Zero-deforestation Commodity Supply Chains by 2020: Are We on Track?

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1 Executive Summary

Despite a rapid increase in pledges and government efforts to reduce deforestation, no clear evidence exists that the various initiatives are having their intended impacts. At least 10 million hectares of tropical forest continue to be lost and degraded every year, with commercial agriculture responsible for well over half of this loss, and new deforestation fronts and hotspots opening all the time. Recognizing their responsibility to protect forests, as of September 2017, more than 470 companies in the food and agriculture sector have pledged to eliminate deforestation from their supply chains, and the number of commitments continues to grow. However, as the 2020 deadline for a wide-range of private and public commitments relating to eliminating deforestation from supply-chains approaches, a review of progress is sobering:

1. **The large majority of companies that have made forest-related supply-chain commitments are not among the 250 most influential companies as identified by the Global Canopy Programme's *Forest 500* initiative**, and only about one-fifth of this group made zero- or zero-net deforestation commitments. According to Forest Trends' *Supply Change Initiative,* the number of corporate commitments to reduce deforestation driven by agricultural commodity supply chains continues to grow, with the palm oil and wood sectors showing the highest number of commitments. More than half of the companies exposed to relevant risks in these supply chains have made at least one public commitment, which means that almost an equal number of companies have not made a commitment.

2. **The commitments that were made differ widely, and their diversity and lack of clarity make it difficult to assess and compare company ambitions or to hold them accountable against their commitments**. Without harmonized definitions, it remains difficult to understand the relevance, ambition, scope, and progress of supply chain commitments to address deforestation. The *Accountability Framework*, an initiative by am alliance of environmental NGOs, could potentially address these limitations in the future. If adopted by companies, the framework could guide them in the definition of their commitments as well as in the implementation and monitoring of efforts.

3. **Until supply-chain commitments follow a set of harmonized definitions, tracking initiatives can provide only a limited picture of progress made.** Despite these data gaps, information from tracking initiatives indicates that there has been important progress and that many companies have at least started implementation of their commitments. According to CDP's *Forest Programme*, many companies have conducted relevant risk assessments, engage with their suppliers, and are in the process of setting up monitoring systems. A closer look, however, reveals that much more remains to be done and that the scope of efforts does not yet extend to the entirety of their operations. Many companies only assess short-term deforestation risks, and while many have traceability systems in place, these systems often do not extend along the full supply chain.

4. **The financial sector continues to lag behind.** While financial institutions have begun to adopt policies that address deforestation risks, limited information is available about their progress in implementing these policies. There is a need to strengthen these efforts and for an increase in public reporting of progress. Forest safeguards should not remain at the level of recommendations but instead become a financing pre-condition for all clients.

5. **Leakage – simply shifting the deforestation problem to other places, commodities, or ecosystems – presents a risk that could nullify supply-chain efforts to tackle deforestation**. Leakage between commodities (i.e. soy and beef) is a risk where both commodities compete for land but are regulated differently. Displacement between regions and countries happens if legislative frameworks or

levels of enforcement vary, inviting producers to move towards regions with weaker regulation. Companies could start monitoring leakage and adopt sourcing policies which help to prevent leakage across ecosystems and biomes.

6. **Clear, consistent, and up-to-date information on forest cover – combined with real-time information on deforestation activities – would help with the tracking of compliance with laws, policies, and targets.** Current monitoring systems are often overly complex and insufficiently linked to action. Tools like Global Forest Watch and the Trase platform are increasingly able to link deforestation to specific actors and are expected to improve accountability of supply chain efforts in the future.

7. **Increasing smallholder productivity while stepping up forest protection is essential for reducing deforestation.** To be better engaged in supply chain efforts, it is crucial that smallholders receive technical assistance for improved production practices and support for their aggregation in associations or cooperatives. This is particularly important in sectors with large shares of smallholders (e.g. cocoa, palm oil) that lack the financial resources, knowledge, access to finance or inputs, and tenure security to participate in supply chain efforts.

8. **Initiatives at the jurisdictional or landscape level provide opportunities to consolidate various supply-chain sustainability efforts and align company and government interests across different sectors.** Jurisdictional approaches combine government efforts related to law enforcement, land-use planning, and smallholder extension with jurisdictional certification and private-sector sourcing commitments. Such programs are essential to detecting and managing leakage. Larger programs based on private-public cooperation also facilitate the exchange of data and harmonized implementation of incentive and smallholder inclusion programs. However, jurisdictional programs are complex and require long-term political commitment backed by a strong vision toward sustainability and supportive institutions.

At the end of 2017, therefore, three years off the 2020 goal, a major and urgent redoubling of effort is required by companies and banks across the commodity supply chain responsible for deforestation. It will no longer suffice to take refuge in the undeniable complexities and obstacles to implementation which exist. Enough is now known to enable companies across commodity supply chains to act responsibly and ethically to reduce and eliminate their deforestation footprint. The same applies for the banks and financial institutions that invest in the companies. In addition to the moral case, the business case for collective action by companies and investors to address deforestation decisively is unimpeachable. **Now is the time to act.**

2 Introduction

In a unique public-private effort, 191 governments, private sector companies, and civil society organizations have endorsed the New York Declaration on Forests (NYDF). The Declaration sets an ambitious target of ending natural forest loss by 2030, with a 50% reduction by 2020 as a milestone toward its achievement. The Declaration also calls for supporting the private sector in the elimination of deforestation in the supply chains of major agricultural commodities by no later than 2020 (NYDF Goal 2). These commodities include palm oil, soy, pulp and paper, and beef.

Recognizing their responsibility to protect forests, as of September 2017, more than 470 consumer goods and producer, processor, and trader companies in the agriculture sector have pledged to eliminate deforestation from their supply chains, and the number of commitments continues to grow.[1] Although companies have started to translate announcements into action, progress remains slow. It is still impossible to assess the overall impact of company efforts on forests. There are no comprehensive global data sets that link efforts to divorce deforestation from agricultural commodity supply chains to an actual reduction in deforestation. It is clear, however, that there is no sign that the annual gross rate at which trees are being cleared or harvested is slowing.[2] Implementation of company commitments must be strengthened and accelerated if pressing climate targets are to be met.

More action is needed from all actors to ensure that companies effectively meet their supply-chain commitments. Although companies have started to adopt policies regarding deforestation, they do not always monitor their compliance. In 2016, fewer than half of CDP-reporting manufacturers and retailers disclosed that they monitor compliance and carry out supplier audits. In addition, despite a sharp increase in engagement, governments struggle with improving governance and shifting public support to sustainable investments. The public sector must dedicate more support to companies seeking to implement these commitments. For its part, the financial sector continues to directly or indirectly invest in deforestation.

Fewer than three years remain until 2020, the date by which commodity production in forest countries is supposed to be transformed. To achieve success, enhanced action and collaboration among sectors and various supply-chain actors are urgently needed. Responding to this urgency, the Prince of Wales' International Sustainability Unit (ISU) has invited leaders from the private and public sectors and civil society to a high-level dialogue. This paper seeks to provide input for this dialogue. With a view to the 2020 target, it provides an updated progress assessment of supply-chain efforts to eliminate deforestation from agricultural supply chains. The update complements and updates previous assessments, most notably the 2016 Goal 2 Progress Assessment, the TFA 2016-17 Annual Report and Commodities and Forest Agenda 2020 of the Tropical Forest Alliance 2020.[3] It focuses on five commodities: palm oil, soy, beef, wood products, and cocoa.

This paper is structured as follows: Section 2 presents an overview of commodity-driven deforestation. Following a brief introduction to the methodology in Section 3, Section 4 summarizes the findings of an updated progress assessment of supply-chain efforts in the five commodities, based on the assessment framework developed for the NYDF 2016 Progress Assessment. This includes on update on company commitments, the implementation of these commitments, supporting government measures, and the overall impact of these efforts on forests. Sections 5 and 6 provide in-depth discussions of specific issues related to the need for harmonized definitions, the lack of data to understand the geographic scope of supply-chain commitments, the role of certification, the potential of collaborative and partnership initiatives, and lessons that can be shared across commodities and supply chains.

