THAILAND INDUSTRY OUTLOOK 2025-27

Rubber Industry



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Krungsri Research

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EXECUTIVE SUMMARY

The Thai rubber industry can look forward to growth on both the demand and supply sides of the market over the three years from 2025 to 2027. Supply will benefit from the onset of La Niña conditions and the positive impacts of this on outputs, the expansion in the total size of rubber plantations, and the incentive effects of high prices on the care and attention given to trees and yields by farmers. At the same time, supply to global markets from Indonesia and Malaysia will continue to be disrupted by labor shortages and outbreaks of leaf drop disease, additionally benefiting Thai distributors. On the demand side, domestic and international consumption by downstream industries will improve, in particular as a result of: (i) economic growth, rising investment, and a strengthening global tourism industry that will then lift demand for the downstream products such as auto, auto parts, and tire; (ii) an acceleration in work on infrastructure projects, thereby increasing demand from the construction industry; and (iii) the aged society and the emergence of new infectious diseases, which will boost consumption of medical supplies, especially latex gloves. Nevertheless, the domestic industry will be exposed to risk stemming from rising non-tariff barriers to trade (NTBs) and greater competition from the CLMV nations due to increasing investment inflows from China are expected to make ever deeper inroads into global markets.

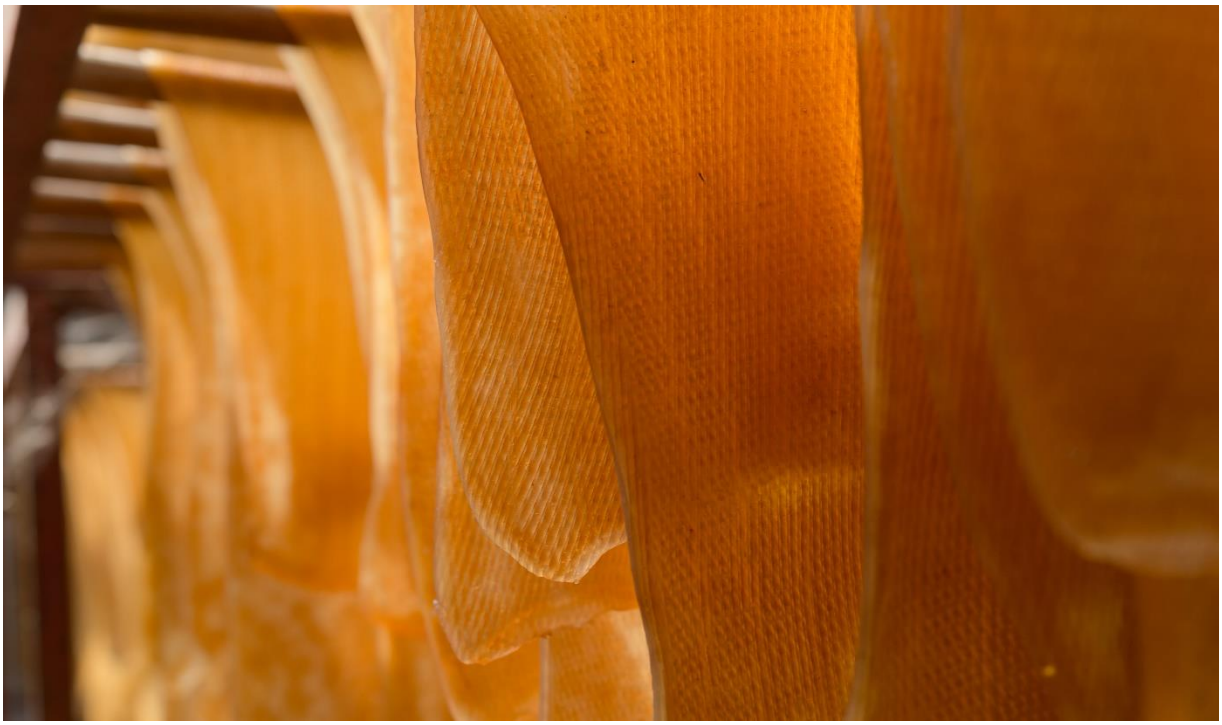
Krungsri Research view

Manufacturers of intermediate rubber goods will see turnover strengthen over 2025-2027, but at the same time, players will have to contend with intensifying competition from Thailand's Southeast Asian peers and the increasing supply that these are providing to world markets, a more difficult trading environment as NTBs proliferate, and uncertainty over rubber outputs.

- **Rubber growers: The revenue will tend to increase.** More favorable weather will tend to boost outputs and lift the revenues. Although prices may fall, strengthening demand from downstream industries will keep price declines to a minimum. Nevertheless, growers will have to face supply-side risks arising from the high cost of inputs, particularly labor and fertilizer, as well as the additional overheads entailed in managing periodic outbreaks of leaf drop disease. These factors may limit the ability of farmers to generate profits.

- **Rubber traders: The revenue is expected to be uncertain.** As distribution channels become narrower, players will face more challenging conditions. Processors are increasingly sourcing inputs directly from growers, intermediate markets, and cooperatives, while Chinese buyers are also moving into the market to buy directly from sources in Thailand. This is then disrupting traders' traditional supply chains. Moreover, exports are being undercut by the switch by some overseas buyers (especially in China) to securing imports from the CLMV nations.
- **Producers of intermediate products: The revenue growth is positive albeit small,** with different segments can expect to see differing growth trajectories as follows.
    - *Ribbed smoked sheet (RSS) and technically specified rubber (TSR):* Stronger demand from Chinese and European auto, tire, and EV manufacturers will boost exports and so lift revenue. However, businesses may face increased competition from competitors, particularly those in CLMV, which are expected to export more products to the market
    - *Concentrated latex:* Turnover will expand in step with strengthening demand from downstream industries, especially manufacturers of medical goods and latex gloves. However, this market will be exposed to risk from the excess capacity that occurred during the pandemic three years ago.
    - *Compound rubber and mixed rubber:* Turnover will be boosted by increased demand from Chinese auto, auto parts and tire manufacturers, especially those connected to EV supply chains. The segment will benefit further from a brighter outlook for economies in major overseas markets (e.g., Malaysia, India, the US and Europe).

Nevertheless, producers of intermediate goods will have to contend with headwinds that will come in the form of worsening geopolitical tensions and the resulting higher cost of crude, which will then tend to add to the price of chemicals and synthetic rubber inputs. In addition, China is expanding its investment in upstream and midstream rubber productions, and this will restrict the opportunities open to Thai exporters looking to grow their markets.



Overview

The Thai rubber supply chain has three main components. (i) Upstream industries involve the growing and harvesting of rubber on plantations by tappers, but to add value to primary production, some farmers engage in basic processing of their field latex to produce dried rubber products such as cup lump, scraps, sheet and crepe rubber[1/]. Almost all upstream production in Thailand is consumed as inputs into the domestic midstream rubber industry. **(ii) Intermediate/midstream rubber industries, or rubber processors**, take rubber produced on plantations[2/] and convert this into semi-finished products, principally ribbed smoked sheet, technically specified rubber, concentrated latex, compound rubber, mixed rubber and skim rubber. These have the qualities and properties required for use as inputs into the different downstream production processes. **(iii) Downstream producers** include manufacturers of items such as tires, latex gloves, condoms, elastics, and so on, although synthetic rubber, which has been developed by the petrochemical sector[3/], is used in place of midstream natural rubber products in applications where its qualities make it more suitable.

Figure 1: Intermediate Rubber Products

Ribbed Smoked Sheet (RSS)



Block Rubber (TSR)



Concentrated Latex



Compound Rubber



Mixed Rubber



Crepe Rubber



Source: Sritrang, Vonbundit, Siamnavakam, North East Rubber, Krungsri Research

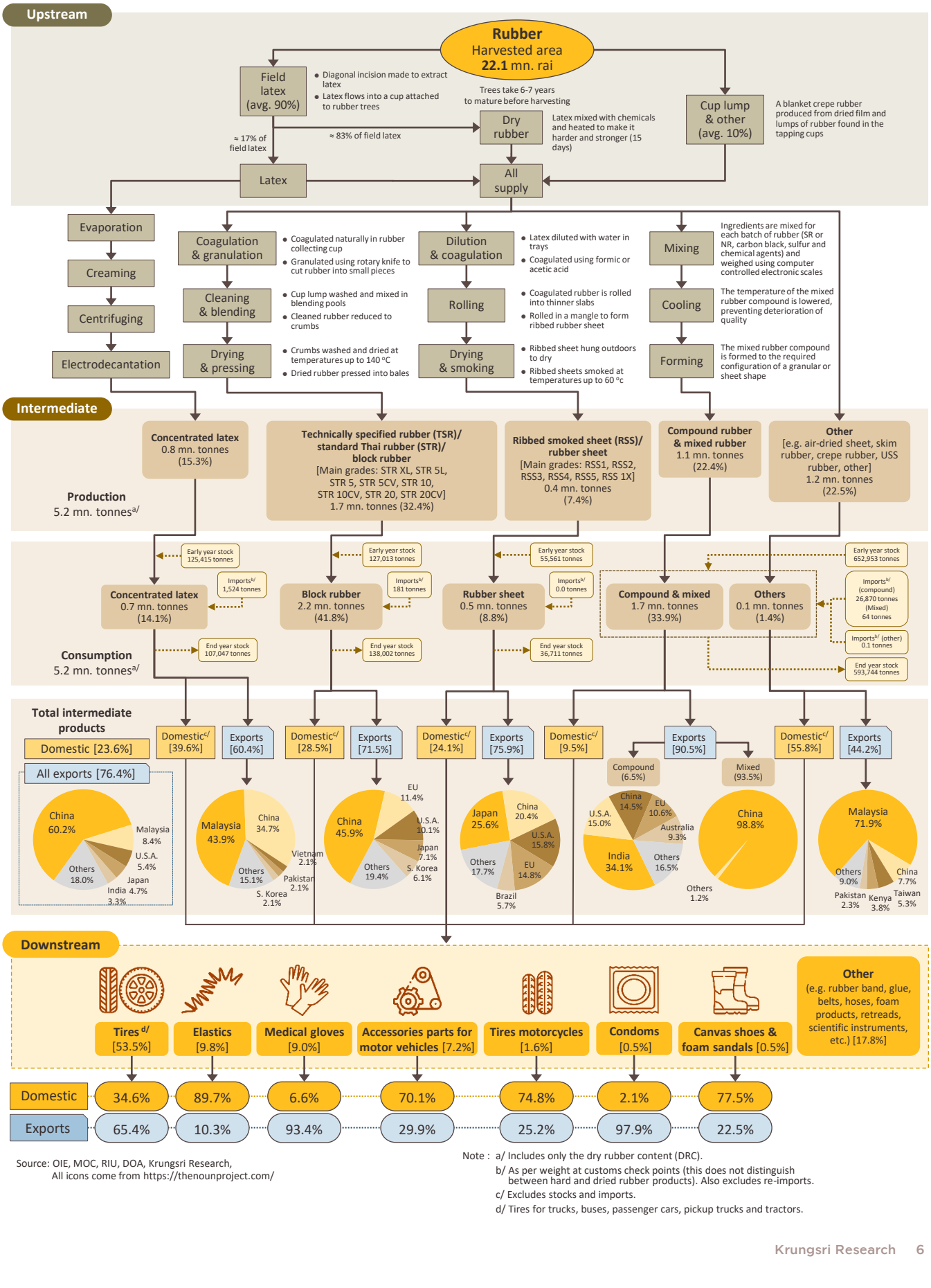
The majority of Thai-produced intermediate rubber goods is sold on overseas markets for processing into downstream products and as of 2023, 76.4% of Thai intermediate rubber goods were sold abroad, with the most important export markets being China (60.2% of all exports of Thai intermediate rubber goods), Malaysia (8.4%), the United States (5.4%), Japan (4.7%) and India (3.3%). **The remaining 23.6% of midstream production is therefore consumed domestically,** and here, the most important end-use is the production of tires (the source of 53.5% of all domestic demand for intermediate rubber products). Tire manufacture is followed in importance by elastics (9.8%), latex or surgical gloves (9.0%), and then other products such as auto parts, hosing, condoms and rubber bands (Box 1).

