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Mighty Earth Policy Briefing:

Identifying risks of deforestation, forest degradation and illegality in EU natural rubber imports: a guide for enforcement of the EU Deforestation Regulation

Executive Summary

This brief examines the impact of natural rubber production on tropical forests since 2010, with a focus on recent deforestation, illegal cultivation in protected areas, and associated human rights and criminal activities. Natural rubber, primarily used in tire manufacturing, has been linked to significant deforestation in Southeast Asia and increasingly in West Africa. Recent research has revealed that the scale of rubber-related deforestation is at least two to three times higher than previously estimated, with more than 4 million hectares of tropical forests lost to rubber plantations in Southeast Asia over the past three decades.

As the EU Deforestation Regulation (EUDR) enforcement date approaches (December 2025 for large companies and June 2026 for SMEs), competent authorities must prepare to verify that natural rubber imports comply with the requirement of being deforestation-free since December 31, 2020, and produced in accordance with the relevant laws of the producer country. This paper provides context, statistics, and analysis that will assist authorities in effectively implementing these verification responsibilities.

1. Global Natural Rubber Production: Key Countries and Statistics

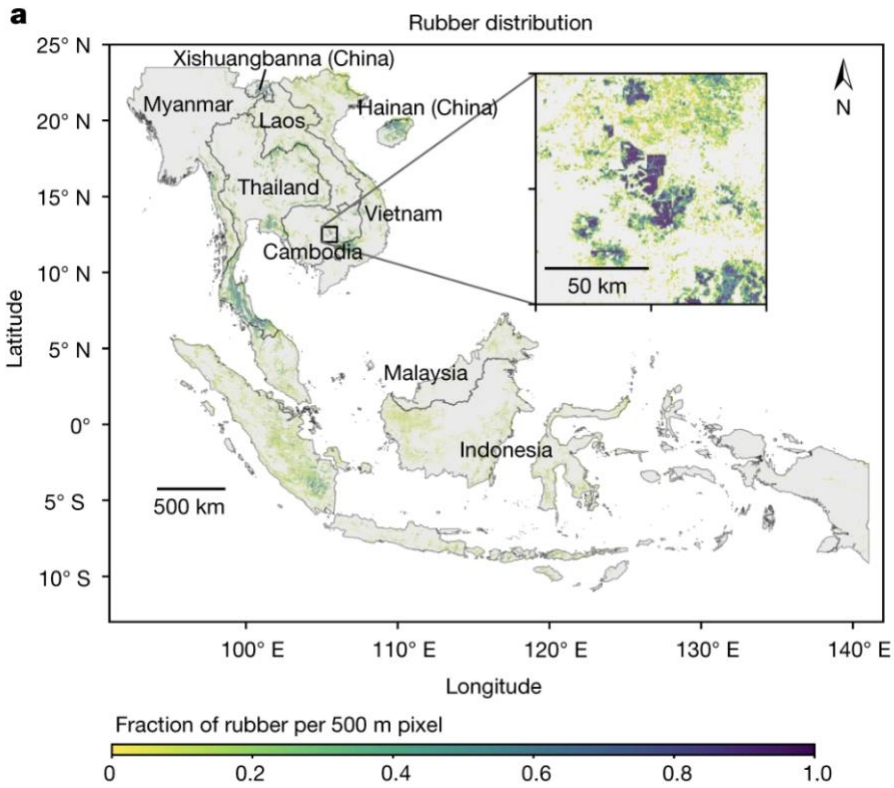
1.1 Major Producing Countries

Natural rubber derives from latex sap produced by the tree *heavea brasiliensis,* and is grown almost exclusively in tropical climates, with small amounts grown in some sub-tropical areas. By region, Asia produces about 90-95% of the world's natural rubber, with Africa accounting for approximately 11% of global production, primarily from the Ivory Coast, Nigeria, Liberia, and Cameroon.

- **Thailand**: The world's largest producer, with output of 5.28 million metric tons in 2023
- **Indonesia**: The second-largest producer with 3.79 million metric tons in 2023
- **Vietnam**: 1.33 million metric tons in 2023
- **India**: 1.06 million metric tons in 2023
- **China**: 0.89 million metric tons in 2023

- **Ivory Coast**: Emerging as a significant producer in West Africa with growing production

Figure 1: Distribution of rubber production across Southeast Asia in 2021



Source: Wang et. al. (October, 2023) "High Resolution Maps Show that Rubber Causes Substantial Deforestation" Nature. 623, pages 340–346.