3 Deforestation in Commodity Supply Chains

The production of palm oil, soy, beef, and wood products has a huge impact on forests (Error! Reference source not found.**).** Between 1990 and 2015, tropical forest cover decreased by more than 195 million hectares – more than 76% (149 million hectares) of which occurred in South America, South-Southeast Asia, and Central-West Africa.[4] The four big commodities were responsible for about 113 million hectares of forest loss in tropical regions between 2000 and 2012.[5] In West Africa, cocoa production caused almost 3 million hectares of forest loss between 1988 and 2007, and cocoa expansion threatens the remaining forests.[6]

A large share of deforestation (31%) is embedded in the export of these commodities. The European Union, China, and the rest of Asia were the largest importers of these goods in 2011.[7] Moreover, approximately 30% of deforestation from cocoa was embedded in its export to the EU27[8] and the U.S. between 1988 and 2007.[9] A new study by WWF and RSBP found that annual demand for the seven major commodities (beef and leather, timber, soy, palm oil, pulp and paper, cocoa and rubber) in the UK alone required a land area of 13.6 million hectares.[2]

Deforestation associated with commercial agricultural production varies between regions. Cattle and soy production greatly impact tropical forests in South America; in Southeast Asia, palm oil and wood products are the main drivers of deforestation; and in West Africa, deforestation stems primarily from cocoa, palm oil, and logging.[10]

Figure 1. Deforestation from five forest-risk commodities (forest loss from cocoa is cumulative for 1988-2007). Source: On the right - Climate Focus analysis based on European Commission 2013 (all commodities) and Gockowski & Sonwa 2010 (for cocoa). On the left - Henders et al. 2015.

[2] WWF and RSBP (2017). Risky Business. Understanding the UK's overseas footprint for deforestation-risk commodities. Report will be published at the of October.

4 Methodology

4.1 Assessment framework

We developed an assessment framework to track the progress of companies and other stakeholders in addressing deforestation in the supply chains of soy, palm oil, beef, wood products, and cocoa. We relied on literature review; data from CDP, *Forest Trend's Supply Change Initiative*, Global Canopy Programme's *Forest 500,* and The Sustainability Consortium; and findings published by other groups. With the permission of the respective clients, we also looked at interviews and consultations in other relevant projects, including the NYDF progress assessment, an analysis of the cocoa sector supported by the World Bank (*Eliminating Deforestation from the Cocoa Supply Chain)* and work undertaken in the development of the *Commodities and Forest Agenda 2020* of the Tropical Forest Alliance 2020.

Our assessment focused on palm oil, soy, and cocoa. However, beef and wood products will be considered in our data analysis. Following our stock-take, we analyzed barriers to the implementation of supply-chain commitments and evaluated opportunities for the acceleration of implementation.

Table 1. Assessment framework

Criteria	Indicators
1. Commitment to forest-related commodities	1. Commitments by companies
2. Implementation of private-sector forest commitments	1. Adoption of policies 2. Traceability and monitoring of commodity sourcing 3. Reporting of progress
3. Support by financial institutions and the public sector	1. Deforestation-related commitments by financial institutions 2. Improvements in forest governance (enabling environment)
4. Impact	1. Reduction of deforestation associated with a particular commodity

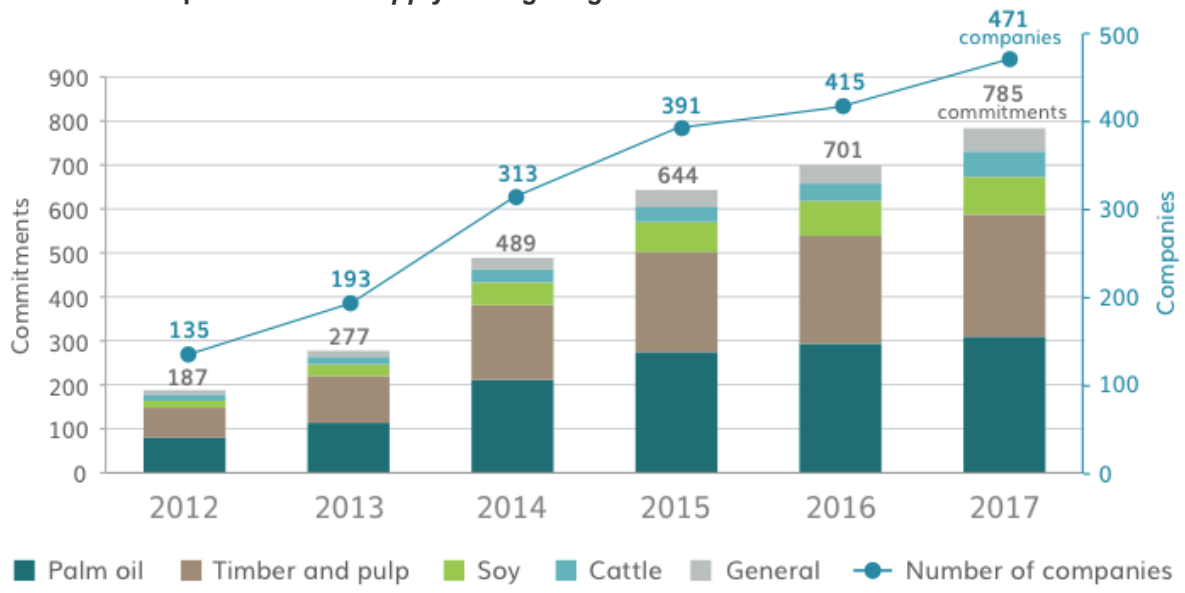
5 Tracking Progress on Supply-chain Commitments

5.1 CRITERION 1: Forest-related commitments by companies[11]

Indicator 1: Commitments by companies

The number of corporate commitments to reduce deforestation driven by agricultural commodity supply chains continues to grow, with the palm oil and wood sectors particularly advanced. According to *Supply-Change.org*, in 2017, of the nearly 900 companies exposed to forest-relevant risks in the cattle, palm, soy, or timber and pulp supply chains, more than half (471) have at least one commitment. The platform tracks a total of 785 commitments (Figure 2), as some companies have more than one commitment. More than half of all companies operating in the palm oil and wood industries made relevant commitments. This stands in contrast to the small shares in the beef and soy industries, stemming in part from the availability and wide use of certification schemes for the former.[12]

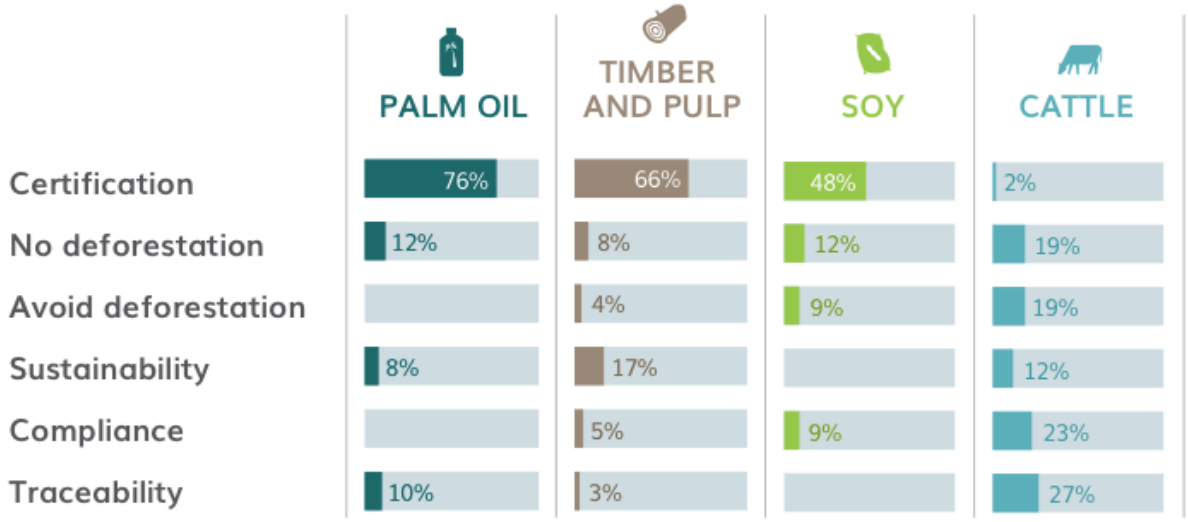
Figure 2. Forest-related commitments in agricultural supply chains. Climate Focus Analysis based on data presented on *Supply-Change.org.*