1/ Crepe rubber is made by cleaning cup lump and rubber scraps and then rolling this into sheets that are dried through exposure to the sun or by using hot-air dryers. This is then generally used to produce brown crepe rubber. This form of processing is mostly practiced in the south of the country, though it is becoming more popular among growers in the north and north-east of Thailand.

2/ Rubber farmers may sell either to middlemen or directly to midstream processors.

3/ Precursors used in the manufacture of synthetic rubber include butadiene, which is produced from oil. Important types of synthetic rubber include styrene butadiene rubber (SBR), butadiene rubber (BR), ethylene propylene-diene rubber (EPDM), nitrile butadiene rubber (NBR), chloroprene rubber (CR), isoprene rubber (IR), isobutylene isoprene rubber (IIR), and styrene block copolymer (SBC).

Box 1: Thai Rubber Supply Chain [2023 Figures]



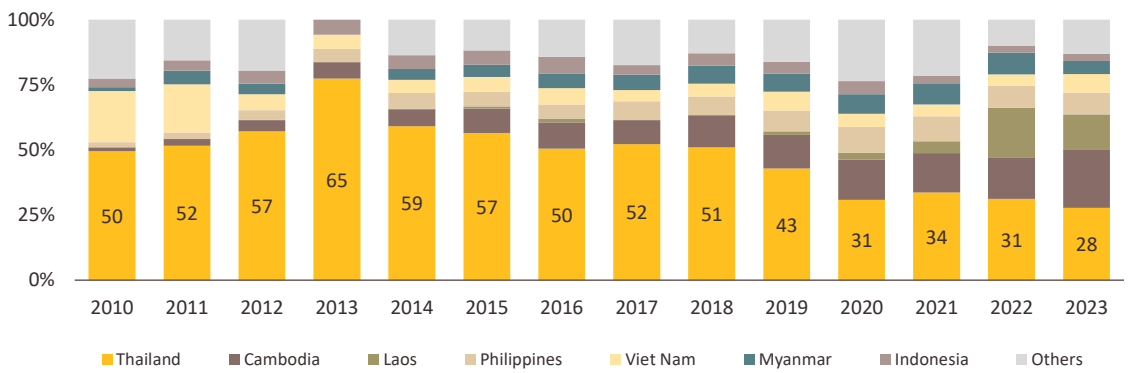
Source: OIE, MOC, RIU, DOA, Krungsri Research,
All icons come from https://thenounproject.com/

Note : a/ Includes only the dry rubber content (DRC).
b/ As per weight at customs check points (this does not distinguish between hard and dried rubber products). Also excludes re-imports.
c/ Excludes stocks and imports.
d/ Tires for trucks, buses, passenger cars, pickup trucks and tractors.

In 2023, the total market for Thai intermediate rubber (both exports and domestic consumption) had a value of around THB 252.0 billion[4/]. Thailand is in a fortunate position because its production is overwhelmingly of fresh rubber, or field latex, (an average of 90% of upstream production is of this) and because this can be used as an input for processing into all types of midstream rubber goods, Thailand's intermediate rubber production is very diversified. The remaining production is of dried rubber, made from cup lump, rubber scraps and other rubber products. Thailand's intermediate rubber supply chain is thus spread across ribbed smoked sheet, technically specified rubber, concentrated latex, compound and mixed rubber, and other miscellaneous products. With a 32.4% share of output, the most important of these is technically specified rubber.

- **Ribbed smoked sheet (RSS): As of 2023, the combined value of the domestic and export markets for RSS stood at just THB 25.6 billion, down from THB 132.1 billion in 2011.** This thus represents an average annual decline of -12.8% CAGR over the period. This sharp worsening of the business environment is attributable to increasing competition for market share from players in other ASEAN countries, including Cambodia, the Philippines, Myanmar, Vietnam and Lao PDR, though thanks to its 27.8% share of all global exports of RSS, Thailand has maintained its leading position in the market (Figure 2). In fact, Thailand exports 75.9% of its output of RSS, and the major export markets for this are Japan (responsible for 25.6% of all Thai RSS exports), China (another 20.4% of exports), and the US (15.8%) (Box 1). The remaining 24.1% of RSS output is consumed domestically.

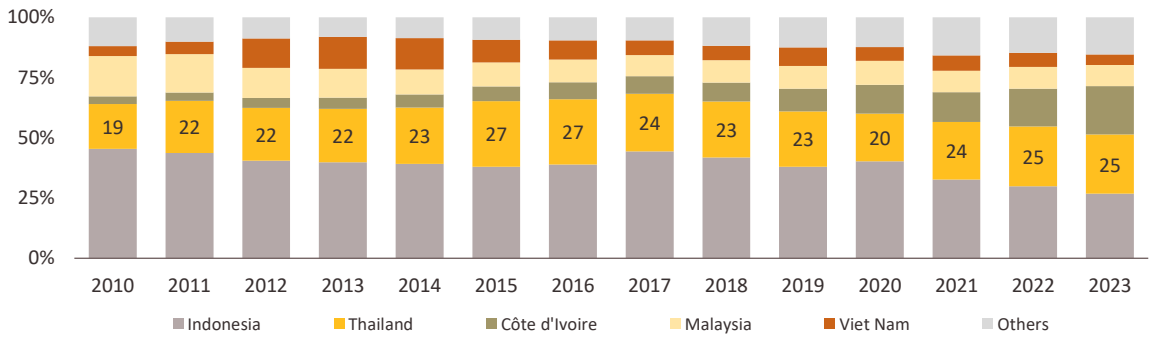
Figure 2: Share of World RSS Exports



Source: Trademap

- **Technically specified rubber (TSR): In total, the Thai rubber industry produced THB 109.0 billion's worth of TSR in 2023, 71.5% of which was sold on overseas markets.** Thailand's main export TSR markets were China (which in the year took 45.9% of all exported Thai-made TSR by quantity) and the US (10.1%). This was sufficient to give Thailand a 24.6% share of the global TSR market, second only to Indonesia (Figure 3). Almost all TSR sold on the domestic market (28.5% of output) is used in the manufacture of tires (Box 1).

Figure 3: Share of World TSR Exports

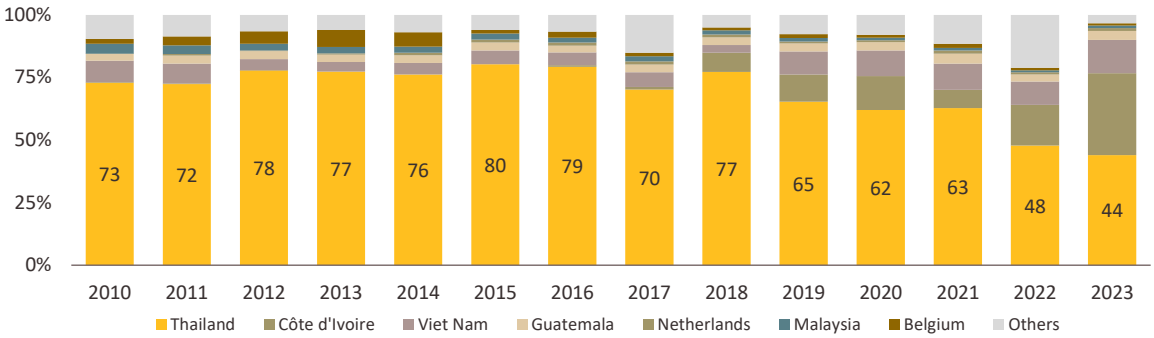


Source: Trademap

4/ Thai intermediate rubber production encompasses sheet rubber, technically specified rubber, concentrated latex, compound rubber, and mixed rubber. (Calculated from the value of goods distributed to export and domestic markets).

- **Concentrated latex:** Thai players distributed concentrated latex worth roughly THB 38.2 billion in 2023. 60.4% of this went to overseas buyers and in virtue of its 44.0% global market share, Thailand is the world leader in this segment, though since 2019, its share of the global market has been in decline due to a pandemic-driven increase in domestic demand (Figure 4). Thus, as a result of the outbreak of COVID-19 and the increased demand for medical supplies and latex gloves in domestic processing, the domestic share of the total market for concentrated latex has risen from an average of 20% to 24.1-39.6%, or from an annual average of 0.18-0.19 million tonnes over 2015-2018 to 0.22-0.29 million tonnes over 2019-2023. At the same time, buyers of Thai concentrated latex products also increased purchases from suppliers in other countries, and so Malaysia (Thailand's biggest export concentrated latex market, with a 43.9% share) and China (a 34.7% share) turned to a greater reliance on imports from Vietnam (Box 1). Most exported concentrated latex is used in the manufacture of latex gloves and condoms.