1.2 Production Trends and Statistics

Global natural rubber production reached approximately 14 million metric tons in 2023. Production areas have expanded significantly in the past two decades.

- Between 2010 and 2020, rubber plantation areas expanded by 3.3 million hectares.
- Southeast Asia now hosts approximately 14.2 million hectares of mature rubber plantations.
- In West Africa, rubber production has increased significantly, with the Ivory Coast emerging as a major producer.
- Approximately 85-90% of natural rubber is produced by smallholder farmers operating plantations of less than 5 hectares.

1.3 Drivers of Increased Natural Rubber Production

Several factors are fueling the continued expansion of natural rubber cultivation into forests:

- Vehicle ownership is growing globally, particularly in emerging markets such as China and India, but also in established markets such as the EU
- The transition to electric vehicles requires more rubber per vehicle due to increased weight.
- Traditional rubber-growing areas in Malaysia and parts of Thailand being converted to oil palm. This means newer rubber production has generally occurred in forest 'frontier' areas.
- Conversely, government policies in countries like Cambodia, Laos, and Vietnam actively promote rubber cultivation through economic land concessions.

2. Uses of Natural Rubber and EU Import Patterns

2.1 Primary Uses of Natural Rubber

Natural rubber is valued for its elasticity, resilience, and waterproofing capabilities. Its primary uses include:

- **Tire manufacturing**: Approximately 70-76% of natural rubber is used in tire production
- **General rubber goods**: Including industrial products, footwear, and adhesives
- **Medical supplies**: Such as gloves, catheters, and other medical equipment
- **Automotive parts and construction materials**: Including seals, hoses, and dampers
- **Consumer products**: From mattresses to sports equipment

The tire industry remains the primary driver of natural rubber demand. Approximately 2 billion new tires are manufactured annually worldwide, each requiring between 10-30% natural rubber content (varying by type of tire). Despite ongoing research into synthetic alternatives, natural rubber maintains properties that cannot be fully replicated by petroleum-based substitutes, particularly for heavy-duty applications in aircrafts, trucks, and bus tires.

2.2 EU Imports of Natural Rubber

The EU is the third-largest regional consumer of natural rubber in the world, representing about 14% of global consumption and making it a significant player in the market with considerable influence on global sustainability standards through regulations like the EUDR. In 2023, the EU imported:

- Approximately 1.2 million metric tons of raw natural rubber from the following primary source countries: Thailand (28%), Indonesia (23%), Côte d'Ivoire (12%), Vietnam (9%), Malaysia (7%)
- A value of €2.1 billion for these raw rubber imports

The EU also imports substantial quantities of natural rubber embedded in finished products:

- Tire imports: €3.7 billion (2023), primarily from China, South Korea, Japan, Thailand, and Indonesia

3. Rubber-Related Deforestation: Scale and Impacts

3.1 Recent Research Findings

Recent high-resolution satellite mapping has revealed the true scale of rubber-related deforestation, demonstrating significantly larger amounts of clearing than previously estimated:

- More than 4 million hectares of tropical forests have been lost to rubber plantations in Southeast Asia since 1993
- At least 2 million hectares of forest have been lost since 2000
- More than 1 million hectares of rubber plantations have been established in Key Biodiversity Areas
- Rubber-related deforestation is at least two to three times higher than previously reported in figures used to inform policy decisions