The majority of these commitments come from companies that are not among the most influential "Forest 500" companies, and according to the Global Canopy Programme (GCP), only about one-fifth of this powerbroker group made zero- or zero net deforestation commitments. Only a small share of companies that have commitments and are profiled on *Supply-Change.org* belongs to the group of the 250 most influential "Forest 500" companies, as identified by GCP. In the palm oil sector, one-quarter of all companies that made commitments belong to the Forest 500. For timber and pulp, soy, and beef, the share is much lower: 16%, 13%, and 15%, respectively.[13] The Forest 500 initiative found that, on average, 21% of these companies exposed to tropical-deforestation risk had a company-specific and zero or zero-net deforestation commitment.[14] Information on market shares is unavailable for all four commodities except for palm oil, where the Sustainable Palm Oil Transparency Toolkit (SPOTT) indicates that companies with commitments represent major shares of the land bank and market.[15]

In an analysis of data from *Supply Change's web platform*, we find that commitments continue to be highly variable, which makes it difficult to understand their relevance, ambition and scope related to deforestation. Commitments often refer to broad objectives such as "no deforestation," sustainability, and responsibility (Figure 3). Companies provide varying detail on the tools (e.g. certification) and approaches (e.g. traceability, smallholder support) that they use in their efforts. Some commitments explicitly avoid sourcing from deforestation areas via commitments to not source from "deforestation regions" or certain types of ecosystems (e.g. peatlands). Others refer to compliance with public-private agreements (e.g. moratoria) or laws. Additional clarification is required to understand the relevance of these goals and strategies. For example, the three main cocoa sector certification schemes – the Rainforest Alliance standard based on the Sustainable Agriculture Network, which promotes the adoption of sustainable agricultural practices (RAN/SAN); UTZ; and Fairtrade – all set requirements to protect High Conservation Value (HCV)[16] areas but vary in the stringency and scope of their requirements for certification. Only the RAN/SAN scheme extends protection to all natural forests – both primary and secondary. Another limitation for understanding how meaningful these commitments are is the lack of a clear geographic scope.

Figure 3. Companies that mention specific targets and strategies in their commitments (%). The aggregate of % is more than 100% as many companies refer to more than one objective in their commitments. Total number of companies: Palm oil 277, Soy 86, Cattle 52, Timber and pulp 253.



In the cocoa sector, a survey conducted by Climate Focus in 2016 found that almost two-thirds of companies (12 out of 19) – mainly chocolate producers, cocoa traders, and bean-to-bar companies – had commodity-specific or operation-wide commitments relevant to deforestation in place.[17] Two of the largest cocoa bean grinder and chocolate producers that represent more than 33% of global cocoa bean production have zero-deforestation commitments. In addition, the three largest cocoa bean traders/grinders and five largest chocolate producers have committed to use certified cocoa in their products. These chocolate producers had a total of more than USD 64 billion revenues in 2016.[18] Companies that lacked forest-related certification commitments, on the other hand, are relatively small in terms of market share.

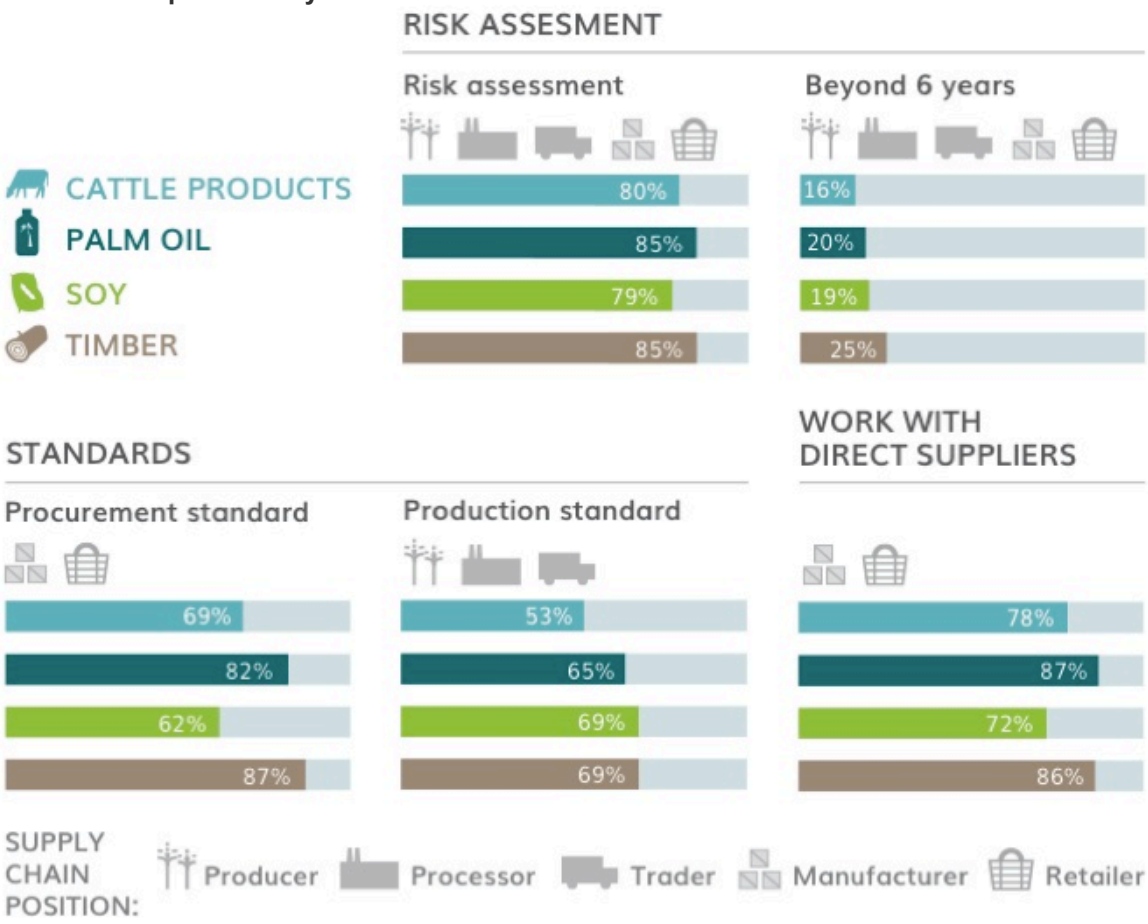
5.2 CRITERION 2: Implementation of private sector forest commitments[19]

Indicator 1: Adoption of policies

Although the majority of companies have continued to operationalize their commitments, a lot remains to be done when looking at the details (Error! Reference source not found.**).** Across commodities, an average of 82% of companies have a risk assessment procedure in place. However, only a minority extends these assessments into the long-term by examining risks beyond six years.[20] The majority of companies have defined environmental standards for the production or sourcing of commodities.

The majority of companies from each of the commodities reported working with their direct suppliers, but beyond that, engagement was much more limited. Providing guidance and incentives to suppliers is an important corporate strategy to improve compliance and accountability throughout supply chains. Only about one-third of manufacturers and retailers utilized supplier audits (with timber companies reporting a high of 45%), less than a third operated workshops and training, and even lower shares were reported for joint projects (7-18%) and lending of technical support (2-9%).

Figure 4. Companies that have adopted policies or strategies to address deforestation (%). 2016 data. Total number of companies: 187. Supply chain position indicates data availability only. Source: Data provided by CDP.



