazon.

Along with deforestation, civil society groups are also criticizing the lack of consideration for the human rights of forest defenders. in the amended Environment Act.[147] Changing forests into farmlands is linked to violations of human rights, such as causing forced migration of local residents. However, the Environment Act of 2021 does not deal with the human rights violations connected to deforestation at all. Civic organizations are demanding that the UK should fulfill the promise made at COP26 and work toward strengthening the rights and participation of communities and indigenous peoples, who depend on forests for their livelihoods.[148]

Citizens gathered in front of the California House of Representatives to urge climate action ©SFOC

C. The US

The Fostering Overseas Rule of Law and Environmentally Sound Trade Act of 2021 (hereinafter, the FOREST Act)[149] of the US received the support of 42 civic organizations in line with the call to regulate due diligence on deforestation in the supply chain,[150] and the act was proposed simultaneously in both the House and the Senate. The FOREST Act was proposed with the awareness that government-led regulatory frameworks are needed because attempts made by companies, such as voluntary certification systems, are not effective.

The FOREST Act bans the import of designated products produced in lands with illegal deforestation. When importing designated products, import declarations should be made to inform that reasonable care was given to assess and mitigate the risk that the products are produced in lands with illegal deforestation. The products currently specified by the act are palm oil, soybean, cocoa, beef, rubber, timber pulp, and their derivative products.

The FOREST Act of the US focuses on import and legality. Unlike the legislation in the EU and the UK that broadly consider commercial activities, including import, export, distribution, and sales, the US act only applies to imports. As such, companies that export from the US or distribute in the US are not subject to this act. Furthermore, the designated products that are banned from being imported are only limited to products produced in lands with illegal deforestation risks. When conducting due diligence, risk assessment and mitigation measures are required for illegal deforestation as well. In order to determine the legality of deforestation, violations of the producing country's anti-corruption law, land ownership rights, and the local residents' right to FPIC, are reviewed.

What is unique about the FOREST Act is that it specifies certain countries and demands stricter due diligence regarding designated products imported from those countries, and that it also demands those countries to follow the action plan set up by the Office of the United States Trade Representative (USTR). According to the FOREST Act, the USTR designates countries with ineffective protective measures in regards to illegal deforestation for products likely to be placed in the US market, and sets up an action plan to strengthen relevant systems. When designating these countries, not only is the deforestation status considered, but also indigenous peoples, local residents, and the violation of rights or violence towards environmental advocates and human rights defenders. The USTR sets the benchmark for assessing improvement of systems of designated countries, and the action plans may be cleared or renewed depending on the achievement progress of the benchmark.

In general, companies importing designated products can make import declarations to show that reasonable care was taken to make sure that those products were not produced through illegal deforestation. However, for importers that are subject to stricter due diligence, they also need to provide information on the products' country of origin and overall information on the supply chain, and sufficient information on conducting risk assessment regarding illegal deforestation and taking mitigation measures.

To guarantee its proper execution, the FOREST Act demands the establishment of procedures for receiving information from outside US, by US Customs and Border Protection, regarding violations of the import ban. The act also regulates the audit procedure regarding importing companies' obligations regarding due diligence and import declarations. In addition, the act extends jurisdiction to foreign companies that have used illegally-earned money for illegal deforestation and holds them criminally liable for violation of duty.

When it comes to procurement, the act encourages conduct of more active due diligence by giving preference of up to 10% of the bid price to the company that has the relevant policy in place, such as disclosing country of origin information of forest-risk commodities as well as direct and indirect suppliers, or establishing the FPIC procedure for indigenous peoples or local residents who are directly affected by production of products. The characteristics of the FOREST Act are that the act recognizes that serious human rights violations occur due to deforestation, designates countries for action plans that require review of the legality of deforestation and stricter due diligence, and considers rights violations of indigenous peoples and local residents in the incentivizing process of public procurement. Such consideration for human rights is a point of criticism against the EU and UK legislation.

However, just like the UK's Environment Act, the FOREST Act of the US was also criticized for not considering the producing countries' policies that work against the environment.[151] In particular, in countries where deforestation occurs often, such as Brazil, Indonesia, and the Democratic Republic of the Congo, there are still policies that legitimize land-grabbing against indigenous peoples, and large-scale deforestation. Considering this, civic organizations insist that for the FOREST Act to effectively curb deforestation, the act should go beyond dealing with legality and aim to make all kinds of deforestation disappear from the supply chain.

