



The role of business in halting deforestation

A 3Keel perspective on what's next for sustainable commodity supply chains

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Foreword

From isolated efforts to shared investment in forest protection

Over the past two decades, efforts to address deforestation have brought both success and frustration. We now understand the real financial risks linked to ecosystem loss and have overcome many, but not all, of the transparency and traceability barriers that once limited action. Yet global progress has been uneven, with major commitments delayed or rolled back and the true value of forests still under-recognised.

We stand at a crossroads. One path continues to focus on individual supply chains, celebrating isolated victories. The other changes the system itself by combining government regulation, market expectations, and financial value for ecosystem services. Experience tells us that only this latter integrated path can achieve lasting results.

For too long these elements have been pursued separately, asking business alone to fix a market failure it cannot solve. Going forward, we must connect these efforts. Business has a central role, but the focus now should be on scaling what works, not inventing new solutions.



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Why have we written this report?

Over the past decade 3Keel has assessed and monitored the policies and actions of more than 1,000 companies involved in the trade and production of consumer products containing deforestation-risk commodities.

We conduct [annual reviews of global supply chains](#), facilitate pre-competitive collaborations like the [Retail Soy Group](#), support voluntary initiatives, and work with civil society and governments to shape effective policy and expectations. With 2025 marking a milestone year, this report provides direction for what needs to come next based on this experience.

About 3Keel

3Keel is an Oxford-based sustainability consultancy specialising in practical solutions for complex supply chains. Our **Commodity Supply Chains** team works with global retailers and consumer goods brands to reduce deforestation and conversion risks across soy, palm oil, cocoa, and other forest-risk commodities.

Alongside this, our wider business units support clients on greenhouse-gas reduction, biodiversity strategy, and resource efficiency. Together, we help businesses and governments turn sustainability ambition into measurable outcomes.



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Executive Summary

Over two decades of global effort to tackle deforestation have produced important lessons. Progress has been real, but deforestation continues with tropical forest loss in 2024 reaching new heights. As we approach the 2030 global goal of halting deforestation, business, finance, and government must now combine strengths to deliver coordinated, lasting change.

3Keel has spent the past decade supporting leading brands and retailers to transform soft-commodity supply chains for soy, palm oil and cocoa. We have seen that success comes from persistence, collaboration, and alignment between commercial and environmental goals. However, the system still rewards short-term gains over long-term resilience.

- **Certification** has driven demand for more sustainable products, but it has not been a viable model for driving sector-wide change.
- **New monitoring tools** provide unprecedented visibility but have not yet translated into incentives for producers outside compliant supply chains.
- **Regulation** is levelling the playing field, but demand-side regulation - such as the EUDR - is only one part of the solution when deforestation occurs in producer country landscapes.

Through all of these actions we are going full circle back to what certification was intended to achieve: financial incentives for producers to protect the landscape. The value of standing forests and sustainable production must be recognised.

This report summarises the lessons learned from twenty years of action and sets out the next phase for progress, one where shared accountability replaces fragmented effort.

Recommendations for business

1. Play to your strengths to build resilient supply chains
2. Share, and follow, best practice
3. Recognise shared exposure
4. Invest where it matters most

Moving to the next stage of corporate action

2002 - 2012

Phase I: Certification as the solution

Building on experience in the forestry sector through the prior decade, market-based standards rewarded responsible producers and offered theoretically traceable supply. Certification changed practice in some sectors but failed to scale globally across all commodities.

2013 - 2019

Phase II: Innovation and initiatives

Sectoral and jurisdictional collaborations widened engagement beyond individual firms, testing ways to transform entire landscapes. Progress was localised and uneven.

2020 - 2025

Phase III: Traceability and monitoring

Companies adopted traceability, monitoring, reporting and verification (MRV) systems. These brought visibility but limited impact without stronger enforcement.

2025 +

Phase IV: Shared accountability and valuing nature

The next phase must align regulation, finance and production. Investment in producing landscapes, fair market rules and recognition of nature's economic value are all essential.

Active partner for change

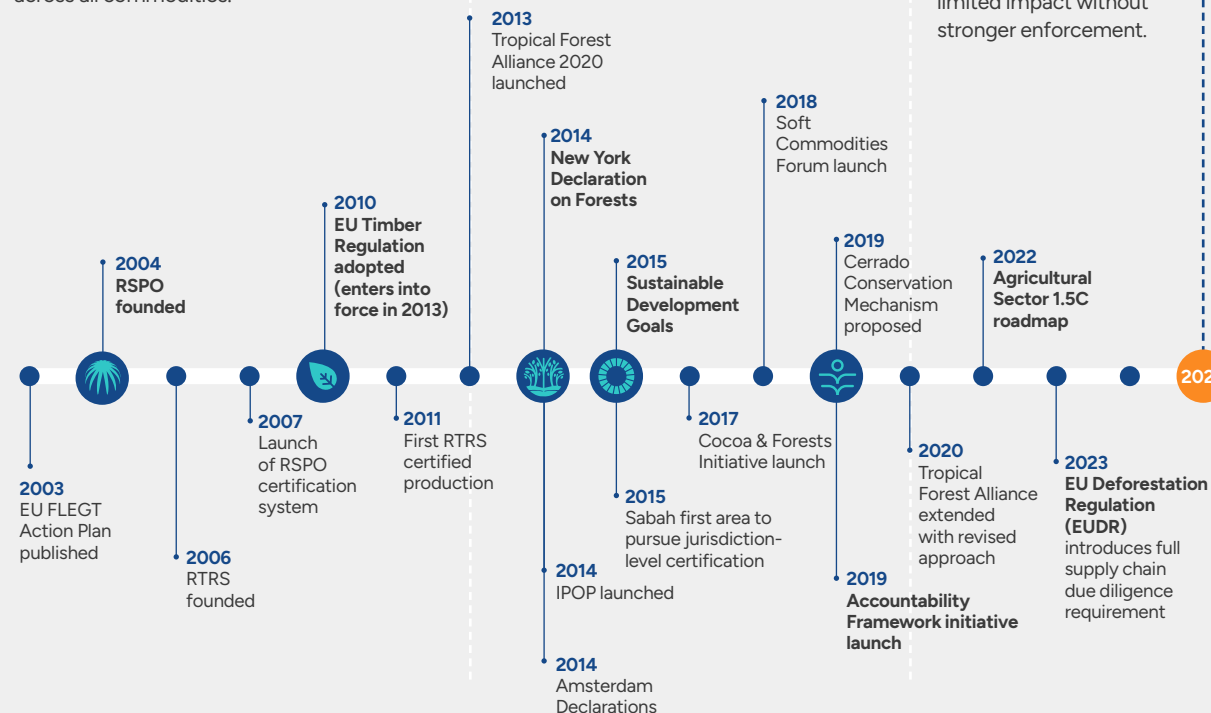
Producers and consuming companies have a shared objective: sustainable growth. The new [Tropical Forest Forever Facility](#) is one way we can see producing markets shifting to embrace innovation.