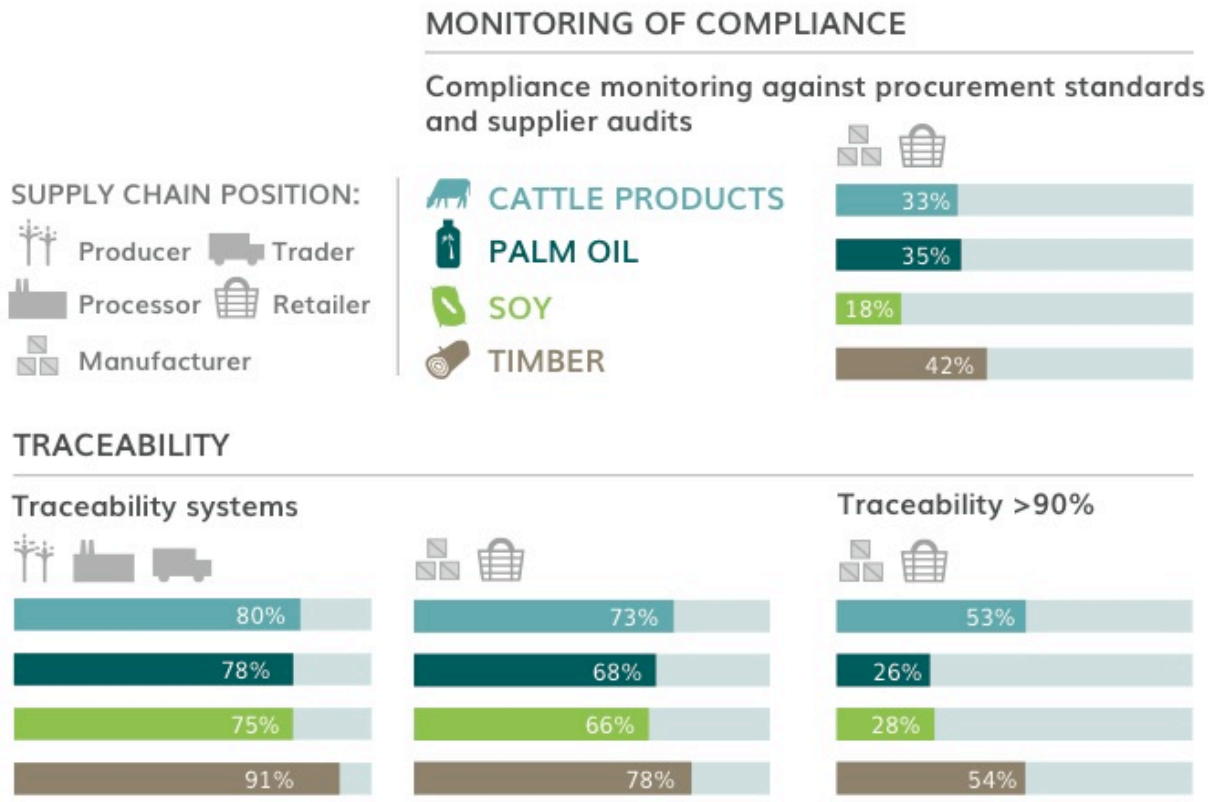
While all chocolate producers and all but one bean-to-bar company have sourcing criteria for cocoa, the same applies for only 40% of traders and grinders. This results in these standards covering 54% of total global production, which could increase by an additional 30% if all traders and grinders were involved.

Indicator 2. Traceability and monitoring of commodity sourcing

Corporate traceability systems rarely reach commodities' point of origin.[21] According to CDP, 45% of timber and palm manufacturers and retailers had traceability systems that reached the point of origin for at least part of its production, while the shares are lower for the cattle and soy sectors. The cattle sector is one example of why traceability to the farm further ensures deforestation commitments are adhered to, exemplified by the Brazilian environmental protection agency's recent embargo of beef-processing facilities that purchased cattle from deforested areas in the Amazon.[22] For a number of blended products, traceability to the point of aggregation (e.g. the mill) may be acceptable provided that the mill can prove that it only accepts products of certified origin.

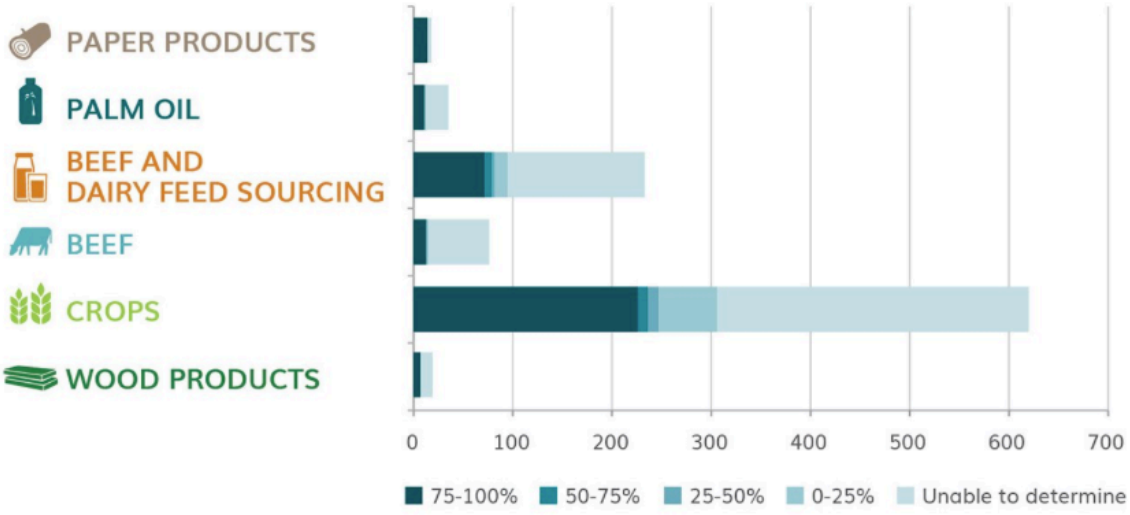
The scope of traceability systems in the five forest-risk commodities can be improved (Error! Reference source not found.). While 75-91% of producers, processors, and trader companies reported having traceability systems in place, the share is slightly lower for upstream companies (66-78%). Only 26-54% of manufacturers and retailers trace 90% of total production and consumption across commodities, with lower incidences for palm oil and soy.

Figure 5. Companies that have traceability and monitoring systems in place (%). 2016 data. Total number of companies: 187. Supply chain position indicates data availability only. Source: Data provided by CDP.



Of the 1001 companies reporting to The Sustainability Consortium, less than half was unable to determine the share of their supply coming from converted HCV or HCS forests. This was true across all sectors except for paper, where 14 companies (77%) reported that 75-100% of their supply was free of HCV or HCS. The failure to indicate the share of supply chains not from these sources may reflect a greater need for tracking and monitoring (Error! Reference source not found.).

Figure 6. Retail supplier companies reporting on the share of supply not coming from converted HCV or HCS forests. 2017 data. Total number of companies that reported: 1001. Source: Data provided by The Sustainability Consortium (2017).



In the cocoa sector, almost all companies have started to map their sourcing to the farm level. In our interviews, company responses to questions regarding the specific design and processes of their monitoring systems varied, limiting the possibility of discerning industry-wide trends. However, a few key points can be gleaned from the received responses. Remarks on the limitations of existing monitoring and traceability systems concerned the scope of monitoring, both geographically and temporally. In terms of how the monitoring system detects deforestation, companies said their systems were either unable to do so or relied on certification schemes to ensure the commitment was being made.

Indicator 3: Reporting of progress

***Supply Change* found that companies' reporting and transparency efforts are gaining momentum, but at the same time one fifth of commitments are considered "dormant."**[23] Progress information on companies' commitments is increasingly available, namely for over half (51%) of the commitments that *Supply Change* has consistently tracked over the past two years. While this is a dramatic increase from *Supply Change's* 2016 findings, which found that progress information was available for only one in three (36%) of commitments, one-fifth of all commitments are not accompanied by transparent progress reporting, and are considered to be "dormant."[24] Dormant commitments are defined as those commitments whose target date has passed, or, commitments which were announced in 2015 or earlier and never had a target date.[25]

Among cocoa companies, results vary widely on implementation progress and information disclosure. Out of five trader/grinders assessed, two define procurement and sourcing criteria for their suppliers,[26] and two reported compliance information, which showed that 22-30% of their supply was certified.[27] Five chocolate producers that make up 39% of global cocoa provided little information on compliance. One company sourcing 10% of global cocoa is committed to 100% certification and reports that 35% of its cocoa is certified.

5.3 CRITERION 3: Support by financial institutions and the public sector

Indicator 1: Deforestation-related commitments by financial institutions

While financial institutions have begun to adopt policies that address deforestation risks, few make those policies mandatory or monitor against them. 2016 data from *Forest 500* indicate that only a limited number of the 150 financial institutions linked to the 250 powerbroker companies in the big four commodity supply chains are actively addressing deforestation risks in their portfolios. Only one-third of financial institutions have made forest-related commitments for at least one commodity, but few publicly report against these policies. While half of commitments go as far as to refer to the protection of priority forest types, including primary, intact, natural, and/or HCV tropical forests, most do not set specific requirements but only encourage their clients to consider the protection of these ecosystems. Via shareholder resolutions, investors are putting pressure on agribusiness companies to address forest risks. Between 2011 and 2017, 13 investors filed 50 relevant resolutions with U.S. manufacturers and retailers, calling on them to eliminate deforestation in forest-risk supply chains. Some went as far as to call for the adoption of more specific policies and transparency through progress reporting.[28]

According to the platform on *Forestandfinance.org,* in 2016, 28 banks provided most of the financial services to the forest-risk sectors in the Asia-Pacific region, and more than half (58%) have published specific safeguard policies or environmental, social, and governance (ESG) guidelines.[29] However, the coverage of these policies was limited, and only a small share of banks applied the policy to their entire portfolio and clients within a company group. Around one-third of companies required independent assessments – but for only some clients – and this was accomplished through certification or participation in covenants. Few of the banks instituted specific rules, like the prohibition of the degradation of

HCV or HCS forests or protected areas, while about one-fifth used certification requirements to implicitly protect different forest types.