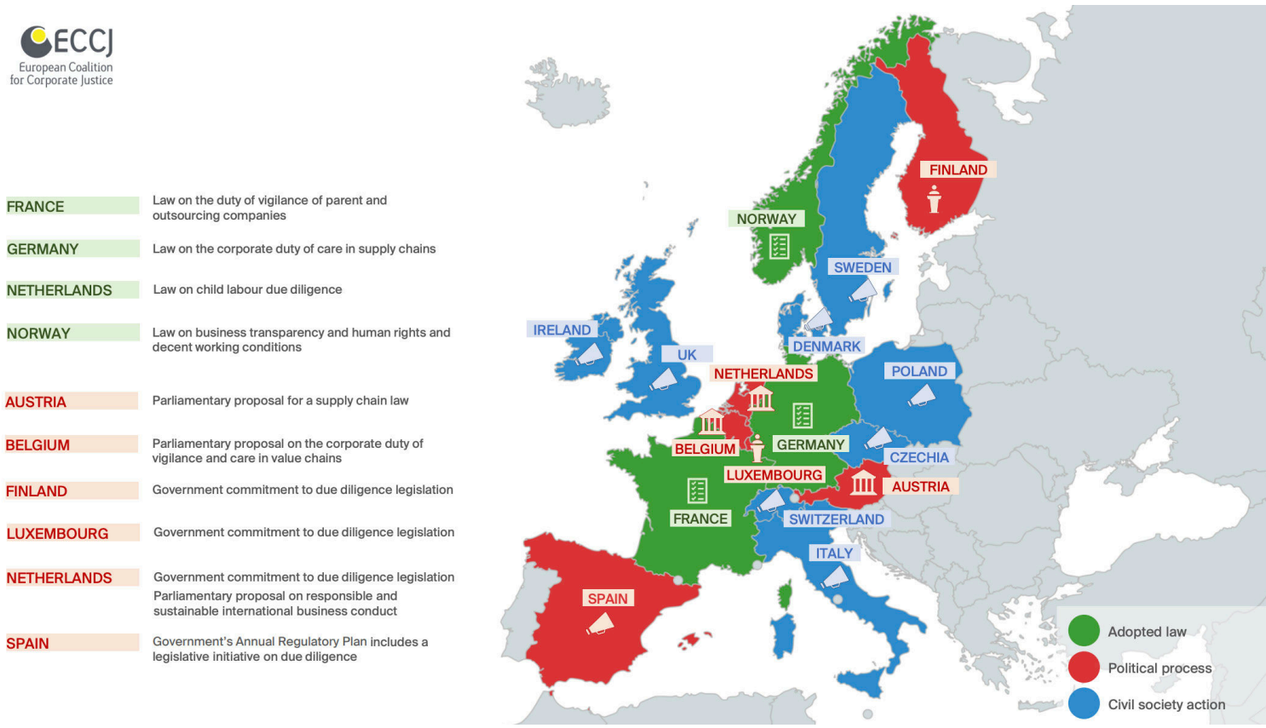
[Table 19] Comparison of Laws in the EU, the UK, and the US[152]

	The EU	The UK	The US
Designated products	Palm oil, soybean, cocoa, beef, timber,coffee and their derivative products (including derivative products produced by animals that were fed designated products).	According to the decision of the Secretary of State. (As of Feb. 2022, the likely products are beef, cocoa, coffee, corn, palm oil, rubber, soybean, and their derivative products (including products produced with forest-risk commodities and by animals that were fed derivative products).	Palm oil, soybean, cocoa, beef, rubber, timber pulp and derivative products.[153]
Scope of application	Designated product' entry to the EU market ("placing and making available on the Union Market") and export.	Commercial activities (production, manufacturing, processing, distribution, sales, supplying, or purchase for such purposes).	Import
Definition of deforestation	Changing the forest for agricultural use (including hydroponics and horticulture) regardless of whether the deforestation is manmade or not.	Changing the forest for agricultural use with the purpose of producing products.	Changing the natural forest to use the land for purposes other than as forest, such as agriculture and plantations.
Conditons of legality	Requires the production process of the product to be not only legal according to the laws of the country of origin, but also be free from all types of deforestation.	Only regulates illegal deforestation.	Only regulates illegal deforestation.
Obligation to conduct due diligence	1) Collect information regarding the supply chain. 2) Risk assessment on violation of duty. 3) Take mitigation measures when risk of violation of duty that is not neglible is found	1) Collect information regarding the product. 2) Conduct risk assessment on non-compliance of laws in the country of origin. 3) Risk mitigation measures. Specific details are to be determined by the Secretary of State.	1) Customs declaration should be made to inform that reasonable care was given to assess and mitigate the risk that the products are produced in lands with illegal deforestation. 2) When importing from countries with "action plans" established by the USTR, provide information regarding supply chain, country of origin, illegal deforestation, and sufficient information on conducting risk assessment regarding illegal deforestation and taking mitigation measures.
Categorization of countries by risk level	Countries of origin are categorized as high risk, standard risk, and low risk, depending on the risk of deforestation. The due diligence obligation for products produced in those countries is applied according to the category. Only the first due diligence step is required for products produced in low risk countries, while the authority of the member country supervises products produced in high risk countries more thoroughly.	The government does not categorize countries by risk level.	The USTR designates countries with insufficient and inefficient protective measures against illegal deforestation and sets "action plans" to strengthen protection measures. The action plans may be cleared or renewed depending on the achievement progress of the benchmark, which is set up to assess the change.
Consideration of human rights	Considers laws regarding land use rights when reviewing compliance with the laws of the product's country of origin, but there is no mechanism in place to protect indigenous peoples or local communities.	Considers laws regarding land ownership rights and land use rights when reviewing the compliance with the laws of the product's country of origin, but there is no mechanism in place to protect indigenous peoples or local communities.	Includes violation of land use rights, and the right to FPIC for indigenous peoples and local residents in its definition of "illegal deforestation." Such human rights situations are considered when designating countries subject to "action plans" as well.

(3) Legislation for Mandatory Due Diligence of Environmental and Human Rights Risks in the Supply Chain

Legislation that mandates supply chain due diligence to respond to human rights and environmental issues occurring throughout the supply chain, not limited to forest-risk commodities, have been enacted or reviewed in many countries around the world. Supply chain environmental and human rights due diligence laws impose an obligation on companies to investigate environmental and human rights violations throughout the supply chain, including subcontractors and partner companies, and fix any problems found and notify of the details. Currently in Europe, such supply chain due diligence laws are enacted in France, the Netherlands, Germany, and Norway, and several countries are also reviewing enacting supply chain human rights due diligence laws.