Build resilience

Deforestation increases costs and volatility. Protecting forests is a cost-control measure to secure stable supply and affordable products.

Constructive citizenship

Due diligence rules only work if businesses, governments and civil society monitor trade flows together. Shared accountability strengthens enforcement.



Where we are in 2025

Global attention on deforestation has intensified, but overall forest loss remains high. Tropical primary forest loss has averaged 3–4 million hectares a year since 2015. Progress varies by commodity: palm oil supply chains show measurable improvement, while soy and cattle expansion continue to drive conversion in South America.

Business action and civil society have focused benchmarks and scorecards to gauge performance on three things, none of which have proven to be effective on their own at stopping the continued loss of forests.

1. Policies and commitments

Many 2020–2025 corporate commitments are reaching their milestone target date for fully delivering on deforestation ambitions. Although it has been [recognised that many companies will miss the full verification of their supply chains](#) that these targets are based on, substantial progress has been made by those businesses that have worked towards this goal. These successes nevertheless cover only a small share of global demand, leaving major markets open to deforestation-linked goods.

2. Regulations

Forest-protection laws in producing countries remain controversial. Although major consuming-market laws such as the EU Deforestation Regulation have passed, full enforcement is still pending. Despite these challenges, business has adapted and can now provide deforestation-free supply corridors where import requirements exist.