There are multiple initiatives that seek to address deforestation risks in the financial sector. Beginning in 2016, a dozen banks – with a combined 10 trillion USD in assets – have committed to the Soft Commodities Compact, an initiative of the Banking Environment Initiative and the Consumer Goods Forum (CGF) that aims to achieve transparency in the financial sector regarding the sustainability of supply. The initiative also seeks to lead the banking industry toward meeting the CGF 2020 goal, described in Box 1. The compact consists of two pledges: first, to make reasonable efforts to finance the transformation of sustainable supply chains and second, to raise industry-wide banking standards (Box 1).

Box 2. Progress on Soft Commodities Compact

The Soft Commodities Compact is a voluntary initiative of the banking industry to work toward zero-net deforestation in supply chains by 2020. While there is no monitoring or enforcement of the initiative itself, the initiative does offer Key Performance Indicators (KPIs) to guide banks in the development of their policies and reporting on progress toward the compact's pledges. In February 2017, HSBC announced its new 'No Deforestation, No Peat, No Exploitation' policy for companies directly involved in the palm oil sector. The bank's clients are required to obtain RSPO certification or an equivalent to prove compliance with most of the policy's requirements. HSBC's policy also covers soy, cattle, rubber, and wood. Similarly, Standard Chartered Bank has published a position paper, moving clients to publicly commit to a 'No Deforestation, No Peat, No Exploitation' policy by December 2018,[30] and BPN Paribas implemented a new policy for palm oil clients this past spring that places emphasis on smallholder support and certification.[31]

Another initiative has developed a roadmap to providing financial institutions and stakeholders with the tools to incorporate natural capital considerations into all relevant products and services. The UNEP Finance Initiative (UNEP-FI) is a partnership between the UNEP and the global financial sector. Together with the Global Canopy Programme, in 2012, it launched the Natural Capital Finance Alliance, a public-private partnership aimed at integrating natural capital awareness into financial services and products. In addition to the four pledges established in the Natural Capital Declaration, member banks are working toward integration of natural capital-related risks into their financial metrics. Furthermore, the Natural Capital Finance Alliance launched the Soft Commodity Forest Risk Tool in 2015, an analytical framework that enables banks to identify possible risks of deforestation related to soft commodities (cattle, palm oil, soy) for a client in a specific area or region of interest, as well as the impact that this risk might have on relevant investments. The tool allows financial institutions and stakeholders to develop better commodity-risk policies.

Indicator 2: Improvements in forest governance

Legal and policy frameworks that curtail illegality; increase enforcement; and harmonize statutory, customary, and local and national laws need to be strengthened. Policy uncertainty for companies whose actions rely mostly on political commitments remains, making it difficult for them to make long-term plans and investments. For example, while the government of Côte d'Ivoire has committed to elimination deforestation from agriculture, further decisive steps and clear strategies are needed to meet this goal.[32] Similarly, in the palm oil sector, the temporary, expanding, and evolving scope of moratoria in Indonesia directly impacts company concessions and land banks. The moratoria's renewals depend on presidential leadership and enforcement. At the same time, the legal framework governing forest conversion in the country is overly complex, and the policies governing the allocation of non-forested land for agriculture and plantations are inconsistent and run contrary to company commitments and national deforestation goals.[33]

To implement forest commitments and eliminate deforestation in supply chains, further collaborative efforts between the private sector, governments, civil society organizations, and local communities are required. In recent years, political commitments by governments to reduce and stop deforestation have grown rapidly; however, limited action by governments still hinders implementation of private sector commitments. Positive examples, such as the implementation of forest laws to halt illegal deforestation in Brazil, exist, but efforts are isolated and not leading to transformational change. If the basic driving factors such as poverty and profitability of agricultural land are not addressed, these achievements might not last.[34] In the beef sector, the implementation of and compliance with commitments remain controversial, as despite moratoria and embargoes, illegal deforestation continues in Brazil.[35] Thus, public-private partnerships are essential to ensure that social, economic, and environmental factors driving deforestation are addressed through concerted efforts at the national, regional, and local levels.

5.4 CRITERION 4: Impact of deforestation-free commitments

Indicator 1: Reduction of deforestation associated with a particular commodity

There are currently no available global data on the impacts of deforestation-free commitments on forest loss, but new tools are being developed and refined that may provide insight within the next couple of years. Two initiatives have set out to provide this insight – Global Forest Watch (GFW)–Commodities and Transparency for Sustainable Economies (Trase) establish complementary platforms to monitor commercial agriculture's overall deforestation impacts over time.

Global Forest Watch–Commodities is a dynamic online forest-monitoring and alert system that breaks down satellite data into mosaics and overlays them with open-sourced commodity data, such as maps that show where concessions have been granted for agricultural development. Over the next couple of years, GFW–Commodities will add more commodity data to enable the global measurement of deforestation by commodity type. Another iteration of Global Forest Watch, GFW PRO will soon be available. It will enable banks to track deforestation and fire alerts on specific client production areas. GFW PRO will enable banks to integrate deforestation monitoring into their core business strategies and consider deforestation as another variable that may impact the risk embedded in their agriculture investments.

Trase is an innovative new platform that maps the supply chains of globally traded agricultural commodities, linking regions of production to countries of import, via the individual companies that export and import a particular traded commodity (Box 2). In doing so, Trase connects downstream supply chain actors to the impacts and opportunities associated with commodity production, enabling greater accountability, improved monitoring, and ultimately progress towards ambitious sustainability goals. Having launched in November 2016 with a focus on the Brazilian soy trade, Trase aims to cover over 70% of the total traded volume of forest risk commodities by 2020.

Another mechanism for tracing commodities in supply chains, the Accountability Framework is a joint effort by a coalition of leading environmental NGOs that can potentially address the need for harmonized definitions. The framework is designed to improve compliance, transparency, and traceability to enable companies to track progress on their commitments.[36] In addition, it has developed common definitions related to forests, community rights, and guiding principles for good practices related to supply-chain mapping, monitoring, verification, and reporting.[37] To streamline monitoring and reporting of progress on commitments, the norms developed as part of the Framework will be incorporated into other platforms and initiatives like Global Forest Watch and the High Carbon Stock Approach.[38] Although these traceability data identify traders but not downstream buyers, many retailers

and consumer-goods manufacturers already have achieved traceability for their first-tier suppliers, which includes these traders. Retailers and manufacturers can then identify which traders are sourcing from areas with greater environmental and social impacts, and they can make engagement with those suppliers a priority.

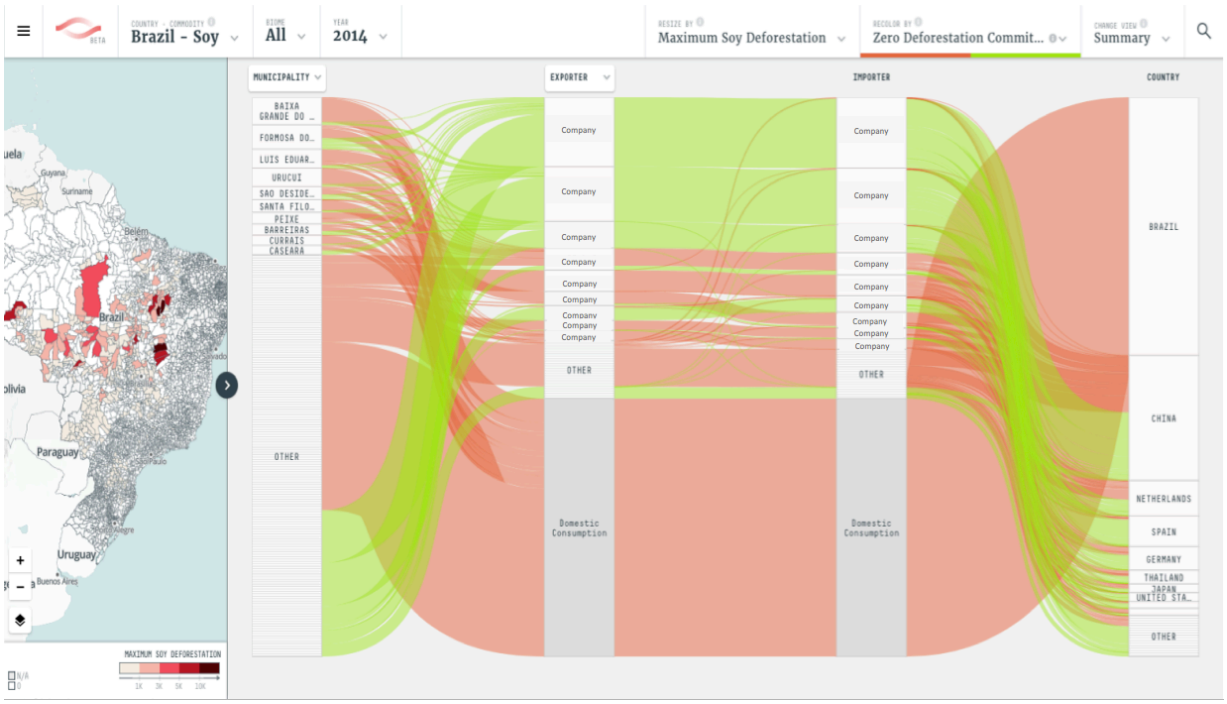
Box 3. Using big data to gauge deforestation impact