[Figure 23] Legislation of Supply Chain Due Diligence Laws in European Countries[154]



A. France

On March 28, 2017, the Law on the Duty of Vigilance of Parent and Lead Companies was enacted in France.[155] There has been a continuous demand for multinational corporations based in Europe and North America to be held accountable for human rights violations that occur in the supply chain around the world. However, the 2013 Rana Plaza collapse in Bangladesh caused the agenda to gain more significance. Through this law, France set a new provision in the Commercial Law stipulating the duty of vigilance for the risks of human rights and environmental violations for all large corporations regardless of industry.

The Law on the Duty of Vigilance of Parent and Lead Companies addresses the risks of violations of human rights, fundamental freedoms, and the health and safety of humans and the environment (hereinafter, "Risks"). Although critics point out that the definition of regulated risk is vague, legislators have deliberately used terms such as risk without defining the term in a detailed manner specifically to encourage businesses to voluntarily consider and fulfill their obligations, rather than carrying out the duty of vigilance imposed by the law as a formality.[156]

Regarding such risk, French listed companies with more than 5,000 employees and direct and indirect subsidiaries based in France, or French public companies with more than 10,000 employees and direct and indirect subsidiaries worldwide, are obliged to establish and implement a vigilance plan. The vigilance plan is specified through consultation with stakeholders, and should include all the following: 1. identification of risks; 2. regular evaluation of identified risks; 3. preparation of appropriate measures to mitigate risks and prevent serious breaches; 4. establishment of procedures for warning and raising concerns regarding risk occurrence; and 5. implementation monitoring procedures for the preceding measures.

The scope of the vigilance plan includes the activities of the company's entities, the activities of direct and indirect subsidiaries under its control, and the activities of subcontractors and subcontractors with which it has established commercial relationships. The "established commercial relationship" is a concept based on "trust" between business entities which is based on the stability, continuity, and regularity of the business relationship. In the context of duty of vigilance, the exercise of the contract is also an important factor.[157]

The Law on the Duty of Vigilance of Parent and Lead Companies covers performance primarily with the possibility of civil liability for damages. Stakeholders, including NGOs and labor unions, can demand companies to fulfill their duty of vigilance, and if the company does not perform the duty within 3 months of officially being notified, they can file a lawsuit for the court to impose a fine on the company. In addition, if damages are caused by a violation of the company's duty of vigilance, the victim can file a civil-damages claim against the company. The draft of the law had originally contained a criminal punishment clause, but on March 23, 2017, it was found unconstitutional and deleted since the article was excessively vague to include a criminal punishment clause.

France's Law on the Duty of Vigilance of Parent and Lead Companies is innovative in the sense that it mandates comprehensive due diligence across suppliers and subcontractors.[158] This has the effect of preventing multinational corporations from outsourcing the risks of human rights and environmental violations to downstream companies in the supply chain. However, the most obvious limitations of the French law are that it is difficult for stakeholders to raise an issue using this law, which may lead to the company's due diligence being left to follow as a formality, and that it is difficult to enforce the sanctions for non-fulfillment of the due diligence.

In the draft of the law, the company, not the victim, should bear the burden of proof in case of damage caused by the company's non-fulfilment of its duty of vigilance. In the end, according to the law, to file a damage claim, the victim must disclose the fact that the company has violated the duty of vigilance and that the damage has occurred due to the violation. However, it is difficult for the victim to prove such matters.

As effective sanctions for a breach of duty become more difficult, the duty of vigilance procedure is often conducted as a formality rather than as substantive due diligence. As of early 2019, the French NGO Sherpa reported that only 80 vigilance plans had been made public, many of which were poorly documented, with no disclosure of identified risks.[159] In addition, Sherpa's report published in 2021 shows that four years have passed since the Law on the Duty of Vigilance of Parent and Lead Companies was enacted, but the government has yet to publish a list of companies covered by the law. The report criticized that although 44 of the 263 companies that were expected to be subject to the law did not publish a vigilance plan, they did not receive any penalties at all.[160]

B. Germany

Germany's supply chain due diligence law (Lieferkettenso rgfaltspflichtengesetz)[161] began to be discussed with the adoption of the National Action Plan (NAP) on Business and Human Rights to implement the UN Guiding Principles on Business and Human Rights (UNGP) in 2016. At the time, civic organizations insisted on mandating human rights due diligence on companies, but after heated debates, they agreed to let companies conduct human rights due diligence voluntarily first and then take legislative measures if companies' voluntary efforts are concluded to be insufficient after NAP monitoring. In 2020, the NAP monitoring survey found that only 13-17% of companies with 500 or more employees met the NAP human rights due diligence criteria. As a result, discussion on a supply chain due diligence law began to progress more assertively, and was passed in June 2021 and is to be implemented in January 2023.[162]

Germany's supply chain due diligence law stipulates and imposes due diligence obligations for human rights and environmental risks that may occur throughout the supply chain. The applicable companies are companies employing 3,000 or more workers, but from 2024, one year after the implementation, it will be expanded to companies employing 1,000 or more workers. The definition of a company is broad and includes companies such as banks and financial service providers, as well as foreign companies that employ more than the standard number of employees at branches established in Germany.