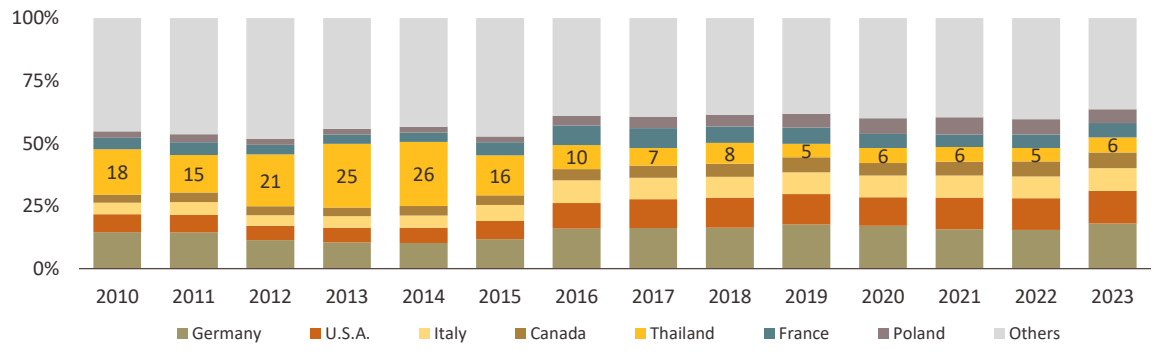
Figure 4: Share of World Concentrated Latex Exports



Source: Trademap

- **Other important parts of the rubber industry, namely compound and mixed rubber, generated receipts of THB 76.7 billion for Thai players in 2023, and in the year, 90.5% of output was distributed on export markets.** Overseas markets for these two products are described below.
  - **Compound rubber:** Thailand is the world's fifth most important source of compound rubber, sitting behind Germany, the US, Italy, and Canada in the global rankings (Figure 5), but the country's share of the world market has shrunk from an average of 8.0-10.0% over 2016-2018 to 5.5-6.0% over 2019-2023. This has been a result of some players switching from producing compound rubber to instead outputting concentrated latex as they shifted to a stronger focus on meeting rising demand, which was driven by the pandemic and the need to increase production of latex gloves. In 2023, India was Thailand's most important export compound rubber market, and the country soaked up 34.1% of exports during the year. India was followed in importance by the US (15.0% of exports) and China (14.5%) (Box 1).

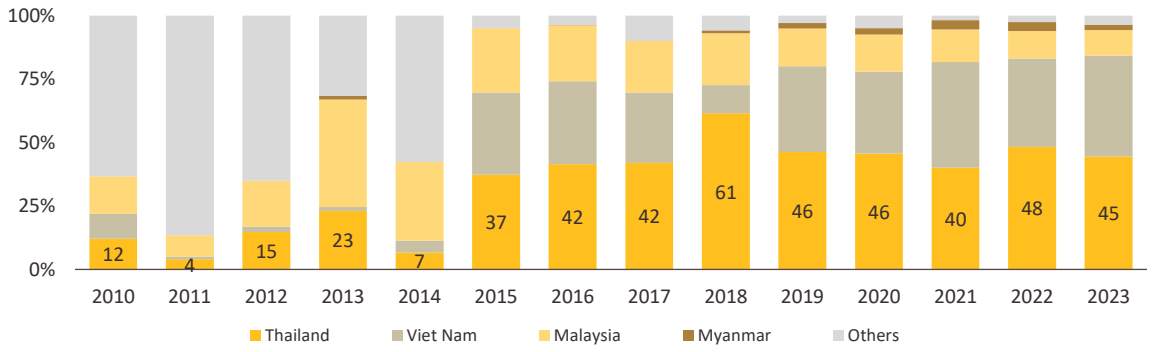
Figure 5: Share of World Compound Rubber Exports



Source: Trademap

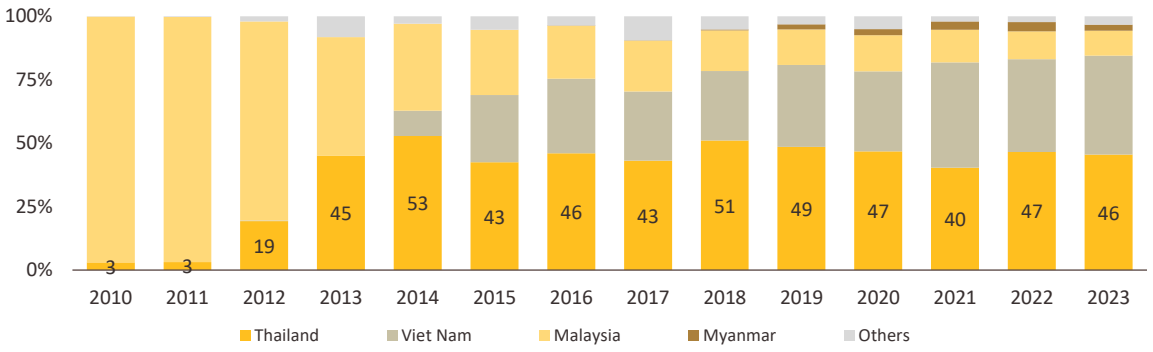
- **Mixed rubber:** Thailand is the world leader in the global market for mixed rubber, followed by Vietnam, Malaysia and Myanmar (Figure 6). Thailand's market share expanded rapidly after 2015, growing from an average of 4.0%-23.0% over 2009-2014 to 45.0-48.0% over 2019-2023. The global market is almost entirely accounted for by China, with the country representing a full 99.2% of exports. In a very distant second place is Italy (0.4% global share) and then India (0.1%), and so given its absolute dominance, it is unsurprising that in 2023, 98.8% of Thai exports of mixed rubber were bound for China, with the remaining 1.2% going to India (Box 1). Nevertheless, despite the importance of China to Thai exporters, the latter account for only 45.5% of Chinese mixed rubber imports, with an additional 39.0% coming from Vietnam and 9.8% from Malaysia (Figure 7). Thai mixed rubber is typically 90-95% natural rubber, with the balance made up by synthetic rubber and/or other chemicals, though the exact ingredients and the proportions used will depend on the material's final uses.

Figure 6: Share of World Mixed Rubber Exports



Source: Trademap

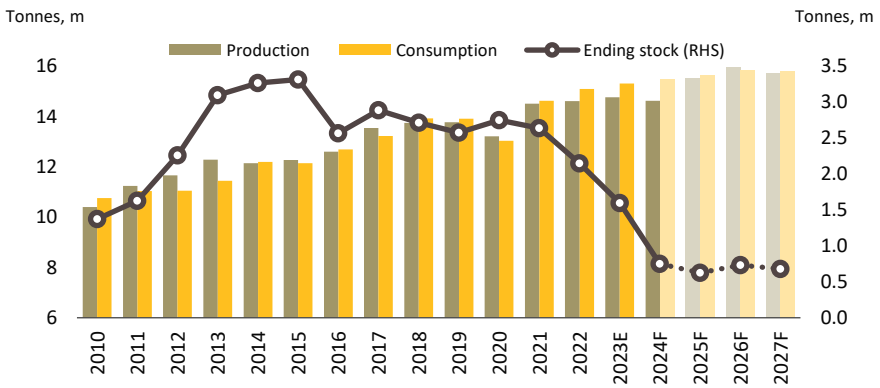
Figure 7: Share of Imports of Mixed Rubber to China



Source: Trademap

The Thai rubber industry's reliance on exports means that midstream operators have to manage a high degree of exposure to changes in both the health of the global economy and the state of downstream industries within particular export markets. Moreover, because Thai exporters are generally dependent on only relatively straightforward production methods and have low levels of product differentiation, Thai midstream players are subjected to high competition. **In 2023, the global supply of natural rubber came to 14.8 million tonnes, of which 34.9% came from Thailand, sufficient for Thailand to retain its place as the world's primary source of this important commodity.** Thailand is followed in importance by Indonesia, Côte d'Ivoire, Vietnam, India and China, and indeed overall, Asia is the source of over 84% of the world's rubber. Thailand's main competitors are thus other ASEAN producers, and in particular, Indonesia, Malaysia and the CLMV nations (Cambodia, Lao PDR, Myanmar and Vietnam) (Figure 8), all of which are, like Thailand, suffering from a supply glut and are responding with an uptick in exports. Nevertheless, despite these rising threats to its dominance, the Thai intermediate rubber industry has retained its place as the world leader, and it is still the number one supplier to global markets of RSS, concentrated latex and mixed rubber, and the world's second most important source of TSR.

Figure 8: World Natural Rubber Production & Consumption



Share of World NR Production and Consumption (2023)

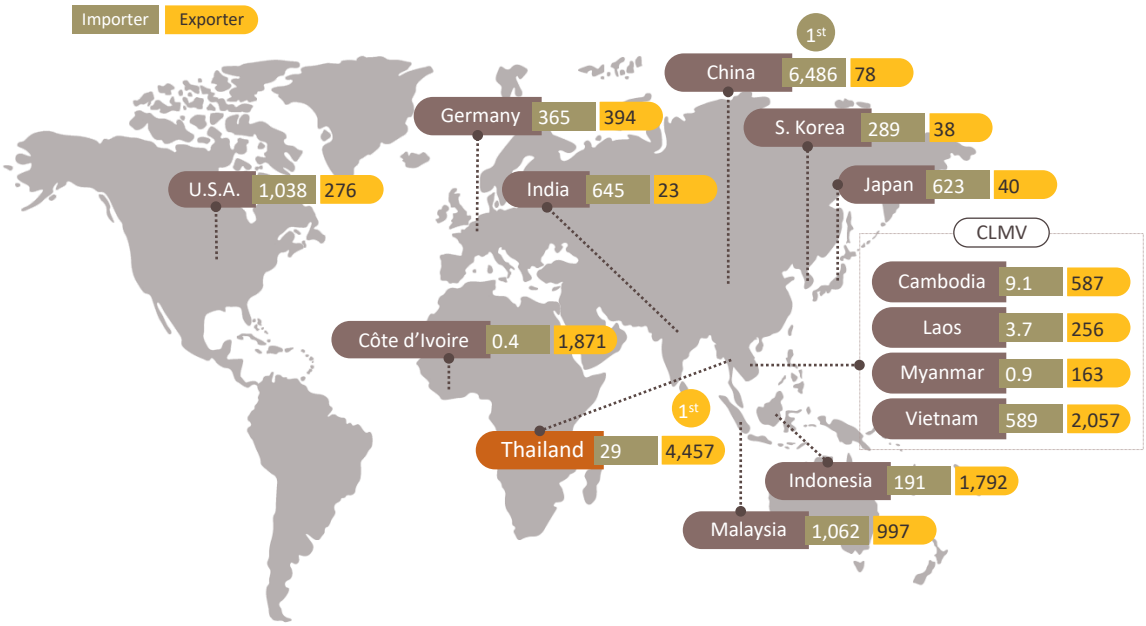
Production	
Thailand	**34.9%**
Indonesia	18.0%
Côte d'Ivoire	10.5%
Vietnam	8.6%
India	5.7%
China	5.6%
Cambodia	2.7%
Malaysia	2.4%
Myanmar	2.2%
Laos	2.1%
Others	7.3%