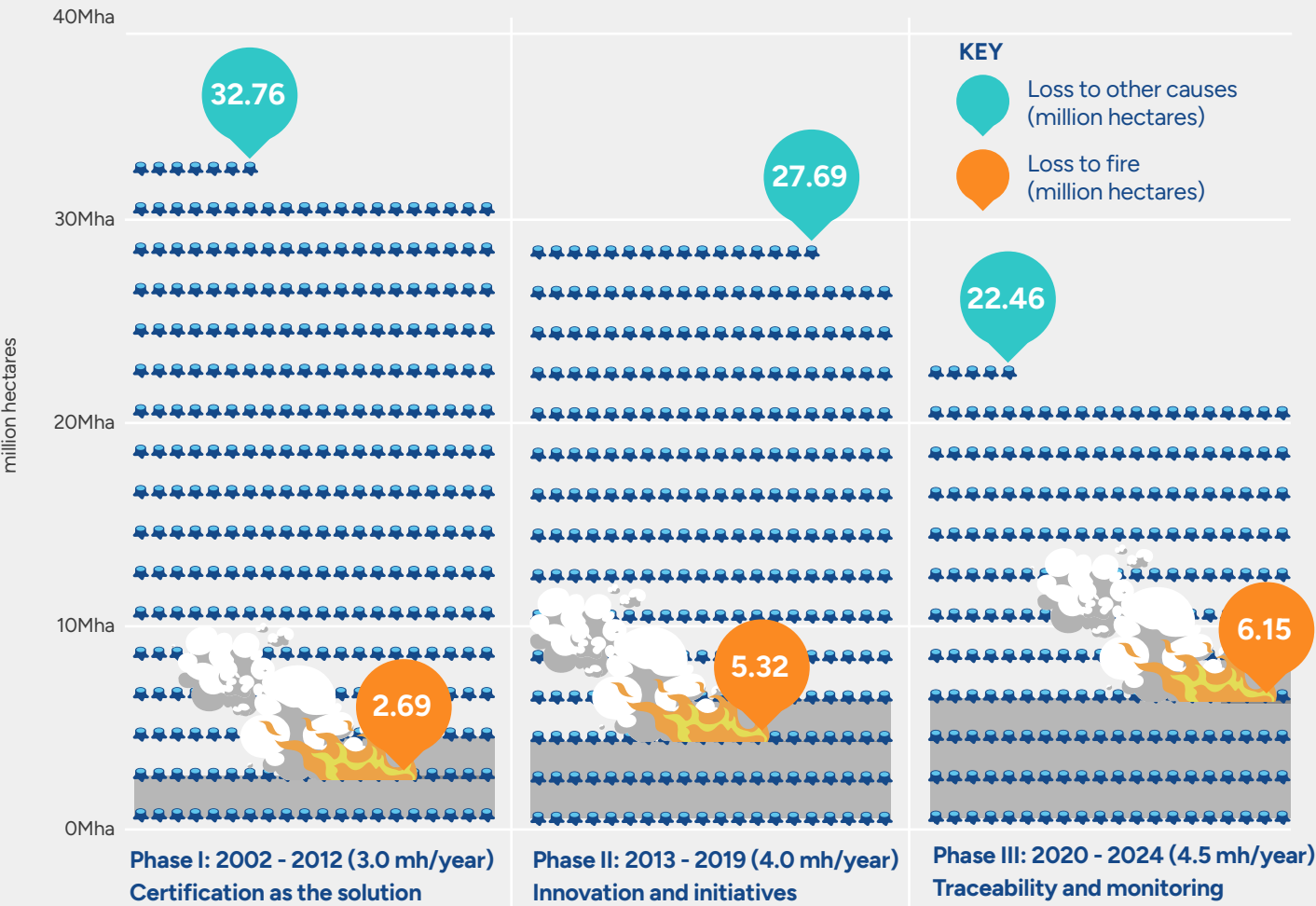
3. Voluntary mechanisms

Chain-of-custody certification has not scaled as expected. Even for commodities where segregated material is widely available, such as palm oil, progress has stalled as those companies and countries concerned about this topic achieve their own individual transformations and niche supply chains.

Our inability to fully halt deforestation through these specific pillars shows that something has to change.

Fires are becoming a bigger driver of forest losses as the climate changes

The annual intensity of forest losses has continued to increase through each of the three periods of business transformation. Forest losses due to fires have increased significantly, with 2024 reaching a twenty year high of 3.25 million hectares being lost that year alone.



Source: World Resources Institute [Global Forest Review](#) (2025)

Looking back: How we've navigated deforestation since 2002

From supply chains to collaboration

Progress toward ending deforestation has evolved through three main phases, each driven by different theories of how markets could deliver sustainability.

2002-12

Phase I:

Certification as the solution

Early efforts were focused on stimulating a change in production practices by rewarding responsible production via certification. Standards, such as the Roundtable for Sustainable Palm Oil, were established and promoted to producers with the promise of market access if they adopted them. Many of these are still used today as the primary vehicles for company claims.

Approaches

- Multi-stakeholder working groups to define best practice
- Development and promotion of certification standards
- Business case development justifying why downstream businesses need to support producers
- Financial premium for certified production

2013-19

Phase II:

Innovation and initiatives

Certification levels began to plateau as uptake by consuming markets began to level off and the promise of premiums derived from practices did not always materialise. A new approach was developed focused on the formation of production area collaborations and soft commodity trader aligned commitments for action which then became the sector norm.

Approaches

- Certification scheme proliferation as companies developed their own standards
- Jurisdictional approaches to move entire areas to verified production standards
- Refinement of requirements to account for unique community and area needs
- Common sector commitments aligned around specific target dates

2020-25

Phase III:

Traceability and monitoring

A lack of supply-chain visibility remained a key barrier linking producers to consuming markets. Without these connections, business cases for actions were difficult to establish, and verification of practices outside of certification was not typically being delivered consistently or at scale. Efforts are now focused on regulations and targeted sector action targeting improving transparency and due diligence.

Approaches

- Development of common risk assessment methodologies and frameworks
- Enhanced collaboration and pre-competitive facilitation of upstream and downstream sector groups
- Establishment of aligned incremental roadmaps
- Pilot projects to establish new ways to incentivise land own engagement

2025+

Phase IV:

Shared accountability and valuing nature

Aligned commitments, traceability mechanisms, and monitoring systems have been established, but their limits in addressing deforestation have begun to show. Without a complete production landscape transformation, the full eradication of deforestation cannot be achieved. A new joined up approach is now needed to ensure that the requests and expectations of businesses are aligned with their strengths.

Approaches

- Effective regulations accompanied by a consistent legislative approach across production and consumption markets
- Refined monitoring, reporting and verification systems that adequately reflect the nature of the businesses being monitored relative to their position in the supply chain
- Financial sector alignment, engagement, and support for responsible production
- Payment for ecosystem services by all actors in the value chain

Remaining impact potential

We need to pivot focus, not start over

We have reached the limit of what some tools can deliver. By evaluating their remaining impact potential we can focus our efforts on those with further impact potential beyond 2025

COMMODITIES KEY



POTENTIAL SCALE

Our view on whether it is likely that **further** progress is possible given sector activities to date.



Limited remaining potential

SUBSTITUTION

Commodity	Potential	Top three alternatives	Trade off considerations
		Canola meal Rapeseed Legumes	- Most of crop is used for animal feed - Scale of production of alternatives
		Soy Rapeseed Sunflower	- Significantly more land use requirements - Burden shifting from one landscape system to another
		Carob Fermented grains Palm oil	- Scale of production of alternatives - Uncertain consumer acceptance

CERTIFICATION

Commodity	Potential	Global certification rate	Scalability barriers
		1% 2020 2% 2024	2008 cut-off date in certification schemes conflicts with how soy expansion has occurred
		19% 2020 20% 2024	- NDPE Implementation Reporting Framework (IRF) prioritised by traders - Low demand outside Europe
		34% 2020 53% 2024	Segregation limitations of processing and trade may prevent direct claims

TRACEABILITY

Commodity	Potential	% of top traders linked to farms	Closing the gap
		27% 2020 91% 2024	Risk management approaches shared infrastructure and logistics
		0% 2020 71% 2024	- Over 7 million smallholders (~40% of global supply) - Technology gaps in the field
		11% 2020 56% 2024	- High number of smallholders - Data sharing with private sector schemes - Deployment of national traceability infrastructure