3.2 Geographic Distribution of Rubber-Related Deforestation

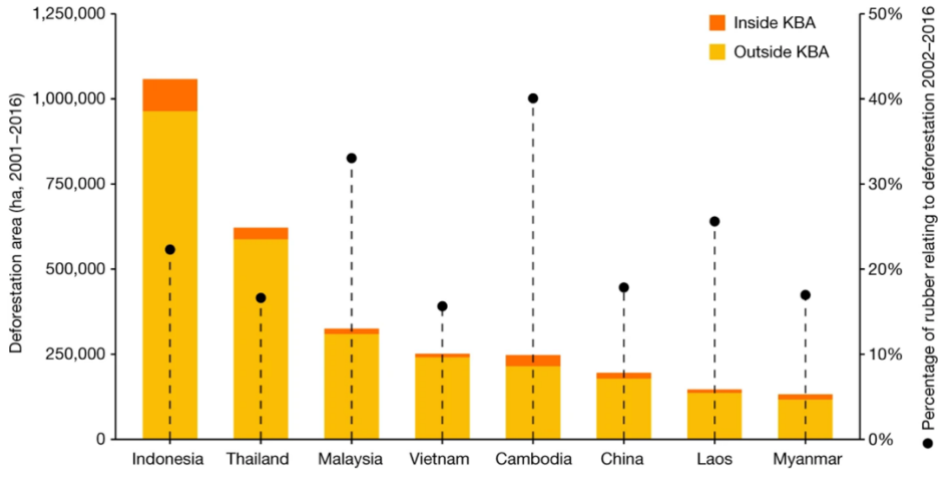
The distribution of rubber-related deforestation varies across regions:

Southeast Asia

- **Indonesia**: Highest total area of deforestation for rubber
- **Thailand and Malaysia**: Second and third highest deforestation areas
- **Cambodia**: Highest share (40%) of rubber plantations associated with deforestation, with 19% located in key biodiversity areas

Although the data in Figure 2 has not been recently updated, it provides an indication of the scale of rubber-driven deforestation in Southeast Asia over recent years.

Figure 2. Rubber-related deforestation in absolute and relative terms: 2002-2016



Source: Wang et. al. (October, 2023) "High Resolution Maps Show that Rubber Causes Substantial Deforestation" Nature. 623, pages 340–346.

West Africa

- **Ivory Coast**: Emerging as a new hotspot for rubber expansion, with plantations displacing cocoa agroforests
- **Cameroon**: Significant deforestation, including near protected areas like the Dja Faunal Reserve (a UNESCO World Heritage site)
- **Liberia**: Experiencing rubber-related deforestation and associated social conflicts

3.3 Environmental Impacts

The environmental consequences of rubber expansion include:

- **Deforestation and biodiversity loss**: Conversion of diverse forests to monoculture plantations
- **Ecosystem services degradation**: Including carbon storage, watershed function, and soil stability
- **Impact on protected areas**: Many rubber plantations are established in or near key biodiversity areas, notably in Cameroon, Cambodia, Laos and Indonesia
- **Habitat fragmentation**: Creating barriers for wildlife movement and population connectivity

4. Illegal Rubber Cultivation and Human Rights Concerns

4.1 Illegal Rubber Production in Protected Areas

Evidence shows that rubber is often cultivated illegally within designated protected areas:

- In Cambodia, rubber plantations have expanded into the Beng Per Wildlife Sanctuary
- In Cameroon, the Sud Cameroun Hévéa (Sudcam) operation cleared over 10,000 hectares of forest near the Dja Faunal Reserve, a UNESCO World Heritage site
- The proximity of rubber plantations to protected areas in Africa and Southeast Asia threatens endangered species, including western lowland gorillas, chimpanzees, and forest elephants

4.2 Land Grabbing and Human Rights Abuses

Rubber expansion has been associated with serious social issues, including:

- **Land grabbing**: Displacement of indigenous and local communities without proper consultation or compensation
- **Labor exploitation** Poor working conditions, rights violations and inadequate wages
- **Loss of traditional livelihoods**: As communities lose access to forest resources
- **Violence and intimidation**: Used to enforce land claims of corporations or powerful local economic, political and military figures
- **Violation of customary land rights**: Especially affecting indigenous peoples

Notable examples include:

- In Cameroon, Sudcam and Hévécam operations have been linked to the displacement of Indigenous Baka communities and serious water contamination
- In Laos and Cambodia, rubber companies have used political connections to seize lands from local communities
- In Liberia, documented cases show communities losing access to traditional lands

4.3 Links to Criminal Activities and Corruption

Rubber production has been associated with various illegal and criminal activities:

- **Corruption**: Bribes and cronyism to obtain land concessions and circumvent environmental regulations
- **Illegal logging**: Using rubber plantations as a cover for illegal timber extraction
- **Tax evasion and money laundering**: Through misreporting of production volumes and values, and through investments in rubber plantations
- **Smuggling**: Illegal cross-border movement of rubber and timber (i.e. from Cambodia to Vietnam)