Germany's supply chain due diligence law defines "human rights and environmental risks" in a specific manner, unlike the French law, which vaguely defines the risk subject to due diligence. Based on the Civil Rights Covenant and Welfare Rights Covenant, and eight major conventions of the ILO, the law specifies 10 representative human rights risks that occur in the supply chain as follows:

- Child labor
- Forced labor
- Slavery
- Neglecting the duty of labor protection regarding industrial accidents
- Violating the freedom of association
- Unequal treatment
- Refusing to pay minimum wage
- Human rights violations related to environmental damage (soil pollution, water pollution, air pollution, noise pollution, excessive use of water)
- Illegal forced eviction
- Violence by security forces

Finally, other acts that are "in a particularly serious manner, and the unlawfulness of which is obvious" that may lead to other human rights violations are also included. Environmental hazards are defined as situations in which a violation of environmental obligations under the Minamata Convention on Mercury, Stockholm Convention on Persistent Organic Pollutants, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention) is imminent.

Enterprises subject to the law should take the following measures regarding the actions of the enterprise and actions of direct and indirect suppliers in its own business area as part of due diligence regarding human rights and environmental risks:

- Establish a risk management system
- Designate a responsible person or persons within the enterprise of the risk management system
- Perform regular risk analysis
- Adopt a policy statement on the company's strategy on human rights
- Lay down preventive measures and take remedial action regarding human rights
- Establish a complaints procedure
- Document and report the enterprise's due diligence obligations

However, due diligence of the indirect supplier's activities is required only when substantive knowledge about human rights and environmental risks is obtained from the activities of the supplier, not as a preventative measure on a regular basis.

The enforcement of the supply chain due diligence law is carried out by around 130 employees from the Federal Office of Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle, BAFA). BAFA has the general power to intervene to verify companies' due diligence reports and check whether companies have fulfilled their due diligence obligations. Enforcement fines or fines for administrative offenses (Bußgeld) may be imposed on companies that do not fulfill their obligations under the supply chain due diligence law, and they are prohibited from bidding for public procurement contracts for three years. Victims of the company's nonperformance of an obligation may file a complaint through BAFA or use the company's complaints procedure, but they cannot file damage claims against the company.

Germany's supply chain due diligence law is more specific than the French law and aims to ensure the fulfillment of the obligations of the subject enterprises by strengthening the authority of the administrative agency in charge. Meanwhile, the unique point is that punishment, such as fines for administrative offenses, can be imposed. However, the scope of companies subject to the law is so small that only 1% of German companies with 10 or more employees are subject to the supply chain due diligence obligations.[163] In addition, the due diligence obligation does not apply to most high-risk companies under the same standard of employing 1,000 or more in industries such as textiles and agriculture, where serious human rights and environmental violations frequently occur.

There is criticism that judging human rights and environmental risks based on "legality" is also not in line with the spirit of the UNGP, which seeks to conduct comprehensive human rights due diligence. In many cases, labor practices that violate human rights occurring in the supply chain are not illegal under local law. As such, civil society groups point out that international human rights standard should be applied instead of following local domestic laws. Another issue pointed out is that due diligence is required only when substantive knowledge of the possibility of human rights and environmental risks is obtained for indirect suppliers, which is inconsistent with the UNGP, which requires regular and preventive due diligence across the entire supply chain. Finally, unlike the French law, the fact that the victim cannot hold the company liable for damage claims for the nonperformance of due diligence obligations has been heavily criticized. Since there is no enforcement provision related to this, not only is the victim unable to make claims based on the responsibility for due diligence, but it is also virtually impossible for the victim to hold the company liable for damages because the burden of proof is on the victim and there is no class action system in place.

C. The EU

It is not only France and Germany, but also Norway, the Netherlands and many other countries who are attempting to make international principles on company responsibility management, such as the UNGP, become legal obligations and not just voluntary measures. However, concerns have been raised that the difference in legal obligations by country may lead to legal instability and procedural burdens in Europe. Accordingly, to apply a consistent and comprehensive law, the European Parliament adopted a resolution on March 10, 2021, with recommendations to the EU Commission on corporate due diligence and corporate accountability.[164] On February 23, 2022, the EU Commission published the Proposal for a Directive on Corporate Sustainability Due Diligence.[165]

The published EU proposal makes the due diligence of potential, actual, and negative impacts on human rights and the environment mandatory for companies and subsidiaries carrying out business activities within the EU market and business activities in the value chains established through commercial relationships. Accordingly, companies have the obligation ①to: introduce due diligence ②policies; identify, prevent, mitigate, and suspend negative ③effects; operate a complaint procedure; ④and disclose information on due diligence. In addition, the director of the company has the duty of care when performing duties, and should consider the impact of his/her decisions on sustainability, such as for human rights, climate change and the environment, and is obliged to supervise the adoption and implementation of the company's due diligence policy and report to the Board of Directors, considering the opinions of stakeholders and civic organizations.