Trase enables interested stakeholders to explore the sourcing regions of particular supply chain actors, and to identify the sustainability risks and opportunities to which they are linked.

Figure 7 depicts the Trase model for Brazilian soy, with supply chain flows colored in green or red depending on whether the exporting company has a zero deforestation commitment. It reveals that the top three exporters have made commitments to eliminate deforestation across their entire supply chains, whilst others have made geographically specific pledges under the Amazon Soy Moratorium.

Exploring the data behind this diagram reveals that 42% of the soy exported from Brazil in 2015 was covered by a zero deforestation commitment of some kind. What's more Trase data reveals that 97 thousand hectares of deforestation that could be attributable to soy expansion in 2015 was associated with the sourcing regions of trading companies that have a zero deforestation commitment.

Figure 7. Trase for Brazilian soy recolored by exporter Zero-Deforestation Commitments. Data and screenshot provided by Trase.



6 Barriers to Action

Companies have demonstrated interest in moving forward with their supply-chain commitments and mitigating their impact on forests. Yet they face a number of ongoing challenges in the implementation of their efforts. Barriers are both often related and complex in nature and face issues in consistency, alignment, and effective integration.

6.1 Lack of transparency and comparability

Companies make commitments in multiple ways, rendering it difficult to seek transparency or assess accountability if the commitments are not harmonized around clear definitions. Company commitments can be based on sourcing certified products that have their own definitional issues, such as zero gross versus net deforestation and the preservation of HCV or high carbon stock areas. This level of diversity and lack of clarity impede accountability and transparency.[39]

While an increasing number of companies are publicly reporting on commitments and progress, there are inconsistencies in what is reported. Many companies rely on self-reporting, which is difficult to verify and potentially biased. Furthermore, the lack of information on sourcing geographies poses a challenge to understanding the overall effectiveness of any actions that may be implemented. A company meeting a commitment to "avoid deforestation" but which was already sourcing from a non-deforestation hotspot, such as the United States, will not actually be having a lasting impact on deforestation.

Current monitoring systems are often overly complex and insufficiently linked to action. Whether palm oil plantations drive deforestation in Indonesia, soy leads to forest loss in the Brazilian Cerrado, or beef drives deforestation in Paraguay, current monitoring and governance systems rarely enable actors to take rapid responses to address deforestation where and when it occurs. Monitoring systems are either absent or too cumbersome and collect too much data to satisfy a great number of indicators. Worse still, it often takes several months or years until information reaches decision-makers who can take action to address incidents of deforestation.

Governments often fail to collect or release data on land use and deforestation. Governments control 73% of global forest land[40] and impact forests in a multitude of ways, including through the adoption of policies and setting of targets for conservation and development, granting of concessions, and direct investments in forest areas. While the majority of governments in commodity-producing countries also have policies in place to reduce deforestation,[41] governments are often reluctant to release essential land use data. For instance, insufficient transparency on the allocation and location of licenses and concessions can lead to land conflicts and to inconsistencies between agricultural production and avoided deforestation targets.[42]

The lack of global traceability systems and associated data is an impediment to tracking the progress and impact of commitments' implementation. The current mechanisms do not reach either points of origin or upstream points of aggregation (e.g. mills) that allow the confirmation of compliance. Many companies do not even have reliable baselines linking their products and policies to facts on the ground.[43]

6.2 Weak forest governance

Incoherent and sometimes contradictory legal and policy frameworks, combined with inadequate enforcement, present major challenges to companies seeking to implement zero-deforestation policies. A number of companies have reported that incoherent forest legislation and insufficient implementation represent an important barrier to meeting their commitments.[44] For instance, unclear or conflicting forest laws can prevent compliance with commitments to ensuring legality in supply chains. Moreover, where illegal forest clearing is widespread, companies seeking to follow the law can be put at a competitive disadvantage. Achieving long-term sustainable growth while meeting zero-deforestation commitments is dependent on countries engaging in and implementing integrated land-use planning.

Illegal deforestation fundamentally undermines tropical forest countries' ability to promote agricultural development. In addition, almost all tropical forest countries participating in international initiatives to reduce emissions from deforestation and degradation (REDD+) cite illegality and lack of enforcement as factors underlying deforestation. Almost two-thirds cite these phenomena as major risks to the implementation of their emission reduction programs.[45] Enhancing governance has been a core component of REDD+ readiness activities, and 18 out of 19 (94.7%) of countries engaging in the largest REDD+ results-based payments program, the FCPF Carbon Fund, include activities to strengthen governance and enforcement.[46] However, thus far, financing agreements have only been completed for two out of 19 programs (with two more under negotiation).

Land titles are often weak and land tenure systems inconsistent, leading to a higher likelihood of deforestation.[47] Increased efforts for securing land rights are needed in order to enable investment in zero-deforestation commodities and forest protection. Without clear land rights, companies are deterred from investing in certain areas and forest protection. In the cocoa sector, inconsistent land tenure systems in West Africa prevents the full implementation of commitments, directly affecting their suppliers' actions regarding the maintenance of forest cover on cocoa farms.[48]

Weak or absent land titles and land conflicts also pose significant challenges to the implementation of supply-chain commitments. Agricultural concessions frequently overlap with community forests and are correlated with a lack of legal recognition of those forests. Concessions on community lands frequently lead to disputes with local communities and can result in legal challenges, direct actions and protests, and even violence and human rights abuses.[49] Some overlap with community lands was found in at least 31% of commercial concessions – predominantly agriculture, logging, and mining concessions – assessed by one study, but the real figure is estimated to be considerably higher.[50]

6.3 Lack of inclusion of smallholders

Weak land titles, limited financial resources, and poor access to credit and agricultural inputs constrains the inclusion of independent smallholders in deforestation-free supply chains. Smallholder farms face particular challenges in accessing finance. They often need to be aggregated into cooperatives to allow for improved allocation and distribution of finance and tend to require skills training, crop insurance, and secure land-tenure.[51] This is particularly relevant for the cocoa and palm oil sectors, which rely up to 90% and 40%, respectively, on smallholder supply. Without substantial assistance from the public sector, as well as from private actors, smallholders will not be able to shoulder additional costs and equipment needed to embark on a more sustainable path. The lack of organization in cooperatives and associations makes the delivery of assistance and finance difficult and prevents smallholders from negotiating collectively. The absence of land registration and title means that there is neither an incentive to investors nor collateral to access credit.

Insufficient knowledge in and limited experience with sustainable production and good agricultural practices are root causes of smallholders' failure to implement reforms. Instead of opting for intensification, smallholders often end up resorting to deforestation to scale up productivity. For example, cocoa smallholders generally have limited knowledge of modern agricultural techniques and farm management skills.[52] Although private sector actors and government agencies provide extension services, they are not yet widespread enough or staffed at the level necessary to reach the number of farmers required for landscape scale impact.[53]

6.4 Displacement of deforestation

Intra- and inter-commodity leakage risks nullifying supply-chain efforts to tackle deforestation. A lack of global or even regional full supply-chain traceability impedes assessments concerning the complete nature of commodity-driven deforestation leakage across geographies. However, there are strong indications of leakage between regions and commodities. For example, the protection of the legal Amazon enhances the risk for landscape conversion on the Cerrado or Chaco.[54]

By fostering different implementation environments, government institutions can propagate and even encourage deforestation. Areas with strict guidelines and enforcement may lead to shifts in the sourcing of commodities to areas where such mechanisms are weaker. This is the case for cocoa buyers in West Africa that face challenges in implementing their commitments due to shifts in production to Ghana and Cote d'Ivoire.[55]

6.5 Lack of finance

Incentives to enable investment in sustainable business largely do not exist. Worse still, misaligned incentives, such as the subsidization of destructive agricultural practices, and weak enforcement of regulations prohibiting land conversion drive significant deforestation.[56] The public sector also lacks incentives to increase the production of certified products, and while some countries have shown policy support to certified palm oil, the majority of importers have not. Credit and financing initiatives still support extensive land uses that run contrary to the needs of rural development and landscape diversification.