High potential remains

COMPANY COMMITMENTS

Commodity	Potential	% of traders with commitment*	Implementation challenges
		33% 2020 52% 2024	- Exporters from South America are primary targets - Inconsistent domestic market interest
		71% 2020 76% 2024	- Monitoring framework credibility - Shifting national agricultural policies
		78% 2020 78% 2024	- Fragmented demand - Private sector alignment on how delivery occurs

*Source: [Forest500](#) (Palm Oil and Soy), Retailers Cocoa Collaboration (Cocoa)

REGULATION

Commodity	Potential	Top producing nations	Closing the gap
		Brazil* US Argentina	- Aligned definitions - Indirect supply chain purchases - Enforcement
		Indonesia Malaysia Thailand	- High number of smallholders - Transparency restrictions - Technology gaps in the field - Enforcement
		Côte d'Ivoire Ghana Indonesia	- Risk management approaches - Shared infrastructure and logistics - Enforcement

*All forested land is protected to some degree, regardless of national park status

PAYMENT FOR ECOSYSTEM SERVICES

Commodity	Potential	Top company investment	Scalability barriers
		\$18m \$ = \$10m	- Extending beyond legal minimum requirements - Alignment on cut-off dates
		\$195m	- Fragmented initiatives - Lack of coordination
		\$269m	- Mass balance value chains - Training and outreach

Phase I: Certification as the solution (pre-2012)

Initially, companies made deforestation commitments that were expected to be delivered through the certification of their supply chains. The business case for action was fairly simple with a clear cost model that was visible and could have a budget line associated with it.

Certification simplified oversight by providing a chain-of-custody model that assured compliance without full supply-chain visibility while still providing third-party verification and multi-stakeholder involvement in establishing credible criteria. This mechanism allows downstream businesses the benefit of knowing their supply chain was verified without adding an additional data reporting burden throughout the value chain.

During this period certification was successful in driving a change in production practices for some commodities. After early adoption, demand plateaued, and all commodities have struggled to exceed 50 percent of global production volumes achieving certification.

Key Characteristics:

- Trust in certification standards being robust and credible
- Use of independent third party auditors to assess ground conditions and standards consistently
- Development of niche processing and supply chains to provide compliant products where there was market demand
- Stepwise approach: credits -> mass balance -> segregated

Key Initiatives:

- Roundtable for Sustainable Palm Oil (RSPO)
- Round Table for Responsible Soy (RTRS)
- Fairtrade

Percentage of certified commodities



Soy

Source: [RTRS](#) (2023)

More than twenty certification schemes have been [benchmarked](#) by the European Feed Industry (FEFAC) as delivering deforestation and conversion free supply chains. Only RTRS currently provides public statistics related to the volumes meeting its standard annually.



Palm

Source: [RSPO Impact Report](#) (2024)

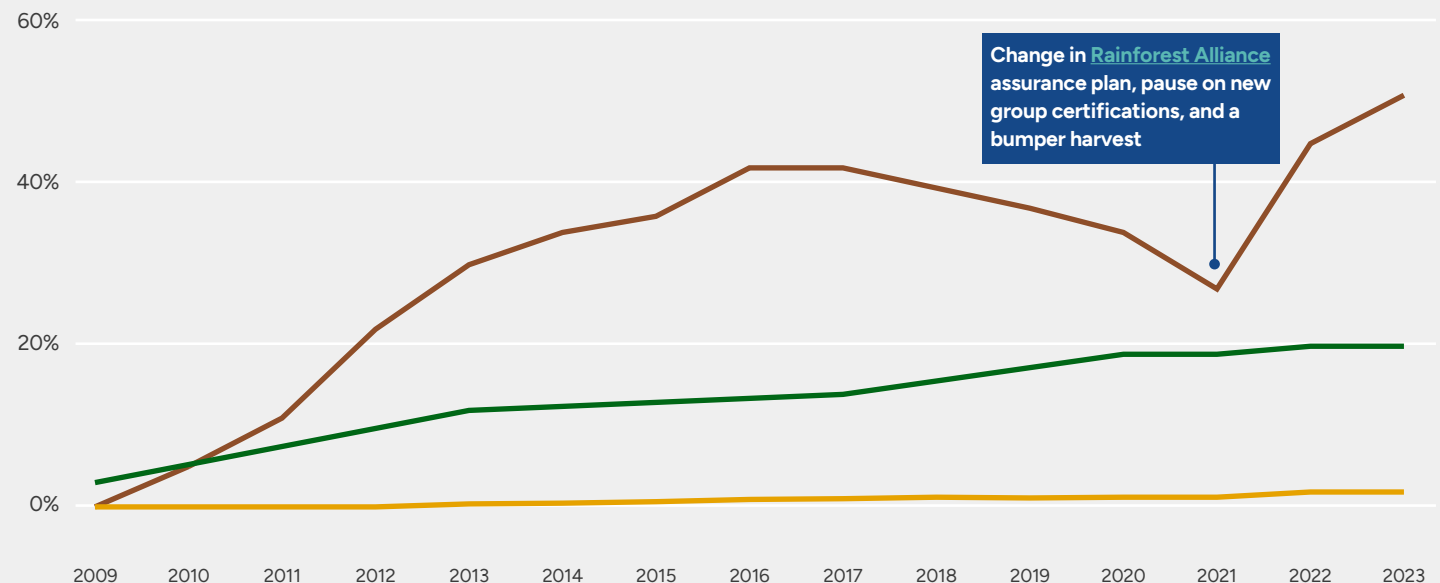
The private sector and producers rallied around a single certification standard - RSPO - when it launched. Companies transitioned over the last decade from reliance on book and claim credit purchases to transforming supply chains for segregated supply.