The scope of the EU proposal covers not only companies established in accordance with the laws of EU member states, but also overseas companies over a certain size that are carrying out business activities in the EU. It applies to companies with 500 employees or more and annual sales of more than 150 million euros (Group 1), but also applies to companies with 250 employees and annual sales of 40 million euros or more (Group 2) if that company raises more than 50% of sales in the industries designated as high-risk. The fact that high-risk industries are designated in the legislation is different from the French or German laws, and this includes the clothing industry, agriculture, livestock, fisheries, and mining. Also, financial companies, such as subsidiaries, are also subject to due diligence, which must be performed before they can provide credit, loans, or other financial services. This is seen as a step back from the original resolution which stated that SMEs should also be included in the scope of the legislation.[166]

The proposal defines the negative impacts on human rights and the environment as violations of the prohibited obligations listed in the Appendix of international agreements, such as the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, or the Convention on Biological Diversity. The listing method of human rights and the environment is like that of Germany's law, but the scope is much more inclusive. Also, companies in Group 1 should set up a plan to align their business model and strategy with the goal of the Paris Agreement, which is to limit global warming to below 1.5 ℃ and the transition to a sustainable economy. By imposing obligations related to the climate crisis, the EU proposal can be considered to have extended the scope of company responsibility more than the laws of France and Germany.

Companies need to establish procedures where stakeholders can file complaints if there is suspicion of potential or actual negative impacts regarding human rights and the environment in the business activities of the company, its subsidiary, or in the company's value chain. According to the proposal, anyone can report to the supervisory authority if a violation of a legislated domestic law is suspected. Violation of the proposal obligations should be subject to sanctions prescribed by domestic law, such as fines, and when a company fails to implement due diligence and negative impacts occur due to nonperformance of an obligation, civil liability will arise.

It appears that the EU proposal is more comprehensive and powerful than the law of France or Germany, but there are voices of criticism saying that it will not be able to provide practical remedy to the victims.[167] Although the proposal stipulates civil liability, companies will be exempted from such liability when the affiliated company can prove that the EU Code of Conduct is applied, and thus this is criticized as the obligation on supply chain due diligence will be degraded to a check-list level. In addition, the burden of proof still lies on the victim, so it is difficult for the victim to receive compensation for the damage through the system. Also, since the role of the labor union is limited to raising issues through the complaint procedure, it is likely that the stakeholders' participation will be hindered.

The member states will now hold talks at the European Parliament and the European Council regarding the proposal. If the proposal is adopted, member states will be given 2 years to legislate the guideline into domestic law. As this guideline and the "regulation on deforestation-free products," which was previously introduced, are complementary to each other, it is expected that they may be applied simultaneously or separately, depending on the issue.[168]

Delivering the petition, signed by more than 500,000 citizens for the legislation of mandatory due diligence, to Reynders, the EU Commissioner, via online ©Friends of the Earth Europe

500,000+

people around the world

want a strong EU law to

HOLD BUSINESS ACCOUNTABLE.

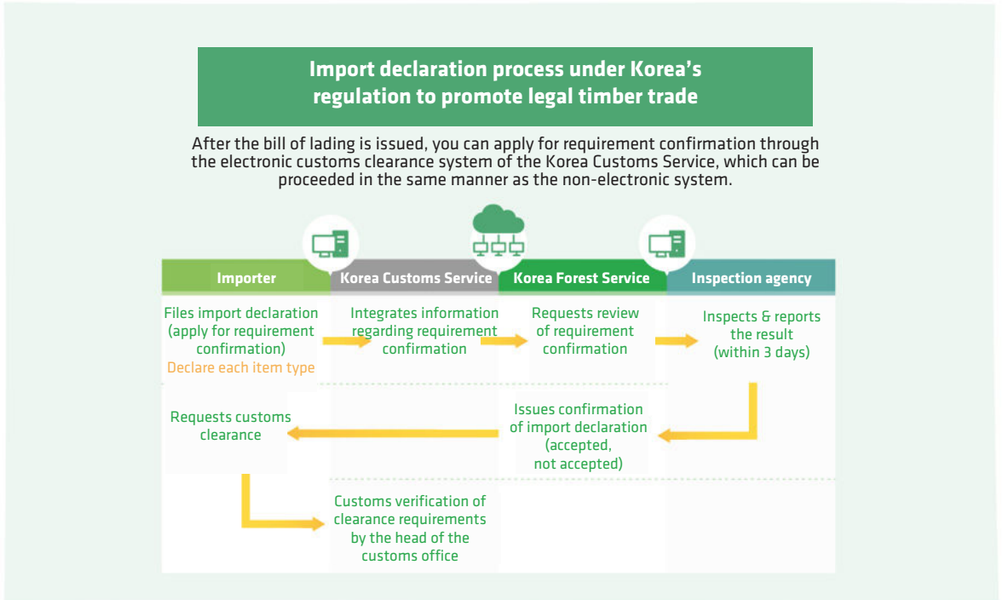
2. Korean Policy on Deforestation

Currently Korea has implemented the regulation to promote legal timber trade to prevent deforestation, but this policy has its limitations in many aspects. On the contrary, there are cases where the government supports foreign countries' agricultural and forest resource development even if such practices lead to deforestation or infringe on human rights. Although moves towards Environmental, Social, and Governance (ESG) have begun to gain traction in Korea, there are no laws obligating companies to consider non-financial matters, such as ESG, when conducting business.

(1) Limitations of the Regulation to Promote Legal Time Trade

Korea introduced and implemented the regulation to promote legal timber trade in 2018 barring the import of illegally logged timber and related products from Korea. Accordingly, when importing timber and timber products, documents that verify that the timber was legally produced in accordance with the law of the producing country must be submitted during the customs procedure. The submitted documents must be verified by the Korea Forestry Promotion Institute before a certificate of import declaration can be issued and customs clearance can proceed.