5. EU Deforestation Regulation: Implications for Natural Rubber

5.1 EUDR Requirements for Natural Rubber

The EU Deforestation Regulation (EUDR), which entered into force on June 29, 2023, establishes requirements for natural rubber imports:

- Natural rubber and derived products placed on the EU market must be deforestation-free (not produced on land deforested after December 31, 2020)
- Products must comply with all relevant laws of the producer country
- Operators and traders must exercise due diligence and submit due diligence statements
- Implementation timeline: by December 30, 2025 for large companies and June 30, 2026 for SMEs

Table 1: Rubber products within the Scope of EUDR requirements (Annex 1)

In-Scope Rubber Products (HS Codes)	Out of Scope rubber products
ex 4001: Natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums	Products not listed in EUDR Annex I
ex 4005: Compounded rubber, unvulcanised	Explicitly exempted items (e.g., rubber balloons, condoms)
ex 4006: Unvulcanised rubber in other forms	
ex 4007: Vulcanised rubber thread and cord	

ex 4008: Plates, sheets, strips, rods and profile shapes of vulcanised rubber	
ex 4010: Conveyer or transmission belts of vulcanised rubber	
ex 4011: New pneumatic tyres	
ex 4012: Retreaded or used pneumatic tyres	
ex 4013: Inner tubes	
ex 4015: Rubber apparel and accessories	
ex 4016: Other vulcanised rubber articles	
ex 4017: Hard rubber in all forms	

5.2 Due Diligence Requirements and Challenges

Key due diligence requirements for companies placing natural rubber products on the EU market under the EUDR include:

- **Geolocation data**: GPS coordinates of all plots of land where the rubber was produced, although these may be aggregated in a single declaration (see below)
- **Production timeframe**: Date and time range of production
- **Deforestation evidence**: Proof that the land was not deforested after December 31, 2020
- **Legal compliance**: Evidence of compliance with producer country laws

The characteristics of the rubber industry mean that companies sourcing, trading, and manufacturing in-scope natural rubber products (such as tires) must overcome particul;arhurdles to meet the requirements of the Regulation, including:

- **Supply chain complexity**: Rubber passes through multiple intermediaries before reaching manufacturers
- **Smallholder dominance**: 85-90% of rubber comes from smallholders, who may lack documentation (e.g. land titles)
- **Traceability limitations**: "First-in, first-out" is not always followed in rubber storage and transport
- **Technical capacity**: Many producers lack the resources to implement traceability systems

5.3 “Declaration in excess”: benefits and risks for tire manufacturers

The concept of “declaration in excess” allows operators to provide geolocation data for a larger number of plots than those directly linked to a specific shipment, if all declared sources meet EUDR compliance requirements. Tire manufacturers have advocated for the ability to use declaration in excess under the EUDR for several key reasons:

- Complex and fragmented natural rubber supply chains

- Long shelf life of processed natural rubber, and hence non-sequential usage
- Maintaining smallholder inclusion
- Practical implementation
- Cost-effectiveness

Whilst simplifying the due diligence process and preparation of rubber and tire import statements, declaration in excess carries with it **significant risks**, namely:

- A single point of non-compliance can render the entire area declared within the due diligence statement suddenly non-compliant, presenting significant commercial and supply chain disruption risks.
- Declarations done at landscape level still require every plot within that landscape to be checked, meaning it could be easy to miss material from production units which may contain non-compliant "contaminating" material.
- Change can happen quickly within a dynamic landscape, with new encroachment into forests suddenly occurring on farms previously deemed "deforestation-free."
- Movement of latex between production areas can mean that materials purporting to originate from compliant farms may in fact originate from non-compliant plots of land, unless careful control systems are in place.

5.4 Country Risk Categories and Implications

The European Commission will benchmark countries as falling within low, standard, or high risk for deforestation, forest degradation and illegality by June 30, 2025. The risk classification will determine the level of scrutiny applied to imports. Competent authorities are expected apply simplified due diligence for products from low-risk countries and enhanced scrutiny (more frequent and more comprehensive checks) for high-risk countries of origin.