Cocoa

Source: [Rainforest Alliance](#) & [ITC SSI 2024](#)

Cocoa farms may be certified two or three times for different certification schemes. The Rainforest Alliance estimates that around a quarter of farms it certifies hold an additional certification (e.g. Fairtrade).



Phase II: Innovation and initiatives (2013 - 2019)

By 2015, companies and traders began aligning commitments across commodities, shifting focus from isolated supply chains to regional transformation. Recognising that certification on its own was not going to be scalable as a solution for entire regions, targeted programmes began to be established to promote area-based solutions.

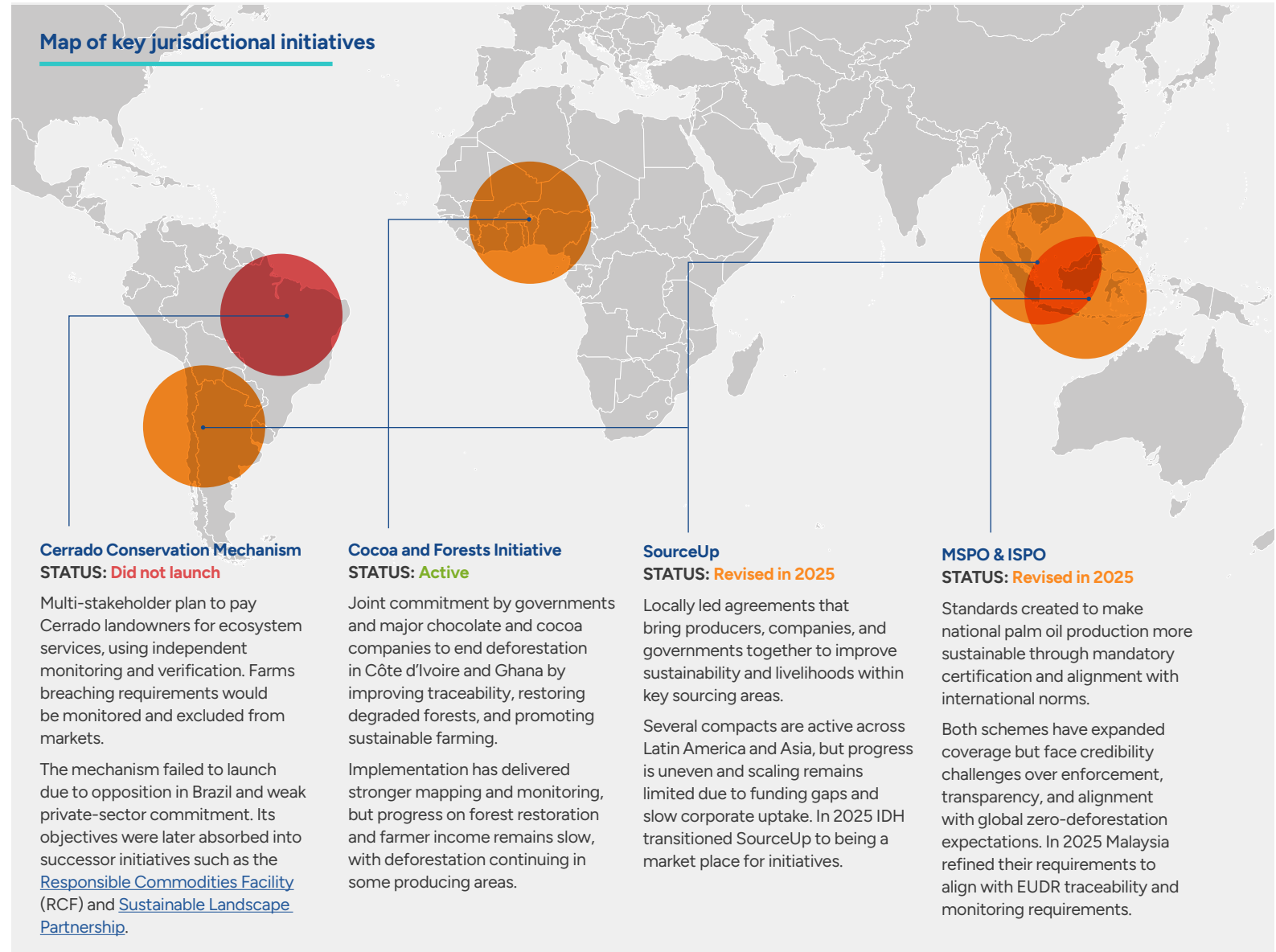
Pre-competitive forums and shared 2020 targets were introduced to accelerate sector-wide change, though implementation was uneven. Together these initiatives built a foundation for landscape-level finance, but scaling was limited by inconsistent funding and political support.

Key Characteristics:

- Jurisdictional approaches - led by local governments - used to certify or verify growing regions in partnership with private sector actors
- 2020 commitments promoted across production and major soft commodity trading companies
- Collaboration within facilitated pre-competitive forums

Key Initiatives:

- Malaysian Sustainable Palm Oil (MSPO) and Indonesian Sustainable Palm Oil (ISPO)
- Cocoa and Forests Initiative
- Cerrado Conservation Mechanism
- SourceUp Compacts



Phase III: Traceability and monitoring (2020-2025)

Delivery of company and sector commitments without the transparency of how progress was being achieved became an obstacle for shifting supply chains. Basic traceability and monitoring steps needed to ultimately affect change had to be harmonised and deployed consistently. This was necessary to ensure an efficient and cost-effective approach could be used, and to make sure that deforestation-linked production would not have a market.

With greater visibility, support had to extend to all producers, not only those already operating in verified supply chains. Traceability delivered transparency but underscored the need for stronger incentives and consistent enforcement.