[Figure 24] Import Customs System of the Regulation to Promote Legal Timber Trade[169]



Korea Forest Service
National Institute of Forest Science

Regulation to Promote Legal Timber Trade

Designated timber products: 1. Logs (HS 4403), 2. Sawn timber (HS 4407), 3. Anti-decay wood (HS 4407), 4. Fire retardant treated wood (HS 4407), 5. Laminated wood (HS 4407), 6. Plywood (HS 4412), 7. Wood pellets (HS 4401.31).

Documents accepted to prove timber's legitimacy:
1. A logging permit issued in accordance with the law of the country of origin.

2. An internationally accepted document for certification of legally logged timber or timber products, which is determined by the Korea Forest Service.
   A. A Forest Management Certification or forestry product certification (including Chain of Custody, Controlled Wood Certification) issued by the FSC.
   B. A Forest Management Certification or forestry product certification (Chain of Custody Certification) issued by the Programme for Endorsement of Forest Certification (PEFC).
   C. A certificate issued according to the certification system described in the [Annex], which is mutually recognized and registered between PEFC and each country.
   D. A document issued in accordance with international certification systems (including the third-party certification under ISO 17065) for sustainable use of biomass, verifying the timber has been legally logged.

3. A mutually recognized document according to bilateral agreements between Korea and the country of origin, which is determined and announced by the Korea Forest Service.

4. Other documents to verify that the timber has been legally logged, which is determined and announced by the Korea Forest Service.
   A. A certificate issued according to the management system established by the exporting country based on the Forest Law Enforcement, Governance and Trade-Voluntary Partnership Agreement (FLEGT-VPA) operated by the EU.
   B. An export permit which confirms that the timber or timber products have been legally logged in accordance with the laws of the exporting country.
   C. A confirmation document, such as a permit for transportation or packing list, with a seal (signature) of the government of the exporting country or an agency delegated by the government to confirm that the timber or timber products have been legally logged.
   D. In case the exporting country operates laws and systems to restrict trade of illegally logged timber, a document written and signed by the exporter in accordance with Attachment Form 1.
   E. Other documents that can verify the sustainability and legitimacy of the timber according to bilateral agreements between Korea and the exporting country.

However, as previously mentioned, the regulation to promote legal timber trade has many limitations regarding foreign systems. Under the system Korea accepts imports if they are legally logged according to the laws of the country of origin, regardless of whether these laws prevent deforestation. In addition, in countries where illegal logging is difficult to monitor due to a lack of government resources, the source of imported roundwood is difficult to verify. This is made worse by the prevalence of fraud in the verification process in many source countries.

While global deforestation is caused by the production of a wide range of agricultural products, regulation to promote legal timber trade only regulates timber. Moreover, even this is only regulated in terms of whether it is illegally logged, ignoring the various environmental or human rights risks that are closely related to logging. This system also relies solely on the submission of legal documents to Korean authorities, far short of the requirements of overseas due diligence laws. Therefore, it is difficult to view this as a sufficient system that can address deforestation.

2022. 3. 15 APIL and SFOC's campaigners, urging Moorim Paper to cease destroying Indonesian tropical forests ©SFOC

(2) Problems in the Overseas Agriculture and Forest Resources Development and Cooperation Act

The Overseas Agriculture and Forest Resources Development and Cooperation Act, supports overseas agri-food industry and forest resources development projects by Korean companies. This is achieved through subsidies for training personnel carrying out investment environment research, and providing loans to companies that are extending their business abroad. By 2020, the Ministry of Agriculture, Food and Rural Affairs had provided a total of 184.5 billion KRW (150 million USD) of loans to 41 companies that operating in 14 countries.[170] The Korea Forest Service provided a total of 216.9 billion KRW (176 million USD) in loans to 33 companies operating in 18 countries.[171]

Many such recipients are involved in palm oil plantations, and have faced growing criticism regarding deforestation and human rights violations.[172] In particular, POSCO International has been criticized for destroying 26,500 ha of forest and infringing on the rights of indigenous peoples in Papua, Indonesia, during the period 2012 to 2017.[173] The Korean government provided approximately 43 billion KRW (35 million KRW) to POSCO International's Indonesian subsidiary. Daesang Corporation damaged peatlands and caused land disputes while operating a palm oil plantation in West Kalimantan[174] while the Korean government provided about 6.9 billion KRW (5.6 million USD) to Daesang Corporation's subsidiary in Indonesia.

[Table 20] Korean Companies Operating Palm Plantations in Indonesia and the Korean Government's Loan Support[175]

Company	Subsidiary	Plantation size (ha) / location	Reported annual production of Crude Palm Oil (ton)	Amount of loan provided (unit: 1 mil. KRW)
POSCO International	PT Bio. Inti Agrindo	34,184 / Papua	80,000	43,027
LX International	PT Parna Agromas PT Tintin Boyok Sawit Makmur PT Tintin Boyok Sawit Makmur Dua PT Grand Utama Mandiri	31,513 / West Kalimantan	150,000	9,975
Samsung C&T	PT Gandaerah Hendana PT Inecda Plantation	21,703 / Riau	100,000	N/A
Daesang Corporation	PT Sintang Raya	11,212 / West Kalimantan	35,000	6,924
JC Chemical	PT Niagamas Gemilang	3,774 / East Kalimantan	45,000	20,109
Total		102,386	410,000	80,035

The Korean government continues to ignore the environmental and human rights risks endemic to overseas agri-food and forestry projects and as a result, deforestation, damage to peatlands, and human rights violations have occurred during projects they have financially supported.