Consumption	
China	45.7%
India	9.2%
Thailand	**8.1%**
U.S.A.	5.4%
Indonesia	4.7%
Japan	4.3%
Vietnam	2.5%
Malaysia	2.1%
Brazil	2.0%
S. Korea	1.8%
Others	14.2%

Note: Estimated by OAE and Krungsri Research
Source: International Rubber Study Group (IRSG), Malaysian Rubber Council, Office of Agricultural Economics (OAE), Rubber Authority of Thailand (RAOT), Krungsri Research

Figure 9: Exports and Imports of Natural Rubber* (2023)

(Unit : 1,000 Tonnes)



Note: * HS Code 4001, 4005 and 400280
Source: Trademap, Wikipedia, Krungsri Research

Global demand for rubber products totaled 15.3 million tonnes in 2023. The most significant demand is the auto and auto parts industry, which is followed in importance by the medical devices industry (including the production of latex gloves), and the construction industry, both general and infrastructure. **China is the world's most important market, and in 2023, this accounted for 45.7% of global consumption and 45.9% of global imports**, followed by India, Thailand, the US, Indonesia, Malaysia and Vietnam (Figure 8 and Figure 9). Given this and the way the market is structured, Thai exporters tend to be reliant on demand from a small number of countries that are major consumers, and so in 2023, by value, 60.2% of exports of all Thai rubber products went to China and another 8.4% went to Malaysia. This clustering of demand is especially noticeable in exports of mixed rubber, 98.8% of which went to China, while almost half of the market for TSR exports (45.9%) was also accounted for by the country. For concentrated latex, 43.9% of overseas sales were imported by Malaysia and another 34.7% were imported by China. However, this degree of concentration leaves the industry highly exposed to the risk of changes to the economic outlook within these markets.

In addition, between 2006 and 2012, Chinese investors ploughed funds into the development of rubber plantations in the CLMV region, and this is now translating into a steady expansion in supply. The latter thus rose by 21.0% annually over 2018-2023, going from 1.2 million tonnes in 2018 to 3.1 million tonnes in 2023 and as a result, Thailand is losing market share to these countries (Figure 2). **Given this expansion in investment and China's already significant presence in these markets, there will likely be a substantial strengthening of the country's negotiating position within world markets.**

Situation

As of 2023, a total of 24.0 million rai was given over to the cultivation of rubber trees, though this represented a decline of -0.9% on the previous year. 57.5% of this was in the south of Thailand, this proportion has fallen, and so over the last 11 years, this has declined steadily from a high of 63.3%, though as rubber growing has increased in popularity in the northeast of the country (26.0% of rubber plantations) (Figure 10). **At present, the Thai industry produces a total of 4.7 million tonnes of primary rubber production, although this is down -1.6%** as a result of: (i) a decline in the total area under cultivation as growers have felled older unproductive trees and replaced these with alternative agroforestry crops, such as oil palm and durian; (ii) a widespread decline in yields5/ that has resulted from the El Niño-induced drought, the spread of leaf drop disease (both older strains and new variants), and higher energy costs that have pushed up the price of fertilizer and reduced dressings of this; and (iii) labor shortages that have impacted the ability of growers to tap their plantations. The 2023 rubber harvest was then **processed into 5.15 million tonnes of midstream products** (Figure 11). Output of intermediate goods thus inched up 0.1% on a 515.2% surge in production of 'other' goods (e.g., crepe, cup lump, air dried sheets, scraps, and coagulated rubber), while this was down -45.2% for sheet rubber, -28.2% for concentrated latex, -16.1% for block rubber, and -2.2% for compound rubber.

Figure 10: Rubber Tapping Areas in Thailand (2023)

10 Provinces with the Greatest Harvested Area
(Unit: Rai)

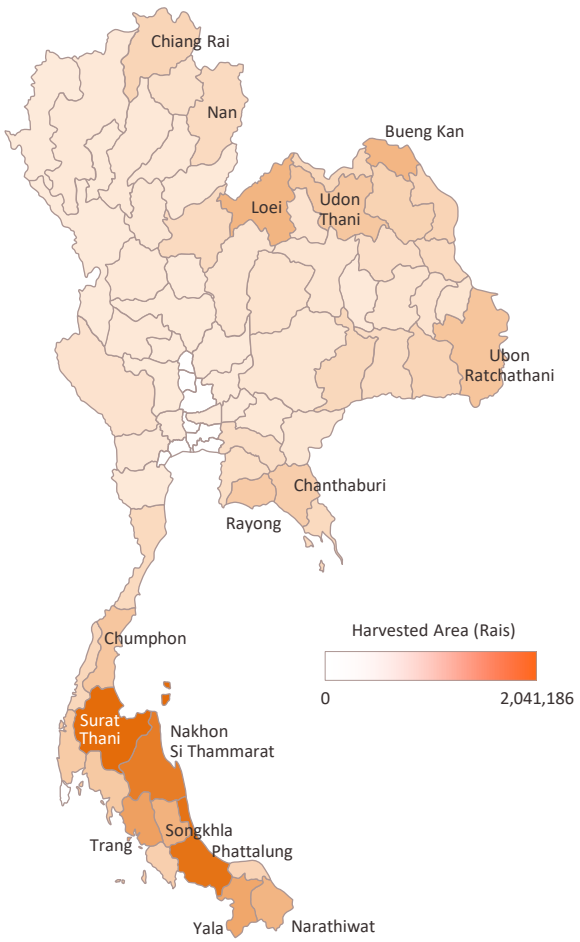
Province	2023	2012	CAGR
1. Surat Thani	2,041,186	2,039,190	0.1%
2. Songkhla	1,930,749	1,665,037	1.4%
3. Nakhon Si Thammarat	1,758,841	1,275,232	3.0%
4. Trang	1,191,812	1,253,051	-0.5%
5. Yala	1,086,816	1,093,790	-0.1%
6. Phatthalung	902,806	625,802	3.4%
7. Loei	860,665	217,256	13.3%
8. Narathiwat	857,928	823,623	0.4%
9. Bueng Kan	844,314	467,787	5.5%
10. Ubon Ratchathani	606,374	220,372	9.6%

Source: OAE

Harvested Area, by Region
(Unit: Rai)

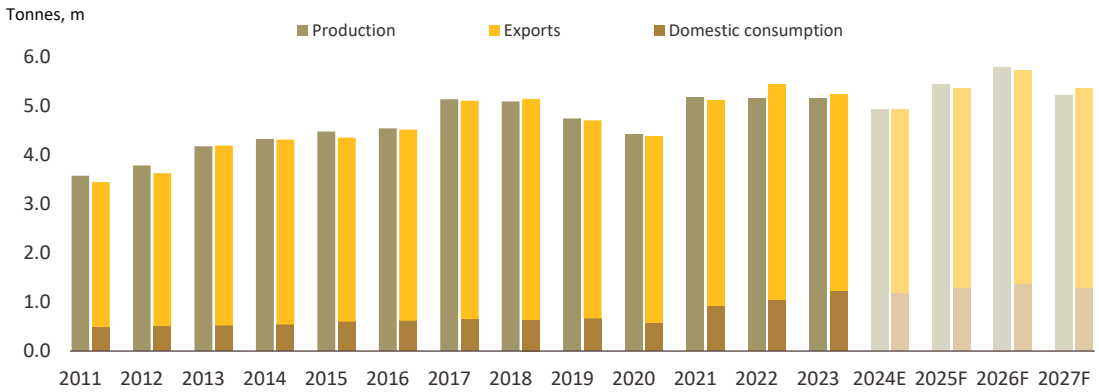
Region	2023	2012	CAGR
1. Southern	12,565,473	11,382,940	0.9%
2. North-Eastern	5,916,323	2,220,332	9.3%
3. Eastern	1,751,735	1,667,800	0.5%
4. Northern	1,397,962	327,623	14.1%
5. Western	440,363	147,989	10.4%
6. Central	10,061	1,819	16.8%
Total	**22,081,917**	**15,748,503**	**3.1%**

Source: OAE



5/ In 2023, per unit yields were down -4.8 kg/rai in the north, -4.1 kg/rai in the south, and -3.8 kg/rai in both the northeast and the central region.

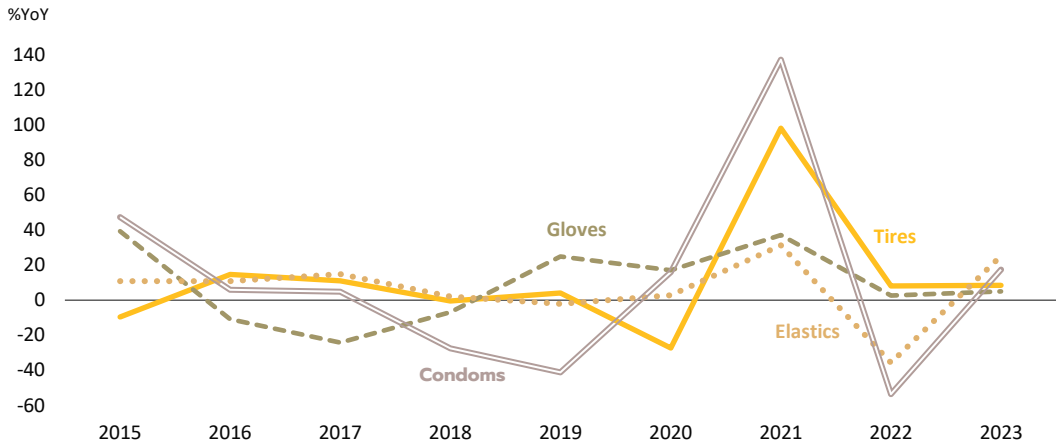
Figure 11: Thailand Natural Rubber Production, Consumption and Exports



Source: OAE, DOA, MOC, Krungsri Research

Domestic demand for intermediate rubber products expanded 18.7% to 1.2 million tonnes[6/] in 2023. This growth was driven by improving sales of TSR, which jumped 60.3% to 0.62 million tonnes, and of concentrated latex (+31.7% to 0.29 million tonnes). However, sales fell for compound and mixed rubber (-20.5% to 0.17 million tonnes), RSS (-11.7% to 0.11 million tonnes), and 'other' products (-57.2% to 0.04 million tonnes). Growth was boosted by stronger demand from domestic downstream industrial consumers of rubber, in particular from: (i) manufacturers of auto parts, i.e., spares (+198.7%) and tires (+8.5%); and (ii) manufacturers of medical devices and supplies, for which growth was accelerated by the ageing of Thai society and increased demand for goods related to public health, including latex gloves (+4.9%), condoms (+17.4%), and elastics used in the production of medical goods (+25.3%) (Figure 12).