Commitments for traceability were initially focused on **direct** supply chains of companies, where specific contractual commitments and production areas could be verified by the buyer. Over the past five years traceability systems have substantially improved to enable greater monitoring of **indirect** supply chains where buyers source material from other companies and therefore may have lacked the ability to directly monitor production areas.

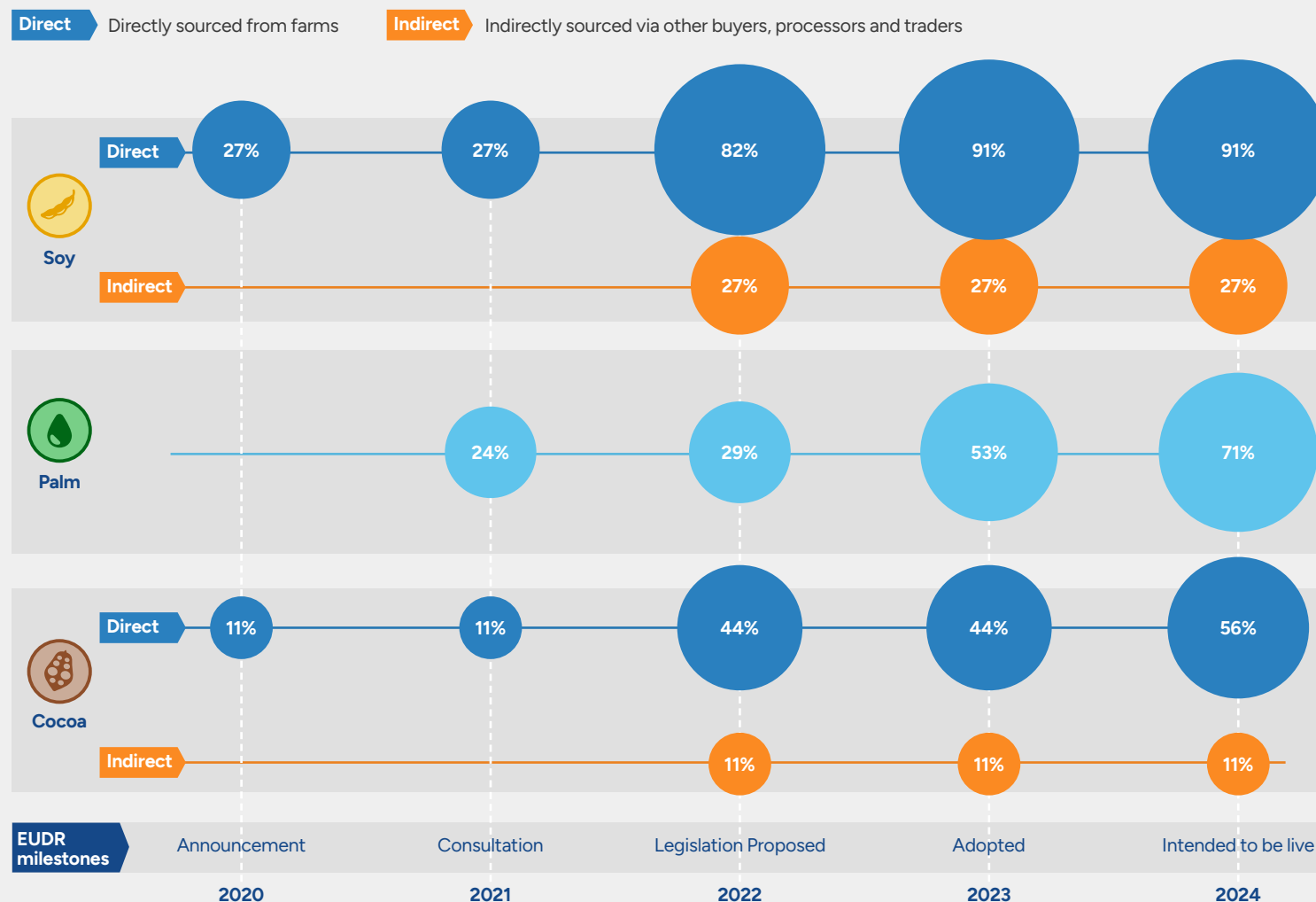
Key Characteristics:

- Harmonised risk assessment frameworks at the commodity level
- Digital traceability tools linking farms to buyers
- Producer incentives piloted beyond certification
- Alignment of civil society with the development of operational guidelines for monitoring and acting

Key Initiatives:

- Agricultural Sector Roadmap to 1.5°C
- NDPE Implementation Reporting Framework
- Responsible Commodities Facility

Percentage of top global commodity traders with >75% traceability to farm for their direct and indirect supply chains



Source: 3Keel trader assessments via the Palm Oil Transparency Coalition (POTC), Soy Transparency Coalition (STC) and Retailers Cocoa Collaboration (RCC)

Looking ahead: Post 2025-Theories of change



1.

Co-delivery is essential.

Civil-society leadership must evolve into shared implementation where business roles are defined and realistic.



2.

Forests underpin climate and human development goals.

Programmes must integrate these agendas rather than operate separately.



3.

Producer finance must shift from donations to investment. Payments for ecosystem services should reward verified outcomes while supporting social inclusion and smallholders.



4.

Regulation drives market transformation.

Businesses must support enforcement through proportionate due-diligence systems.



5.

Visibility matters, but impact matters more.

High-profile pledges help accountability, but consistent, on-the-ground delivery achieves results.