In 2022, the Korea Forest Service revised Forest Project Comprehensive Fund Execution Guidelines and excluded overseas palm oil plantation projects from loan support, after concerns had been continuously raised. Some companies claimed that this would induce eco-friendly palm oil tree planting and international certification. However, as mentioned above, deforestation and human rights violations are still prevalent, even in companies that have obtained international certification. Responding to environmental and human rights risks through international certification has its limits. In addition, since environmental and human rights risks exist for many companies outside the palm oil business, it is necessary to establish specific due diligence standards, not simply to exclude specific businesses from support.

(3) Absence of a Supply Chain Mandatory Due Diligence System

At present there is no system in Korea related to due diligence that requires prior identification and an active response to environmental and human rights risks that occur in the supply chain. The National Human Rights Commission made recommendation in 2018 to include human rights management in public institutions, but this does not factor in the need for due diligence.[176]

The Fundamental Act on Human Rights Policy was passed by the State Council of Korea in December 2021, and prescribes companies' obligations to respect human rights both at home and abroad and through third parties. When this bill is enacted, it is expected to become the first regulation in Korea that stipulates companies' responsibilities to respect human rights within the supply chain.[177] However, this bill has limitations, as it does not require companies to comply with obligatory human rights due diligence.

(4) Insufficient Remedy System for Victims in Extraterritorial Jurisdictions

When supply chains for forest-risk commodities span overseas there is a need for extraterritorial jurisdiction to hold buyers, sellers, and contractors to account for environmental or human rights violations. However, Korea's courts refuse to recognize environmental and human rights cases that occurred overseas,[178] and there is support for victims bringing cases in Korea, such as by relieving the burden of proof, acknowledging evidence from overseas, or providing interpretation.

Non-judicial remedy procedures available for victims in extraterritorial jurisdictions are also very limited. The National Human Rights Commission remains limited in its scope and it is impossible to file a petition regarding a case that occurred overseas. Korea's National Contact Point (NCP) is also criticized for not being able to function as a remedy procedure due to a lack of budget, manpower, fairness, and transparency.[179]

Korea's NCP Fails to Provide Remedy to Indigenous Peoples Who Lost Their Homes to Palm Oil Plantations

In December 2019, the Korean and Indonesian NGOs KTNC Watch, PUSAKA, SKP-KAME, and WALHI Papua submitted a case to the Korean NCP regarding POSCO International. They claimed the company's palm oil plantation in the Papua province of Indonesia destroyed 27,000 ha of tropical rainforest and violated indigenous peoples' right to FPIC and right to water, thus violating the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises. Another case was brought against the Export-Import Bank of Korea, which provided loan support to POSCO International, and the National Pension Service, an institutional investor, pointing out that they were directly connected to environmental damage and human rights violations in Indonesia, and thus in violation of the OECD Guidelines for Multinational Enterprises.[180]

However, the Korean NCP judged that the Export-Import Bank of Korea's activities could not be regarded as 'business activities,' as the bank's loan support to POSCO International was in accordance with national policy, and excluded the bank from the initial assessment.

The case dragged on for over two years, but the Korean NCP did not provide appropriate interpretation for the overseas petitioners, and did not provide any translation of the results. The petitioners, indigenous peoples who suffered from large-scale deforestation damage and water pollution, could not access a remedy through the appeal procedure. Nonetheless, the Korean NCP judged that having acquired RSPO certification POSCO International was in fact on example of 'best practice' under the OECD Guidelines, and promoted it as an example of successful ESG management.[181]

Press conference for the submission of complaints to the National Human Rights Commission regarding the Korean NCP's violation of OECD Guidelines ©APIL

CHAPTER 5.
CONCLUSIONS AND SUGGESTIONS

Globally, considerable progress is being made to address the loss of biodiversity loss and carbon sinks as they are inextricably related to international trade. The COP26 Glasgow Leaders' Declaration on Forests and Land Use, the Convention on Biological Diversity (CBD), the New York Declaration on Forests, and the Sustainable Development Goals are all important examples of high-level agreements that address the issue of supply chain due diligence.

While legislation on supply chain due diligence is being enacted throughout the EU, on the opposite side of the world, Korea is turning into a leakage market for forest-risk commodities. While the volume of Korea's forest-risk commodities import is increasing, the legal and institutional framework to respond to environmental and social and human rights issues is lacking. There remains no progress in discussions at the government level, despite the efforts of the civil society organizations.

In Chapters 2 and 3, we showed through an analysis of Korea's largest importing companies that the environmental and human rights risks for wood pellets, wood chips, and palm oil remain very high. Although there were differences in the type and level of risk, common issues include: greenhouse gas emissions; reductions in biodiversity; deforestation; violation of agreements on legal timber trade; air, soil, and water pollution; land conflict; unsafe work conditions; and the denial of labor rights. Given that our framework for analysis contained only 20 indices and was limited to only three products (wood pellets, wood chips, and palm oil) in two countries (Indonesia and Vietnam), there is a high possibility that the risks in the supply chain of forest products imported to Korea are more diverse and intense.

Considering this, civil society organizations call on the Korean government to take the following measures so that Korea can take part in global efforts to minimize deforestation

Revise legislation on the trade of forest products:
The limitations of the current regulation to promote legal timber trade should be recognized and it should be reformed extensively, as it is not effective in determining the legality, traceability, and sustainability of timber products. Customs clearance and monitoring processes should be significantly strengthened in this regard. It is necessary to recognize the precedents of neighboring countries, such as Japan, which are now discovering the consequences of a false assumption that voluntary certifications, such as the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC), would solve supply chain risks.