Figure 12: Thailand Consumption of Rubber Products

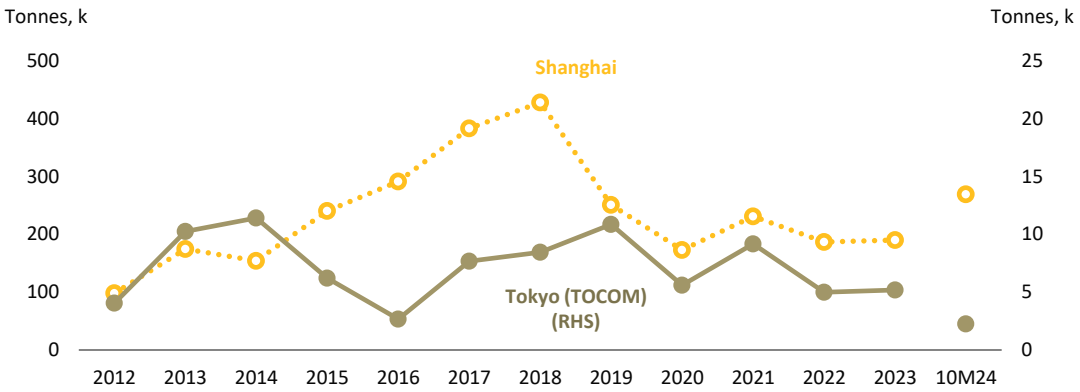


Source: DOA, Krungsri Research

6/ This is calculated exclusively from the dry rubber content (DRC) and does not include water or any other chemicals that are mixed with this.

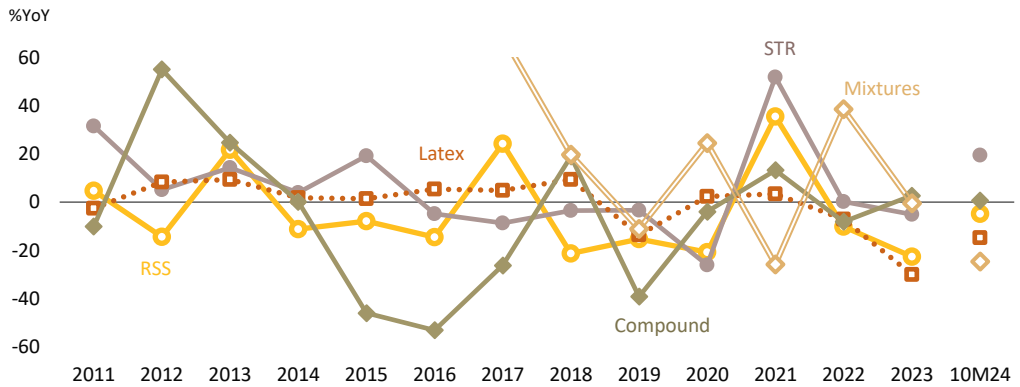
As of 2023, export volume contracted -11.2% to 4.5 million tonnes[7/], and this then generated receipts of USD 6.2 billion (-23.9%). Declines were seen across almost all product categories, including RSS (-22.6%), TSR (-5.1%), concentrated latex (-30.0%), and mixed rubber (-0.4%). This came as a result of falling demand from both the main market of China (-0.5%) and the secondary markets of Malaysia (-30.2%), the US (-15.7%), Japan (-9.5%), South Korea (-48.7%) and France (-52.4%). In the year, the market suffered under the impact of: (i) slowing economies in overseas markets that then pulled down spending power; (ii) weaker purchases of downstream products (e.g., autos, auto parts, latex gloves, and medical devices[8/]) and the resulting drop off in demand in upstream industries in originating nations; (iii) a slowdown in manufacturing industries and thus weaker demand for rubber from trade partners (at the end of 2023, stocks of rubber on the Shanghai and Japanese futures exchanges stood at respectively 189,951 and 5,199 tonnes, almost flat from the 186,702 and 5,004 tonnes recorded in 2022) (Figure 13); and (iv) an increase in exports to China from countries that have a cost advantage relative to Thailand[9/], especially Côte d'Ivoire (+81.2%) but also Vietnam (+12.3%) and Indonesia (+30.8%). The state of export markets through 2023 is described in detail below (Figure 14 and Figure 15).

Figure 13: Natural Rubber Inventories



Source: SHFE, Bloomberg, Krungsri Research

Figure 14: Thailand Exports of Natural Rubber



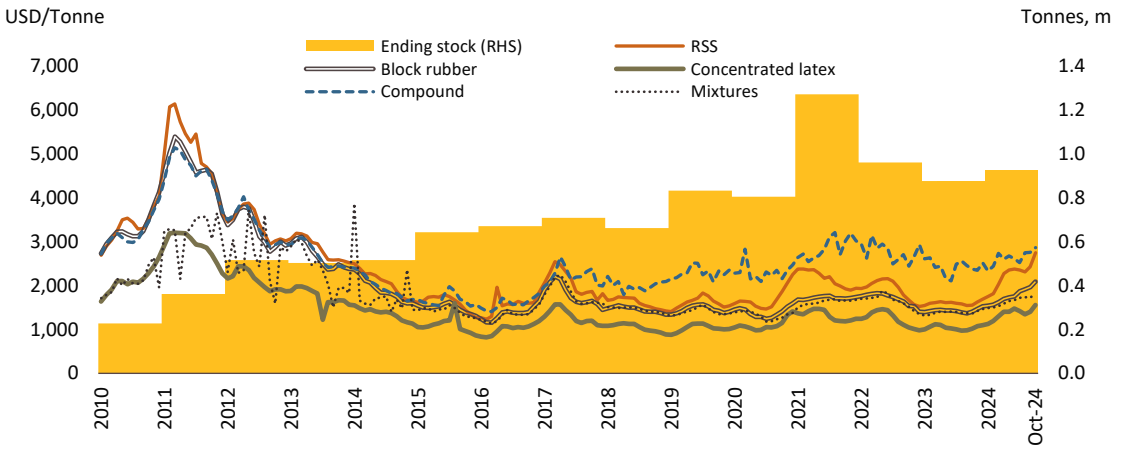
Source: MOC, Krungsri Research

7/ As per confirmed weight at customs check points. Calculated by the DRC, the total weight came to 4.0 million tonnes. For concentrated latex, the DRC averages 60% of the total weight, while for compound and mixed rubber, the DRC is 80%-95% of the total.

8/ This was a result of a relaxation of pandemic controls in many countries and the successful rollout of vaccine programs, especially in China, where restrictions were lifted and the country reopened on 8 January, 2023.

9/ 2023 prices for RSS averaged USD 1,344/tonne in Lao PDR, USD 1,179/tonne in Myanmar, and USD 1,040/tonne in Vietnam. The gap between these prices and those in Thailand is partly due to the high cost of Thai TSR and RSS rubber. In particular, prices for chemicals (the ammonia and acids used in the production process) have risen with the result that in Thailand, production costs for RSS have climbed (source: Trademap and the Rubber Authority of Thailand, calculated by Krungsri Research).

Figure 15: Thailand Ending Stock and Rubber Export Prices

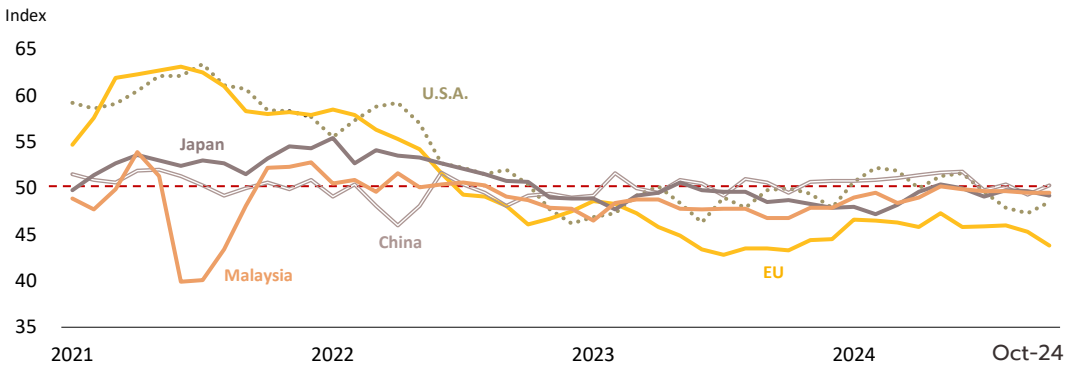


Note: Forecast by Krungsri Research
Source: DOA, OAE, DIT, World Bank, Krungsri Research

- **Ribbed smoked sheet:** Exports slipped -22.6% to a total of 0.35 million tonnes, which then generated receipts of USD 566.3 million (-35.3%). The market was hurt by the -26.2% decreases in the Chinese market, these declines were driven by a drop-off in orders and the switch by Chinese buyers to sourcing goods from Myanmar (+13.8%) following earlier inflows of Chinese capital to the industry and Myanmar's lower production costs for RSS. Similarly, exports to other markets also slipped, falling -37.7% to the EU, -19.9% to the US, and -13.3% to Japan on lower demand from downstream industries and the general slowdown in their economies. Alongside this, export prices fell back -16.3% to USD 1,598.6/tonne.
- **TSR:** Exports dropped -5.1% to 1.58 million tonnes, with export earnings down -20.0% to USD 2.26 billion. Exports were undercut by slowing economies in particular in the auto industry that then fed through weaker demand in secondary markets including South Korea (-52.8%), the EU (-24.5%), the US (-12.8%) and India (-19.6%). Given this, export prices also softened, falling -15.7% to USD 1,429.8/tonne (Figure 15). However, demand from the all-important Chinese market jumped 35.1% to 0.72 million tonnes as the relaxation of COVID-era controls and the reopening of the country allowed economic activity to rebound, and in particular, recovery in travel and transport provided a boost to the auto industry.
- **Concentrated latex:** Exports slumped -30.0%, falling to just 0.77 million tonnes, though receipts from this declined at the faster rate of -41.8% and these thus dropped to USD 805.7 million. Declines were driven by weakness in the main markets of China and Malaysia, where exports softened by respectively -37.4% and -29.6% to 0.27 million and 0.34 million tonnes. This followed the easing of the COVID-19 pandemic and falling demand for medical products and surgical gloves. Softness in the market was accelerated by the decision by the US authorities to ban the use of natural rubber in the production of the latter (to avoid potentially serious reactions among those allergic to proteins in the latex). Weaker demand then undercut prices and so in the year, these slipped -16.9% to USD 1,042.2/tonne.
- **Compound rubber:** Exports totaled 0.11 million tonnes (+2.7%), generating receipts of USD 273.3 million (-10.8%). Overall sales were helped by growth in the important Indian market (+29.8%) as well as Italy (+158.2%), Mexico (+99.5%) and Australia (+14.0%). However, this was countered by declines in sales to other major markets, including the US (-24.0%), the EU (-19.7%) and China (-7.5%). In these countries, the manufacturing sector endured depressed conditions, and this was then reflected in weakness in Manufacturing Purchasing Manager Indices (PMIs), which typically remained in sub-50 recessionary territory (Figure 16). Export prices also softened, falling -13.2% to USD 2,425.0/tonne.
- **Mixed rubber:** Exports slipped -0.4% to 1.62 million tonnes, while revenue weakened at the faster rate of -15.3% to fall to USD 2.25 billion. The market was hurt by the -0.9% declines in sales into the Chinese market, which accounts for a full 98.8% of all Thai exports of mixed rubber. This is largely consumed by the tire industry[10/] and although this benefited from the reopening of the country and the uptick in demand for EVs (which then boosted total imports of mixed rubber by 10.2%), the declining competitiveness of Thai suppliers has meant that Chinese companies have tended to import from lower-cost producers in Vietnam and Lao PDR.