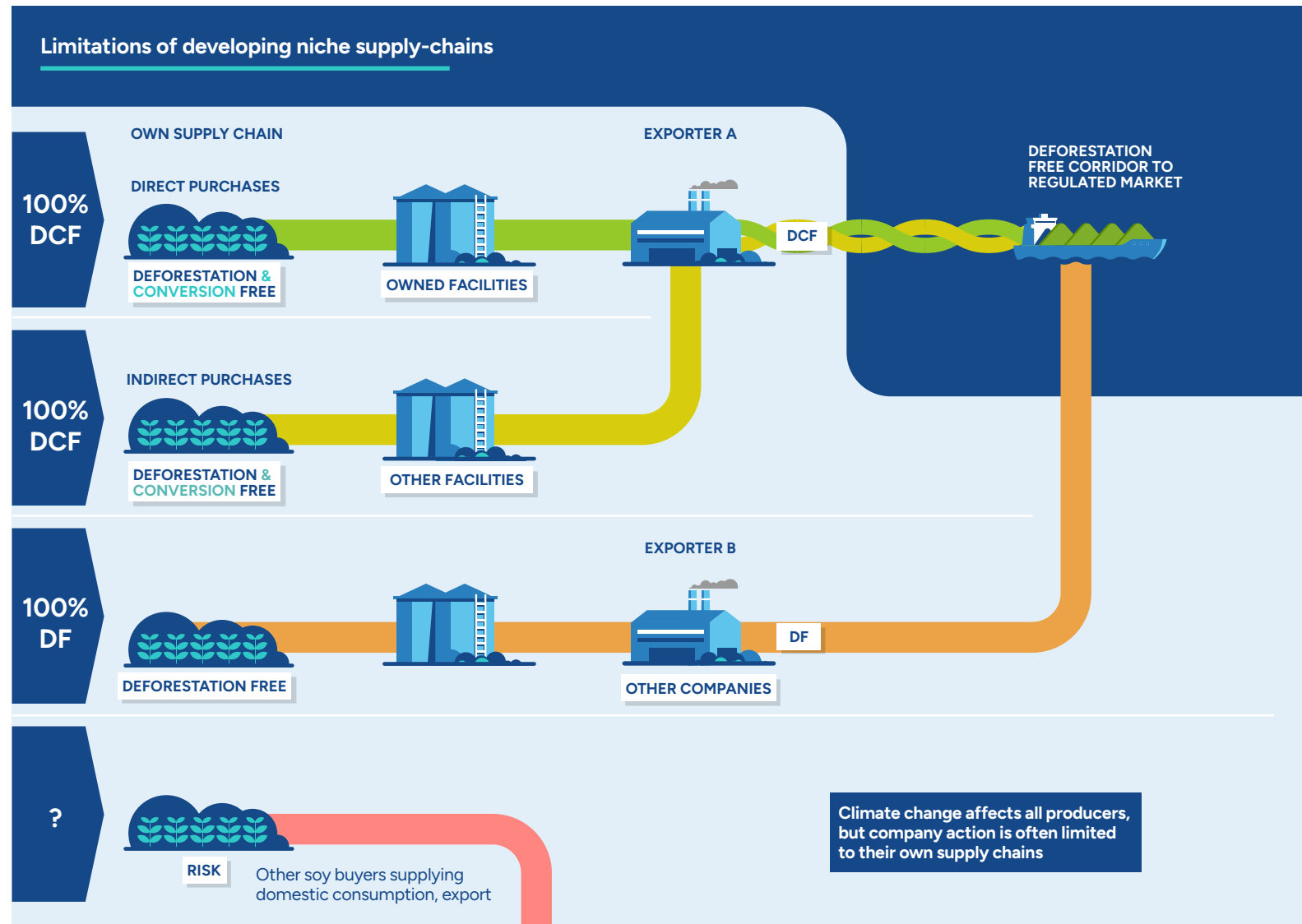
Deforestation will continue to occur without producer initiatives

Deforestation also undermines economic resilience. It worsens droughts, reduces rainfall and increases crop volatility, especially in regions such as the Cerrado and Amazon. Eliminating deforestation everywhere is the only route to a resilient global food system.

We are reaching the limits of what individual company commitments and actions can do to drive change in the production landscape. Business initiatives and efforts have made great strides in addressing the supply base so that it is now possible for any actor in a European supply chain to know that their indirect suppliers have monitoring systems in place tied with commitments and risk management approaches. However, even when 100% of the purchases are covered in an end-to-end supply chain by committed and responsible businesses with purchasing controls to restrict materials grown on land that is not **deforestation and conversion free (DCF)**, not every land owner considering converting forests or native vegetation will be part of these supply chains.

Consuming market requirements, such as the European Union Deforestation Regulation (EUDR), are providing the next step needed to develop the market-leveiling requirement for logistical **deforestation free (DF)** corridors to be established that are desirable for producers to enter. Regulation is critical but insufficient; transformation requires active participation and incentives for all producers.

Having made significant progress on transforming global trade flows, we must ensure that true landscape scale solutions - where producers are supported regardless of who their customer is - are in place with fair incentives and enforcement, regardless of the markets they supply.



The role of the private sector in Phase IV

Building on over two decades of action, we can see clearly that some actions are more effective than others. Moving forward beyond 2025, the role of business should be focused on what has been shown to be relevant, scalable, and supports transformation at the landscape level. The next phase demands practical collaboration that combines commercial reality with environmental necessity.

What businesses can't/shouldn't do

Raise the profile of specific issues on their own

Independent organisations, policy makers, and civil society groups have a high degree of trust in providing impartial and scientifically accurate information. Companies can support household decision making, but they cannot educate on their own while maintaining trust with their customers.

Rely solely on certification

We have seen that specific supply chain action can succeed in providing products that can be claimed to be deforestation free. As only a small fraction of global production of cocoa, palm oil and soy is connected to deforestation after 2020, reliance on this as the only tool will not achieve the elimination of deforestation from a production system.