While significant investment opportunities exist, upfront investment costs and a number of specific risks present barriers to the unlocking of investment in sustainable production. A number of sustainable investments' characteristics imply relatively large upfront investment costs, such as investment in unplanted land areas (set-asides) used to create or preserve ecosystem services, the cost of foregone logging (where forest clearing precedes planting), and the costs of certification, land assessment, and staff training and technical assistance.[57] In addition, there may be risks associated with immature technologies, currency risk in insufficiently liquid markets, and policy risks associated with incentive schemes.[58] Innovative financing mechanisms will be required to overcome these risks and barriers.

A number of inefficiencies in the pattern of finance for commodities need to be overcome to scale up sustainable investments and facilitate the transition to sustainable production.[59] These include the significant involvement of state-backed finance, which suffers from limited resources; significant levels of potentially expensive revenue-backed financing; and the relatively small participation of commercial banks.[60]

7 Perspectives on a Way Forward

Despite a rapid increase in pledges and government efforts to reduce deforestation, no clear evidence exists that the various initiatives are having their intended impacts. Beef, soy, palm oil, pulp and paper, and cocoa continue to be among the most important drivers of deforestation, and progress to eliminate deforestation embedded in food and household products remains slow. Companies and governments face numerous barriers, including weak local governance, problems tracing the original source of the product, insufficient integration of supply chains, and difficulty involving smallholders. Increasing exports to countries that are less sensitive to sustainability concerns further limits the impact of existing supply-chain commitments.

The urgency of the problem requires clearly defined action plans from producing and consuming countries and supply-chain companies. Better coordination between public and private partners is also urgently needed. Creating a global vision for "deforestation-free" commodities would represent an important step toward action.

Despite the challenges, there are clear actions that can be taken to enhance efforts to achieve zero-deforestation supply chains. The recently launched Commodities and Forest Agenda 2020 of the Tropical Forest Alliance 2020 cites 10 priorities for achieving deforestation-free supply chains (see Box 3). To be effective, these priorities have to be embedded into efforts to creating sustainable rural economies, long-term strategic planning, and the creation of jobs and business opportunities within target countries. Addressing commodity-driven deforestation must also coincide with increased efforts to conserve and sustainably manage forests in order to achieve long-term success. In the following section, we discuss a set of measures that can help to operationalize the priority measures identified by TFA 2020's Commodities and Forest Agenda 2020.

Box 3. TFA 2020 Ten Priorities to Remove Tropical Deforestation From Commodity Supply Chains. Source: Tropical Forest Alliance 2020 (2017). Commodities and Forest Agenda 2020: Ten priorities to remove tropical deforestation from commodity supply chains. World Economic Forum.

1. Eliminating illegality from supply chains
2. Growing and strengthening palm oil certification
3. Scaling up pilot programs of sustainable intensification of cattle grazing
4. Sustainably increasing smallholder yields in palm oil and cocoa
5. Achieving sustainable soy production
6. Accelerating the implementation of jurisdictional programmes
7. Addressing land conflicts, tenure security and land rights
8. Mobilizing demand for deforestation-free commodities in emerging markets
9. Redirecting finance towards deforestation-free supply chains
10. Improving the quality and availability of deforestation and supply chain data

7.1 Supporting jurisdictional approaches

In the absence of coordinated and integrated strategies, demand for agricultural products cannot be met without further deforestation. The existence of a large number of actors with different – and at times conflicting – incentives means that ensuring long-term and stable production depends on the imposition of coherent and coordinated approaches to agricultural development. While individual action through early movers and strategic alliances is important to pave the way, mainstreaming zero-deforestation production and avoiding shifts within or between supply chains will only be achieved if implementation is taken to scale through landscape- and jurisdictional-level planning and cooperation. Successfully reducing

deforestation requires landscape-level interventions that combine private sector action along agricultural supply chains with public sector planning and efforts to integrate smallholders.

Initiatives at the jurisdictional or landscape level provide opportunities to consolidate various supply-chain sustainability efforts. Such programs create platforms for public-private partnerships and promote cooperation at the jurisdictional level by engaging local institutions that will allow strengthened governance and direct policy procedures toward long-term solutions.[61] Jurisdictional or landscape programs aim to address and reconcile social, economic, and environmental objectives and reduce pressure on forests within and across supply chains.[62] However, for successful implementation of these programs, it is important that the incentives of parties – including the jurisdictional government, local communities, and the private sector – are aligned. In addition, for a strong design and robust implementation of these programs, sufficient technical capacity and investment are required.

There are unique advantages to jurisdictional approaches. Jurisdictional initiatives both have scalable and potentially long-term impacts. They also create examples that can be replicated by fostering opportunities to share knowledge and experience. However, the potential challenges jurisdictional initiatives face across countries and regions include weak institutional capacity; a lack of both cooperation among government agencies and perceived incentives by stakeholders; and difficulty in the inclusion of smallholders, indigenous, and other groups.[63] The alignment of internal and external objectives and interests of stakeholders in a changing political environment is also a well-recognized challenge.[64]

Jurisdictional initiatives are growing in numbers but vary in their progress. There are more than 60 jurisdictional programs across Africa, Latin America, and Asia, 34 of which are relevant to forest-risk commodities and most of which have either begun implementation or are finalizing plans.[65] Jurisdictional initiatives were linked initially to REDD+, but in recent years, many programs with different scopes and designs have been developed. These new approaches include, for example, sustainable rural development policies and territorial governance models in Mexico, production-protection arrangements in Liberia, Mato Grosso in Brazil, green growth compacts in East Kalimantan in Indonesia, and RSPO jurisdictional certification programs in different jurisdictions (Box). However, considering governance challenges in many developing countries, developing coherent programs is difficult, and implementation can take many years. Jurisdictions with higher governance indicators and stable high-level commitment generally progress faster and further. Brazilian states seem to be among the best positioned to pioneer such programs: they are the right size and supported by a comparatively strong legal framework, have pioneered and tested solutions that drive sustainability, and possess robust data and high levels of political leadership.

Box 4. Unilever's jurisdictional approach

In light of the significant deforestation taking place in particular in Indonesia and more broadly around the globe, Unilever, a Dutch-British multinational consumer goods company, announced in late 2015 that it would prioritize its "commodity sourcing from areas that have designed and are implementing jurisdictional forest and climate initiatives."[66] By increasing the productivity of small Indonesian farm owners via a partnership with the provincial government of Central Kalimantan, Unilever is enabling increased agricultural productivity and the achievement of human development goals.[67] The partnership seeks to "certify all palm oil smallholders in Pangkalan Tiga village according to RSPO and Indonesian Sustainable Palm Oil (ISPO) principles and criteria, assess local palm oil farmer organizations in the region, and map small palm oil producers in the Kotawaringin Barat district." Through its work with the local government to limit deforestation, Unilever leverages its purchasing power to support small palm oil farmers and protect forests – a key element of a jurisdictional approach to sustainable land management. An independent assessment of the effectiveness of the partnership with the Central Kalimantan government is not yet available, as the joint venture dates to January 2017.