10/ In China, some 76% of rubber is used in the manufacture of tires. This is followed in importance by production of latex gloves, pillows, and condoms (12%) and belts, hosing, shoes, shock absorbers, and other items (12%) (source: Xueqiu, DIPT).

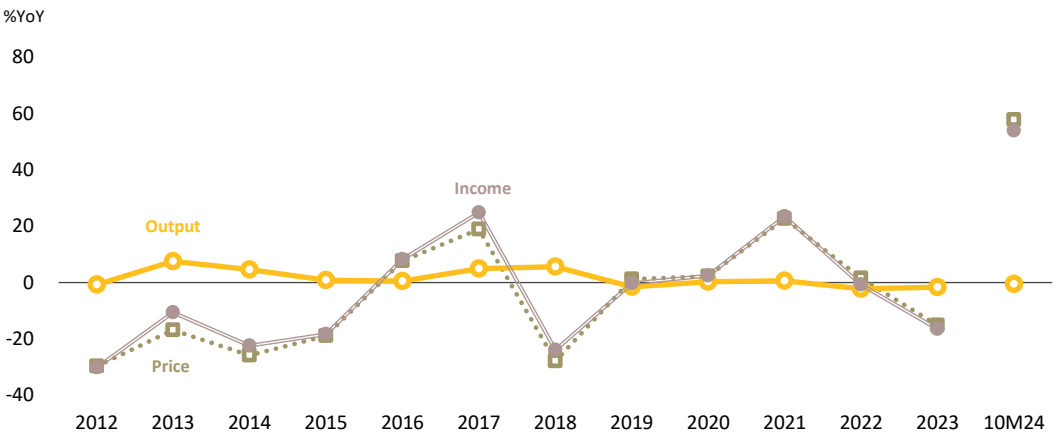
Figure 16: Purchasing Managers Indices



Source: CEIC, Krungsri Research

The rubber industry continued to face contractionary conditions over 10M24 as the industry suffered under the impact of outbreaks of leaf drop disease and an El Niño that then raised temperatures and reduced rainfall. Given this, the agriculture production index for unsmoked sheet 3 fell -0.5% YoY, with losses also seen across intermediate production. Thus, MPIs for RSS, TSR, concentrated latex, and mixed rubber saw declines of respectively -10.1%, -1.5%, -10.9% and -17.4% YoY. However, supply moved against domestic and international demand, which was lifted by increased activity in downstream industries, most obviously the opening of new tire production facilities, increased investment by EV manufacturers, and stronger demand for automotive parts and replacements following the reopening of the country and the subsequent rebound in both commercial activities and tourist arrivals. Supply shortages combined with favorable policies (e.g., the opening of EUDR-compliant rubber auctions[11/], the development of a rubber reference price[12/], and continuing crackdowns on the trade in illegal rubber) to lift average rubber prices, and so indices for unsmoked sheet 3 prices and rubber growers' revenue are expected to have jumped by respectively 57.8% and 53.9% YoY (Figure 17). These factors will extend across the year, and thus for 2024 overall, the industry MPI is forecast to slide by between -0.5% and -1.5%, with output of intermediate goods contracting by between -3.5% and -4.5%. Likewise, prices will be up 57.0-59.0%, lifting farm incomes by 53.0-54.0%.

Figure 17: Thai Un-smoked Sheet3 Rubber Index



Source: Office of Agricultural Economics (OAE)

11/ This is rubber that meets the supply chain and provenance checking required by the EU's European Union Deforestation Free Regulation (EUDR).

12/ The Thailand Futures Exchange (TFEX) and the Rubber Authority of Thailand have signed a memorandum of understanding to set rubber reference prices, that is, prices for RSS 3, TSR, and concentrated latex. This will be used in both domestic and international trades.

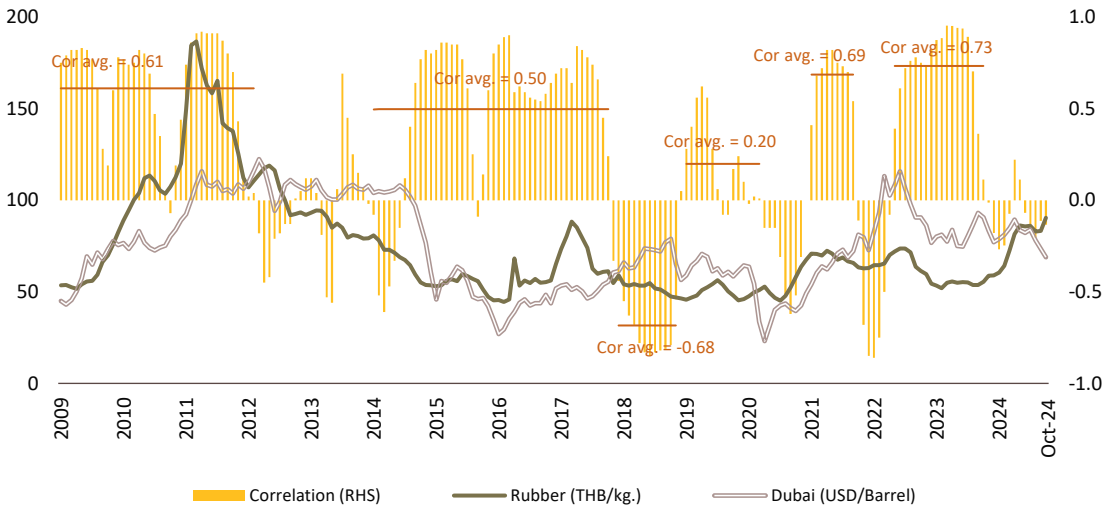
These upstream supply shortages weighed on production through the first 10 months of the year, and so the overall volume of intermediate goods that was available for domestic use contracted. In particular, the quantity of RSS and concentrated latex distributed to the market declined by respectively -2.7% and -9.7% YoY, though sales of TSR and mixed rubber bucked this trend to expand by 2.7% and 9.6% YoY, respectively. This came despite growing demand for rubber from downstream industrial consumers, in particular from: (i) the auto and auto parts industry, which is benefiting from growth in the EV segment and recovery in the tourism industry that is then driving increased demand from the service and transport sector for replacement parts, including spares (+6.7% YoY), auto tires (+4.2% YoY), truck tires (+5.2% YoY) and retreads (+3.0% YoY); and (ii) the medical supplies industry, where demand is up for surgical gloves (+13.1% YoY) and condoms (+77.8% YoY). Supply shortages will persist through the year and so the total quantity of intermediate goods distributed to the domestic market will contract by between -3.0% and -6.0% in 2024, bringing this down to 1.1-1.2 million tonnes[13/].

Exports of intermediate goods also softened over 10M24. These thus fell -5.3% YoY to 3.5 million tonnes, although earnings rose 19.3% YoY to THB 6.1 billion. China remains Thailand's principal export target, given its 50.9% market share, followed by Malaysia (8.9%), the US (6.7%), Japan (5.9%) and India (4.5%). Weaker exports showed up in most product categories, with total exports down -24.6% to 1.04 million tonnes for mixed rubber, -14.8% YoY to 0.56 million tonnes for concentrated latex, and -4.8% YoY to 0.28 million tonnes for sheet rubber. However, growth was seen in some segments, namely TSR (+19.5% YoY to 1.53 million tonnes) and compound rubber (+0.7% YoY to 0.09 million tonnes). Overall overseas sales were down on weaker exports to the main market of China (-20.7% YoY), where declines were seen in sheet rubber (-56.2% YoY), concentrated latex (-43.8% YoY), compound rubber (-18.2% YoY) and mixed rubber (-25.6% YoY), although exports of TSR to China strengthened by 4.2% YoY thanks to growth in the Chinese auto industry, especially in the EV segment, where strong exports drove output to new highs. Sales were also lifted by firmer demand for TSR for use in the production of auto parts, where as elsewhere, demand was lifted by greater activity in the service, tourism and transport sectors and the resulting increase in demand for spares and replacement parts. Exports to some second-level markets performed better in the period as economies strengthened and global trade firmed up slightly, and so these rose to 23.5% YoY to the US, 29.9% YoY to India, and 25.1% YoY to Japan. These market dynamics will remain largely unchanged through Q4 and so for all of 2024, exports are expected to decline by between -6.0% and -7.0% to 4.1-4.2 million tonnes.

13/ This is calculated exclusively from the dry rubber content (DRC) and does not include the water or any other chemicals that are mixed with this.

Price movements for rubber, in addition to the normal factors of supply, demand and stocks, rubber prices are also influenced by the state of crude markets, and so in 2022 and 2023, the correlation coefficient linking prices for Dubai crude and average monthly rubber prices rose to a 15-year high of 0.73 (Figure 18). This is because strong global demand has pushed up prices for oil-derived synthetic rubber, and as these have risen, manufacturers have increasingly turned to natural rubber alternatives. At the same time, global supply has come under pressure from drought, disease, and labor shortages, and the resulting supply shortages have lifted prices on both domestic and world markets. Given this, Thai prices for unsmoked sheet jumped 54.6% YoY to THB 70.2kg, while RSS export prices were up 40.2% YoY to USD 2,244.5/tonne. Likewise, these were also up 25.4% YoY to USD 1,775.3/tonne for TSR, 31.9% YoY to USD 1,363.4/tonne for concentrated latex, 8.5% YoY to USD 2,630.4/tonne for compound rubber, and 19.4% YoY to USD 1,643.8/tonne for mixed rubber. These changes broadly mirrored the 25.4% YoY increase in the price of TSR 20 (now at USD 1,711.8/tonne).