Pursue traceability without engagement

Traceability is a tool to connect producers and markets, not an end in itself. Without considered deployment, too much emphasis on traceability alone may also unintentionally lead to smallholders being excluded from supply chains.

Set targets without context

Outcomes should drive company action, rather than arbitrary numbers or targets. While specific, measurable, and realistic commitments are helpful in guiding efforts, the manner in which they are delivered is what makes a difference.

What businesses can do

Advocate for effective regulation

Market-level transformation occurs when requirements are equally applied. Levelling the playing field is needed to eliminate the possibility of leakage. Businesses have a role to play as a constructive partner with policy makers in devising commercially viable solutions.

Monitor and engage effectively

Deploy best practices in deploying the tools and resources to effectively manage supply chains. This includes following the operational guidelines from the Accountability Framework initiative (AFi) to promote an aligned approach amongst peers and supply chain partners.

Disclose transparently

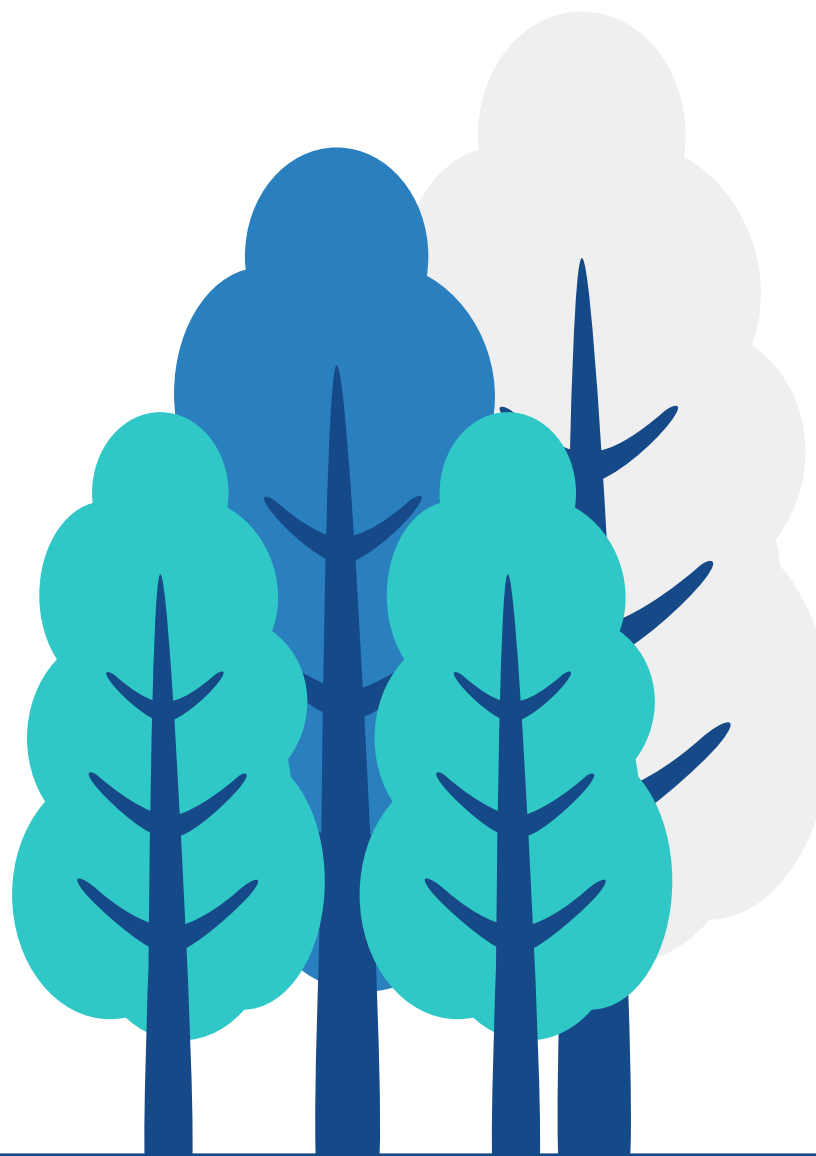
Be transparent about the practices and experiences of the business in engaging and supporting transformation. Impact reports, case studies, and specific examples of management systems using real data provide evidence that supports more effective actions by others.

Invest in place-based solutions

Production resilience and security of supply should be measured at the area, not supplier, level. Payment for ecosystem services within these areas may or may not be tied to specific supply chains. Private capital from supply chain actors can have a multiplier effect when deployed in creative solutions alongside the financial sector.

Collaborate pre-competitively

Operating in pre-competitive spaces allows for a freedom to align on shared experiences and develop creative solutions to addressing the complexity of supply chains that has slowed action. This has been successful in aligning on various goals and approaches over the past two decades, and will be even more important now as we pool our efforts to take the final steps needed.



Key Recommendations: 2025 and beyond

Business action on deforestation has reached maturity. The next phase requires strategic collaboration and sustained investment that embeds forest protection into the foundations of global trade. Real progress will come when companies move beyond compliance to shape how markets value nature, share responsibility with producers, and direct finance toward verified landscapes. This shift demands alignment between regulation, corporate practice, and investment so that incentives for conservation are built into everyday business decisions.



1.

Play to its strengths

Businesses must move beyond compliance to strategic investment that strengthens supply and protects nature.



2.

Share, and follow, best practice

Adopt standard contracts, traceability, and monitoring frameworks.



3.

Recognise shared exposure

Assess risk and resilience at the production-area level.



4.

Invest where it matters most

Scale proven mechanisms that deliver measurable conservation outcomes.



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Certified



This company meets the
highest standards of social
and environmental impact

Corporation