The Commission's proposed methodology for assigning these classifications may, however, fail to adequately take into consideration recent evidence of high-deforestation and degradation risk, for reasons which may vary from over-reliance on old data, to political pressure for the Commission not to assign high risk designations to certain countries. A designation of standard risk for countries such as Cambodia, Liberia, Vietnam or parts of Indonesia would not correspond with the risks that scientists and civil society organisations are seeing on the ground in those areas. It is therefore vital that competent authorities use informed judgement to look beyond a risk classification system based on a compromised methodology if they want to properly enforce the law.

Table 2: Indicative Risk Assessment of Rubber Exporting Countries

	Deforestation/ Degradation since Dec 2020	Rubber-related human rights violations	Illegality of NR production	Low traceability (incl. cross-border smuggling risk)
Cambodia	XX	XX	XX	XX
Cameroon	X	X	X	X
Cote d'Ivoire	X	√	√	√
China	√	X *	X *	X
India	X	√	√	X
Indonesia	XX	X	√	X
Laos	X	XX	XX	XX
Malaysia	X	√	√	√
Myanmar	XX	XX	XX	XX
Thailand	√	√	√	X
Vietnam	X	XX *	X	XX *

√ = Low risk; X = some risk; XX = high risk * indicates risk associated with foreign rubber investments

6. Recommendations for EU Member State Competent Authorities

6.1 Preparing for EUDR Implementation

To effectively implement the EUDR for natural rubber, competent authorities should:

- **Build technical capacity**: Train staff on rubber supply chains and deforestation monitoring techniques
- **Develop verification protocols**: Create standardized procedures for verifying due diligence statements
- **Invest in tools**: Acquire access to satellite monitoring and geographic information systems to verify claims
- **Establish cooperation mechanisms**: Work with authorities in producing countries to verify legal compliance
- **Create risk profiles**: Develop risk profiles for different rubber supply chains and sourcing regions

6.2 Key Areas for Enhanced Scrutiny

Based on available evidence, competent authorities should pay particular attention to:

- **Rubber from biodiversity hotspots**: For example, from protected forest areas within Cambodia, Indonesia, Laos and Cameroon.
- **Recent plantation expansion**: Areas where rubber cultivation has expanded since 2020; largely the Greater Mekong region and the Philippines, as well as Ivory Coast, Liberia and Cameroon. Rubber cultivation is also expanding rapidly in India.
- **Proximity to protected areas**: Rubber sourced from areas adjacent to national parks and reserves, particularly where due diligence statements are based on declarations in excess. This is a major issue in Southeast Asian countries such as Cambodia, Laos, Myanmar and Indonesia, as well as in Cameroon and Liberia.
- **Regions with documented human rights abuses**: Including areas with ongoing land conflicts and/or armed conflict, notably Cambodia and Myanmar
- **Supply chains lacking transparency**: Where intermediaries cannot provide clear chain of custody

6.3 Cooperation and Capacity Building

Effective implementation of EUDR in relation to natural rubber will require competent authorities to work with others to identify and act on risk, including through:

- **Cross-border cooperation**: Between EU member states to ensure consistent application
- **Engagement with producer countries**: To strengthen enforcement and transparency, as well as understanding of domestic legal considerations and "red flags"
- **Civil society partnerships**: Leveraging CSO expertise and monitoring capabilities

7. Conclusion

Natural rubber production poses significant risks to tropical forests, biodiversity, and human rights. Recent research has revealed that the scale of rubber-related deforestation is substantially larger than previously understood, with impacts extending across Southeast Asia and increasingly into West Africa. Illegal cultivation in protected areas, land grabbing, and links to corruption further compound these concerns.

The EU Deforestation Regulation represents a significant opportunity to address these issues by ensuring that rubber entering the EU market is deforestation-free and legally produced. However, the complexity of rubber supply chains and the prevalence of smallholder production present challenges for importers or natural rubber products, such as tires. Because manufacturers plan to deal with this complexity through reliance on aggregated traceability (declaration in excess), it will be increasingly important for competent authorities to scrutinise the rigour of due diligence statements and carefully interrogate these where red flags arise.

EU member state competent authorities will play a critical role in verifying compliance and enforcing the regulation. Developing appropriate verification systems will require enforcement agents to look beyond imperfect country risk benchmarking classifications and engage with stakeholders throughout the supply chain – including smallholder producer groups and civil society actors – to ensure that the EUDR achieves its goals of reducing deforestation and promoting sustainable production practices.

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