Figure 18: World Natural Rubber Prices



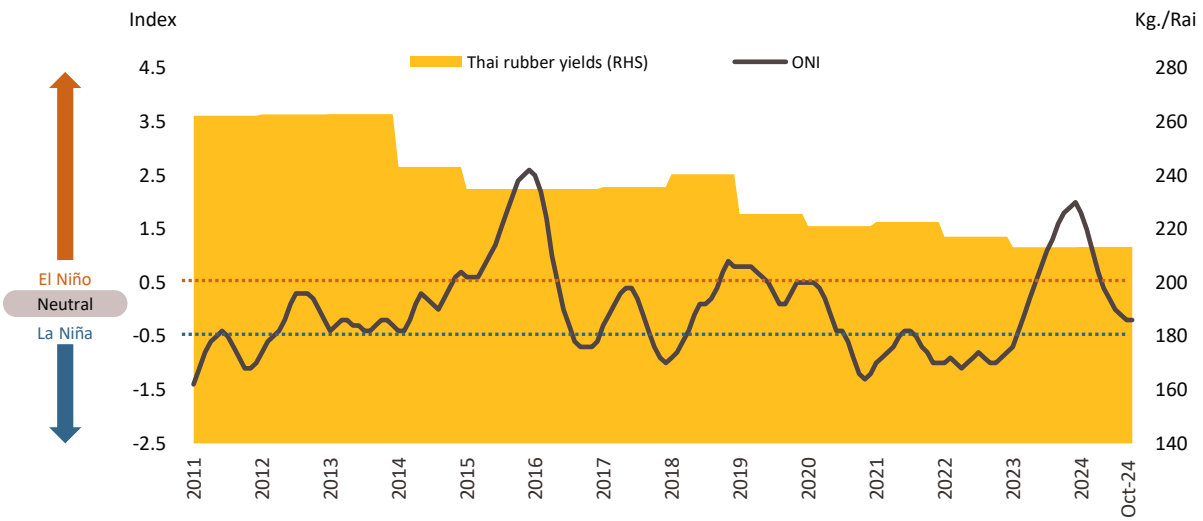
Source: World Bank, RAOT, Krungsri Research

Outlook

The business environment should improve over 2025-2027, with increasing trends of both domestic sales and exports, hence more output.

- **Production of intermediate goods will move in step with the general trend in growth in the global industry, and so this will expand by some 2.0-3.0% annually[14/].** This positive outlook will be supported by: (i) the return of La Niña conditions, which are expected to have an impact for 1-2 years[15/]. With better weather and greater access to water, yields will rise and output of upstream rubber will expand by 0.5-1.5% per year (Figure 19); (ii) the expansion in the area under cultivation that took place over 2003-2013[16/] and the extension of the growing area into the north and northeast in 2015, with plantations in these areas now entering the period of highest yields[17/]; (iii) prices for rubber that have hit a 12-year high and that are incentivizing growers to look after plantations and to maximize yields. Nevertheless, growth will come under threat from the risk of outbreaks of disease, especially of both old and new strains of leaf drop disease[18/], and so some growers have switched to planting more profitable agroforestry products (e.g., durian and oil palm) or raising livestock (e.g., cattle and goats).

Figure 19: Oceanic Niño Index and Thai Rubber Yields



Note: 1/ index > +0.5 indicates that rainfall is lower than normal (El Niño);
index < -0.5 indicates that rainfall is greater than normal (La Niña)

Source: Office of Agricultural Economics, National Oceanic and Atmospheric Administration and Krungsri Research

14/ This is on the assumption that rubber trees are not permanently taken out of production and rubber producing countries in Asia do not cooperate to reduce supply to the market.

15/ Data from NOAA (National Oceanic and Atmospheric Administration) show that the last El Niño occurred in 2023-2024, and there is a reasonable possibility that La Niña conditions will emerge in 2025. Krungsri Research sees the effects of the latter lasting for 1-2 years.

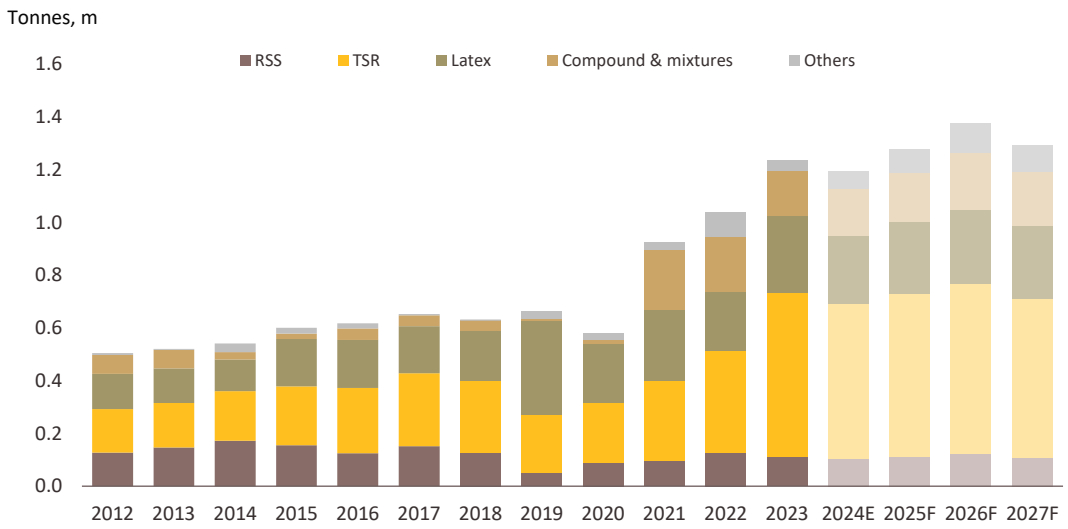
16/ This is a result of government schemes that ran over 2003-2013 that had the goal of expanding the total area of rubber plantations by 1 million rai.

17/ Typically, rubber trees begin to produce their greatest yields after 7 years.

18/ Leaf drop disease began to appear in Thailand in 2019, and with both older and new strains now reported in all rubber cultivars, this has continued to be a problem through to the present day. The current outbreak is driven by the spread of Pestalotiopsis sp. and Colletotrichum sp., which can be transmitted by air, water, or by the movement of infected plants or planting materials. In affected areas, yields typically drop by 30-50% and the growth of affected trees is halted.

- **Domestic sales quantity is expected to expand by some 2.5-3.5% annually** (Figure 20), helped by: (i) stronger demand from downstream industrial consumers, in particular from the auto, auto parts, tire, and related industries, where demand will be boosted by the earlier rise in global investment in new semiconductor fabricating plants and the clearing of supply chain disruptions caused by chip shortages, and the stimulus effects of the EV 3.0 and EV 3.5 programs on the domestic output of BEVs. Also, demand from the construction industry will benefit from an acceleration in infrastructure development, especially transportation routes and projects in the EEC, and recovery in real estate markets, particularly for industrial and commercial properties; and (ii) government measures to both open up new distribution channels and absorb excess supply, including the establishment of the Southern Economic Corridor of Rubber Innovation (SECri), the development of carbon credit markets and mechanisms, the setting up of a rubber reference price, the development of the Thai Rubber Trade (TRT) digital platform to host rubber auctions, and the rollout of projects to ensure compliance with the EUDR regulations.

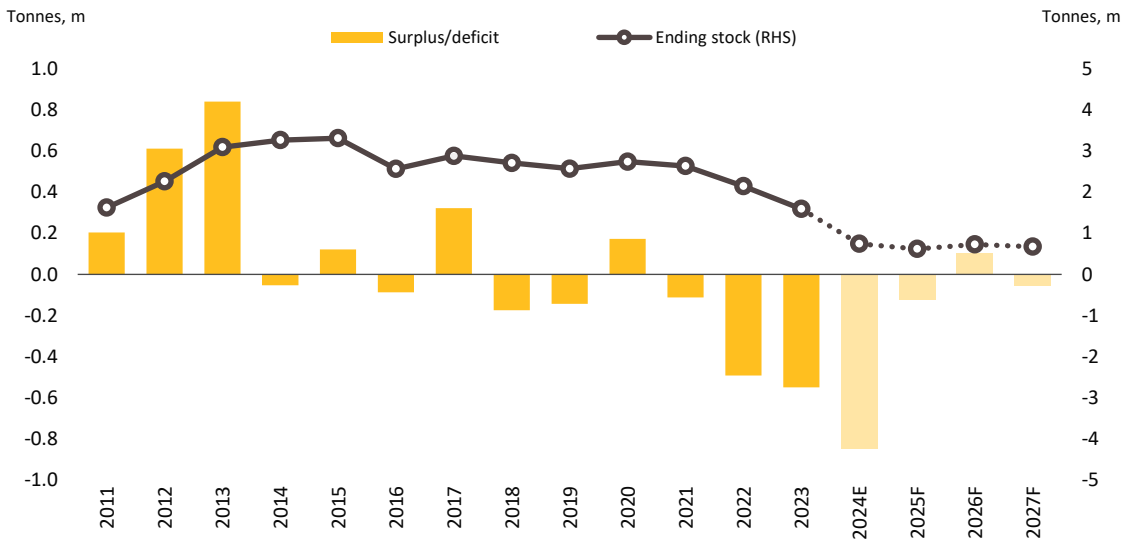
Figure 20: Thailand Domestic Consumption of Rubber* (By Product)



Note: *Includes only the dry rubber content (DRC).
Source: DOA, Krungsri Research

- **Prices will tend to soften slightly**, although Thai year-end stocks are expected to stand at 0.88 million tonnes in 2024, down from 0.96 million tonnes a year earlier. This movement will be in line with the general contraction in global stocks caused by the combined effects of drought and outbreaks of leaf drop disease seen in many producing nations (Figure 21). Domestic prices for unsmoked sheet 3 will thus tend to drift down to THB 65-75 as a result of: (i) the more than 50% jump in these seen in 2024; (ii) greater competition on price, especially from suppliers in neighboring countries; and (iii) the falling cost of crude. Thai export prices will then come under pressure, and over 2025-2027, these are expected to run in the range of USD 1.65-1.75/kg, down from USD 1.76/kg in 2024.