Introduce a supply chain due diligence law:
Make due diligence an obligation for the trade of forest-risk commodities to allow their trade only when there are no associated risks of environmental and human rights violations. Such legislation should mandate corporate due diligence on environmental and human rights violations in all business operations along the entire supply chain.

Enhance access to recourse for victims:
Due diligence should not simply be a box for companies to tick, but should serve as grounds to hold companies accountable for environmental and human rights violations. Victims in extraterritorial jurisdictions should have a means of recourse in Korea. The Korean National Contact Point of the Organisation for Economic Co-operation and Development (OECD) should serve as a non-judicial remedy system by improving transparency and fairness.

Revise energy legislation:
Support for bioenergy should be reduced and the incentive program should be reformed. Renewable energy certificate weightings for large-scale biomass and palm oil-based bio-heavy oil should be gradually reduced, as they rely heavily on forest-risk commodities. Discussions should begin on when to phase out these fuels. In particular, the timing of an early phase-out of crop-based fuels should be set, and stringent sustainability criteria should be established for all fuels prior to the phase-out. All phase-outs must include consideration of a just transition.

Climate activists protesting at COP26 in Glasgow ©SFOC

Revise finance and funding legislation:

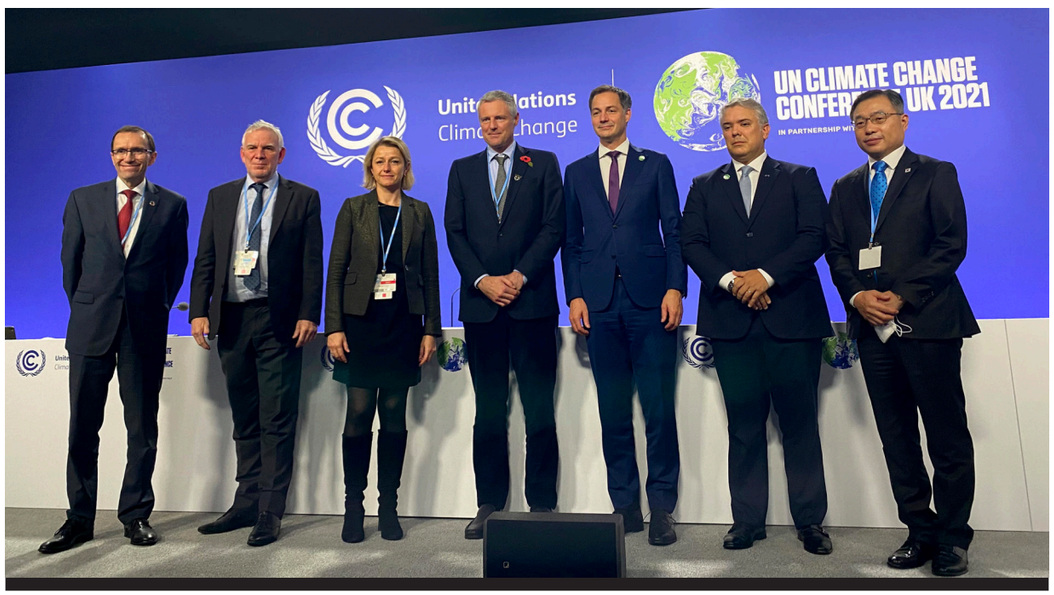
Companies linked to forest-risk commodities that receive support under the Overseas Agriculture and Forest Resources Development and Cooperation Act should be required to carry out due diligence on environmental and human rights risks. The "reduction" category in the Korea Green Taxonomy (K-Taxonomy), which makes it easier to issue green bonds to bioenergy businesses, should be withdrawn, and all large-scale bioenergy should be excluded from the K-Taxonomy. Screening and exclusion criteria that are not included in the current system should be prepared to minimize the risk of deforestation even if some bioenergy businesses are allowed to a limited degree.

Implement international conventions:

The Glasgow Leaders' Declaration on Forests and Land Use of the United Nations Climate Change Conference (UNFCCC) COP 26, and domestic Korean policy, must become aligned. Mechanisms and intergovernmental cooperation are also required to effectively implement the Post-2020 Global Biodiversity Framework, which is to be adopted by the Convention of Biological Diversity (CBD) in 2022. In addition, it is necessary to reduce dependence on overseas emission reductions in Korea's 2030 Nationally Determined Contribution (NDC) and 2050 Carbon Neutral Scenarios, while reducing the share of bioenergy that uses forest-risk commodities.

In 2022, Korea will host the 15th World Forestry Congress, one of the most important international events in the forestry sector. The Congress presents alternatives to solve deforestation and forest degradation around the world and is an event that renews the commitment of world leaders regarding climate, biological diversity, and forest issues. Even though Korea recently signed three forestry-related agreements, including the Glasgow Leaders' Declaration on Forests and Land Use, and officially participates in the Forest, Agriculture and Commodity Trade Dialogue, there will be no specific discussion on forest-risk commodity trade or supply chain due diligence at the Congress, and the Korea Forest Service is unwilling to give prominence to these issues in the final declaration that each country will sign. The Congress is an opportunity for governments to create a vision for sustainable forestry practices and a transparent international trading system. Leadership and action are required.

Minister of Korea Forestry Service at the press conference for COP26 Global Forestry Finance Pledge ©Korea Forestry Service



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