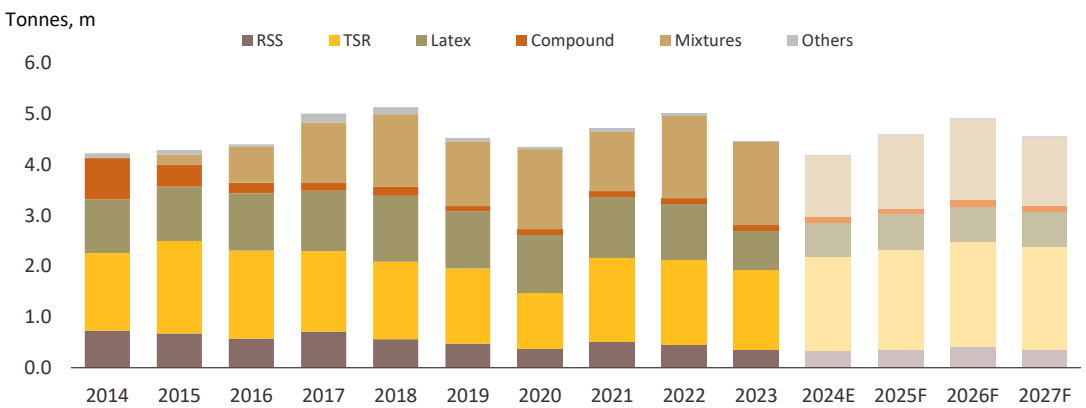
Figure 21: World Natural Rubber Balance



Note: 1. Forecast by Krungsri Research
2. Balance = Supply (production) – demand (consumption)
Source: OAE, IRSG, Krungsri Research

- **Exports should expand by 2.5-3.5% annually, outpacing forecast growth in global demand for intermediate rubber goods of 0.5-1.5% per year,** helped by: (i) Output by industrial consumers of rubber will strengthen, especially from auto assemblers and manufacturers of auto parts (for ICE-powered vehicles and EVs) in China, the US, Japan and Europe. Demand will be boosted by new laws requiring the more frequent replacement of tires, growth in new towns and cities that will add to travel times, and support for the purchase and use of EVs. (ii) As society ages, demand is increasing for medical devices for use in the treatment of the elderly (e.g., latex gloves and other rubber medical supplies). (iii) Problems with labor shortages, changes to weather patterns, and outbreaks of leaf drop disease are driving many growers to switch to planting oil palm and durian in place of rubber, especially in Indonesia, Malaysia, and the Philippines, thus tightening supply from competitors. (iv) The global crude oil price, which remains volatile due to periodic geopolitical tensions, has driven an increasing demand for natural rubber as a substitute for synthetic rubber in related industries[19/]. The outlook for exporters in individual product segments is described below (Figure 22).

Figure 22: Thailand Rubber Exports (By Product)

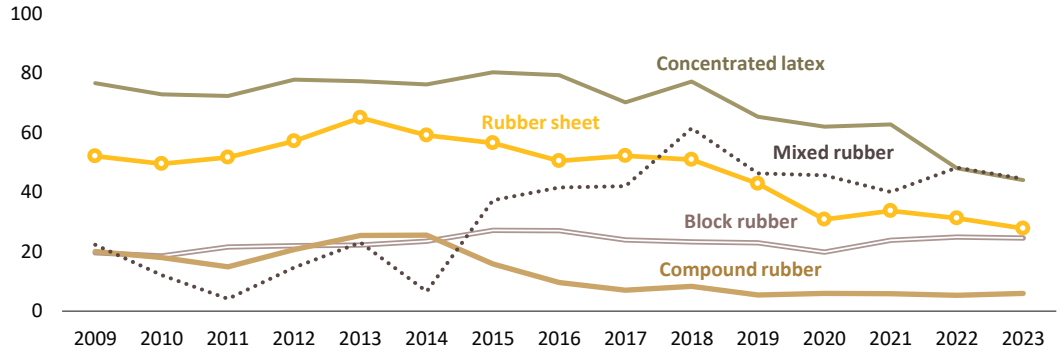


Note: Forecast by Krungsri Research
Source: MOC, Krungsri Research

19/ The share of total rubber consumption accounted for by synthetic rubber is estimated to have risen from 49.7% in 2022 to 50.7% in 2023.

- **Ribbed smoked sheet:** *Exports are forecast to expand by 2.5-3.5% per year.* Although sales have been lifted by the widespread recognition of Thai RSS's high quality, the effect of broader economic recovery on demand from downstream industries, and the rebound in the Chinese market following the relaxation of COVID controls, growth rates will be constrained by the erosion of Thailand's competitive advantages by players in Cambodia, Lao PDR, Myanmar, and Vietnam (Figure 23).

Figure 23: Contribution of Thai Rubber Products to Global Supply (%)



Note: 2023 - Latest Data
Source: Trademap, MOC, Krungsri Research

- **TSR:** *Exports should increase by 2.0-3.0% annually* on the back of recovery in downstream industries, particularly in the most important areas of auto, auto parts and tire manufacturing. In addition, production and use of EVs is on track to increase sharply in many countries, including in Thailand's main export market of China, and this will then support substantially stronger demand for TSR for use in the production of tires and EV parts. Increasing activity in businesses connected to tourism, freight transport/delivery, and public transport will also lift demand for vehicle spares for use in repairs and servicing.
- **Concentrated latex:** *Distribution to export markets is expected to increase by 1.0-2.0% annually* on continuing demand from manufacturers of latex gloves and rubber medical devices, thanks to the aging of societies, increased access to medical services across populations, the rising incidence of both infectious and non-communicable diseases, and continuing demand for public health products to protect against the spread of newly emerging diseases. Thailand's main market for concentrated latex is Malaysia, which is also the world's most important producer of latex gloves. However, growth potential within this segment is being limited by trade barriers and blocks on imports of downstream products. For example, to protect consumers against the risk of latex allergies, some US states have prohibited the use of gloves made from natural rubber within the food and healthcare industries[20/].
- **Compound rubber:** *This segment can look forward to annual export growth of 0.5-1.5%.* Exports will be boosted by a gradual strengthening of demand in the principal markets of India, the US, China, and Europe. Nevertheless, high production costs will lift prices for compound rubber relative to other rubber products, but because the latter can be used in place of the former, export growth will be constrained.
- **Mixed rubber:** *Exports are forecast to grow by around 3.5-4.5% per year,* due to stronger demand from the auto, auto parts, and tire industries. Because these contain a higher proportion of mixed rubber, demand will be particularly strong for tires for use with EVs. In addition, mixed rubber can be formulated to suit a wide range of applications as raw materials in various industries, such as daily-use items, electronics, aerospace, mining, transportation, construction, machinery, batteries, and chemicals. This will drive the growing demand for mixed rubber, aligning with the economic recovery of trading partner countries, particularly China, which remains a key market.

20/ These have been in effect in the food and healthcare industries since respectively January 1st, 2023, and January 1st, 2024. The US is the world's most important importer of gloves manufactured from natural rubber, and is Thailand's second biggest export market for sales of general-purpose and surgical gloves (source: Rubber Authority of Thailand).

At the same time, the Thai rubber industry will face several challenges. (i) Chinese players have increased their investments in rubber plantations in the CLMV nations and production from these is now a growing presence in the market. This then raises the risk that exports to China, which has been Thailand's most important market, may decline. **(ii) The imposition of non-tariff barriers to trade may disrupt export markets,** especially measures originating in importing countries that aim to increase the sustainability of the industry and to improve compliance with the laws of the importing nation and with international environmental standards (e.g., the EU Deforestation-free Products Regulation (EUDR)[21/] and the Corporate Sustainability Due Diligence Directive or CSDDD)[22/]. Exports will also be affected by the enforcement of measures to encourage the production and use of sustainable downstream products. This will include the US ban on the use of latex gloves in the services sector, the health and food industries, an increase in reliance on products made from recycled inputs, and reductions in carbon emissions across the supply chain, but meeting these goals will result in higher costs for manufacturers. **(iii) Supply shortages may emerge as a result of both natural and human-driven factors,** including increasing climate uncertainty, ongoing outbreaks of new and existing strains of leaf drop disease, labor shortages, and the switch to alternative crops by some growers. **(iv) High costs as a result of the current international political environment** that may periodically impact crude prices and push up the costs of inputs (e.g., fertilizer, chemicals[23/], and energy).

Measures to improve the sustainability of the rubber industry

- **Changes to the regulatory** environment and improved compliance with this, including in particular the EU Deforestation Regulation (EUDR).
  - **The government** is attempting to raise the standards of the domestic rubber industry and to put this on a sustainable footing, as per Forest Management Standard 14061. This covers all aspects of rubber farming, from planting, through crop care, to harvesting and production of goods, as well as the registration of farmers, plantations, processors, and processing plants. This will then help players across the supply chain demonstrate legal compliance, assist with tracking and supply chain provenance, and bring management to align with the 20-year strategic plan for the rubber industry (from 2017 to 2036).
  - **The private sector** is making changes to the sourcing of inputs, production processes, and product development as it looks to align these with the regulatory requirements enforced in Thailand and overseas markets. This will help to secure both access to these markets and to sources of financing from institutions supporting ESG and SDG.
- **Support for the ESG and SDG initiatives** will build confidence among communities and stakeholders. This will include action in the following areas.
  - **Environment:** This will include the use of environmentally friendly production processes, cuts to greenhouse gas emissions, more efficient use of energy and water, and ensuring that wastewater treatment meets accepted standards. Additional measures may include participation in projects targeting reforestation, dam building, and rewilding and ecosystem restoration, the use of filters to manage air quality and to reduce the release of noxious odors, and better separation and collection of waste products across supply chains.
  - **Social:** In this area, players may help to build public awareness, better manage environmental and safety issues, ensure compliance with environmental and biosecurity regulations, and provide support to local communities. This could be through ensuring that labor is hired locally, supplying emergency relief when natural disasters occur, providing support for cleaning and educational initiatives, and donating company products to local recipients.
  - **Governance:** In this area, the focus will be on transparency and accountability across all areas of procurement and employment, the disclosure of important information, the fair and equitable treatment of all staff, the fair sharing of profits, good customer relations, and maintaining a strong organization-wide anti-corruption stance.

21/ The EU Deforestation-free Products Regulation (EUDR), or Regulation (EU) 2023/1115, came into force on December 30th, 2025. This regulates imports into the EU products for goods in seven categories that are linked to deforestation, namely timber, beef, cocoa, coffee, oil palm, soya and rubber, together with related products. Importers of these are now required to produce a due diligence statement affirming that the company has carried out appropriate provenance and supply chain checking and that it has been assured that the production of these goods has not resulted in any deforestation or the breaking of any laws in the originating country.

22/ The EU Directive on Corporate Sustainability Due Diligence Directive (CSDDD) has been in force since June 23rd, 2024, and specifies the duties and responsibilities of organizations as these relate to social and environmental sustainability. In particular, this bears on manufacturing industries supply chains from production to distribution (e.g., for textiles, garments, footwear, minerals, fossil fuels, forestry goods, rubber, livestock, farming, and food processing).

23/ Increases in prices for the chemicals used in processing rubber/RSS have impacted farmers' production costs, and as a result, some have cut back on fertilizer applications, though this results in a drop in the dry rubber content of harvested latex from 30-35% to 25-29%.

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