Jurisdictional and landscape approaches provide the scope to align company and government interests. While many initiatives are still in their early stages, public-private partnerships can catalyze progress. Aligning the benefits and goals of different stakeholders, which include jurisdictional governments, the private sector, civil society, and, most important, the local communities, is crucial for success. Programs can be linked to results-based payments for REDD+. Jurisdictional approaches also present opportunities to address displacement of activities (leakage). However, they carry almost equal weight to the components of REDD+ programs and encompass good governance strategies more broadly. Similar to different expressions of REDD+ in the past, in order for a jurisdictional approach to be fully functional and implemented at scale, it requires key building blocks, including transparency and strong public-sector governance. Initiatives like the Balikpapan Challenge are also emerging to support the integration of private sector commitments and national policies and targets.[68]

Public-private collaborations beyond specific jurisdictions that enable governments and companies to implement their deforestation-related commitments are also increasing in number. Initiatives like Tropical Forest Alliance 2020, a global public-private partnership comprising members committed to taking action to stop commodity-driven deforestation; the New York Declaration on Forests; the Global Partnership on Forest and Landscape Restoration; Landscapes for People, Food, and Nature Initiative; and others enable greater participation of governments and businesses. Such platforms facilitate dialogue toward consensus on barriers and solutions to the implementation of commitments. Similarly, a growing number of public-private partnerships and platforms channels resources and investments to support land-use, conservation, restoration, and sustainable agriculture initiatives at the landscape and jurisdictional levels.[69]

7.2 Promoting transparency

Clear, consistent, and up-to-date information on forest cover, together with real time information on deforestation activities, would help in the tracking of compliance with laws, policies, and targets. Significant progress has been made in obtaining global data on forest cover and deforestation, but additional efforts are needed. Notably, Global Forest Watch, an online forest monitoring and alert system, has experienced rapid growth in its scope and content. Despite strong legislation, challenges in enforcement have allowed deforestation to continue at alarming rates. Nearly one-quarter of deforestation was the direct result of illegal conversion of forest into agricultural lands to supply export markets.[70] Information on deforestation is also necessary for the successful implementation and monitoring of companies' commitments and for financial institutions to have that information available to conduct proper risk assessments based on up-to-date information.

Traceability systems provide a tool for supply-chain actors to meet their deforestation commitments, including legal compliance. Pilot initiatives show that full traceability is feasible and that cost-efficient tools are available. Systems can help detect and enable companies and governments respond to non-compliance at the farm level, including for indirect suppliers**.** For example, the Indirect Supplier Working Group, an initiative by a Brazilian group of NGOs, is currently developing solutions to integrate indirect beef suppliers in traceability systems. In Indonesia, Global Forest Watch has launched the PALM Risk Tool that can identify palm oil mills with high historical and future deforestation. This is at least partly based on the sourcing distance around palm oil mills, and companies can upload their own data to assess their risk. By identifying these mills, companies can identify risks and make sourcing decisions that reduce and prevent deforestation.

It is important that essential information on forest loss is communicated quickly to decision-makers. Without reliable information, it will be impossible to identify the violations of laws and company commitments. The imposition of monitoring and disclosure requirements

could have a powerful impact on building awareness and capacity within and between companies. Relevant information includes spatially-specific data on habitat and forest loss as well as on the nature of the forest at risk, as action is even more pressing where HCV forest are being lost. While there is value in the collection of information on a high number of environmental indicators, information on a handful of priority indicators should be fast-tracked and fed into political processes.

Progress has been made on the mapping of global concession data and on linking supply chain actors to places where deforestation is happening. Global Forest Watch has been gradually integrating data on concessions, though it has faced challenges mapping up-to-date concession boundaries with transparent ownership information. Other efforts include the Trase platform, which links downstream supply-chain stakeholders to key production regions and their deforestation track records, and LandMark, an interactive, global platform that provides maps and other critical information on land that is collectively held by indigenous communities. LandMark also intends to integrate data on concessions and carbon stocks in the coming months.[71] At the national level, initiatives like One Map in Indonesia are working toward a universal map of tenure, forest cover, and production licenses. However, challenges in the consolidation of existing maps and the acquisition of information from companies and government agencies have led to these initiatives often being slow to get off the ground. This presents a challenge to the implementation of deforestation-related commitments.

Complete geospatial information on concessions, licenses, and land and forest tenure would help prevent and limit land conflicts. Within governments, transparency is necessary to avoid the confusion and conflict that can arise from overlaps between concessions and forests that have been zoned for protection or conservation, also known as community forests. Companies, meanwhile, require knowledge of overlaps to ensure compliance with their own sustainable sourcing commitments and reduce risks arising from conflicting land claims.

Commitments also need to be improved and go beyond the conservation of biodiversity and ecosystems to cover peatlands, woody grasslands, and savannahs. If zero-deforestation commodity supply chains result in negative environmental impacts on biomes of great biodiversity value in areas adjoining tropical forests (e.g. the Brazilian Cerrado), results are often nullified. Commitments should include considerations to address potential leakage into biomes and natural ecosystems that have equal importance in climate change mitigation and are of high-carbon value.

7.3 Expanding demand-side measures

While producer countries need to enhance policy and strengthen forest governance, consumer countries need to further explore measures to reduce deforestation embedded in imported products. While producer countries need to enhance policy and strengthen forest governance, consumer countries need to further explore options for putting in place regulatory incentives to reduce deforestation embedded in imported products. Potential policy and legal action from importing countries include the elimination of illegality from imports, adoption of procurement standards, promotion of transparency and disclosure requirement, and the leveraging and mainstreaming of existing commitments and actions by leading industry players.

Companies should also engage governments and push for demand-side support. Given the complexity of supply chains and the physical distance between producers and consumers, the direct impact of consumer goods companies on reducing deforestation processes is often indirect and limited. Where consumer goods companies do have a powerful voice, however, is in their own jurisdictions. In addition to demanding zero-deforestation from suppliers, companies need to become more vocal in demanding action from governments. This could

create a level playing field either individually or, more appropriately, through collective action with industry groups of companies leading on sustainable procurement.

Consumer countries should also strengthen international collaboration options with other buyer countries including China and India, to mainstream demand-side measures. Unilateral demand-side measures by Europe would send a strong signal; however, these measures lack the power to transform entire supply chains and would benefit from stronger international dialogue and collaboration across continents. Joint action would be both more impactful and remove possible distortion risks between markets and opposition from industries. The lack of a global agreement should, however, not be used as an excuse for unilateral inaction. Indeed, as is the case in the private sector, it often requires a first mover to bring others on board. As a way of demonstrating the importance of action, leading jurisdictions should focus on the business case and importance of sustainable production to longer-term access to commodities.

In order to effectively address deforestation, domestic markets and importers from emerging economies need to be brought into supply-chain efforts. China is the world's largest importer of soy and pulp and paper products and is projected to soon become the world's largest importer of beef. India is the world's largest importer of palm oil products, followed by the European Union and China. The participation of supply-chain actors in China and India – including governments, the private sector, and consumers – is therefore key to eliminating deforestation from the four key commodities. Similarly, in many supply chains, domestic markets are the most important off-takers and need to be involved in supply-chain efforts.

7.4 Supporting smallholders

It is crucial that governments provide technical support to smallholders and promote their aggregation in associations and cooperatives. Collaborative approaches between public and private actors have great potential to take corrective action against perverse incentives while also ensuring that smallholders improve their productivity growth and access to markets. Promising public-private collaboration can, for example, come in the form of smallholder aggregation or outgrower schemes.

Aggregation models are helpful approaches to allocating public or private resources to smallholders via intermediaries. Intermediaries can in turn ensure that smallholders receive the training and technical inputs needed to generate contracted output volumes. In the cocoa sector, the current availability of extension services is inadequate to meet farmers' needs for support to increase yields, adopt GAPs, address diseases and pests, and access the latest information on improving their cocoa farm.[72] The existing extension networks need to be expanded in both number and funding to fill this gap.[73]

Improving smallholder yields is essential. Through the application of best management practices and sufficient access to farm inputs, production could be intensified without further encroachment in the forest. Palm oil, for example, could become efficient enough to avoid deforestation and allow for other crops to use available land and reforestation of retired areas to begin.[74] Such measures would have to be complemented by enhanced protection of standing forests to avoid increased profitability driving even higher rates of forest conversion. They would also have to lead to an increase in farm income, ensuring that higher quality of products corresponding to an increase in incomes would incentivize smallholders to invest in GAPs, inputs, or other types of farm improvements by facilitating farmer access to certification services. ECOM's Sustainable Management Services project is an example of a company program that provided an integrated suite of services aiming at increasing farmer productivity and income in the cocoa sector (Box 5).

Box 5. ECOM Sustainable Management Services (SMS) in Ghana's Cocoa Sector

The goal of ECOM SMS is to improve cocoa farmers' productivity, increase the resilience of cocoa communities, and motivate farmers to sell their cocoa beans through ECOM Ghana, which is a Licensed Buying Company. ECOM, one of the world's largest cocoa traders and among the leading supply-chain managers in the Ghanaian cocoa sector, provides sustainable management services to 2,500 cocoa communities and more than 120,000 smallholder farmers through ECOM SMS.

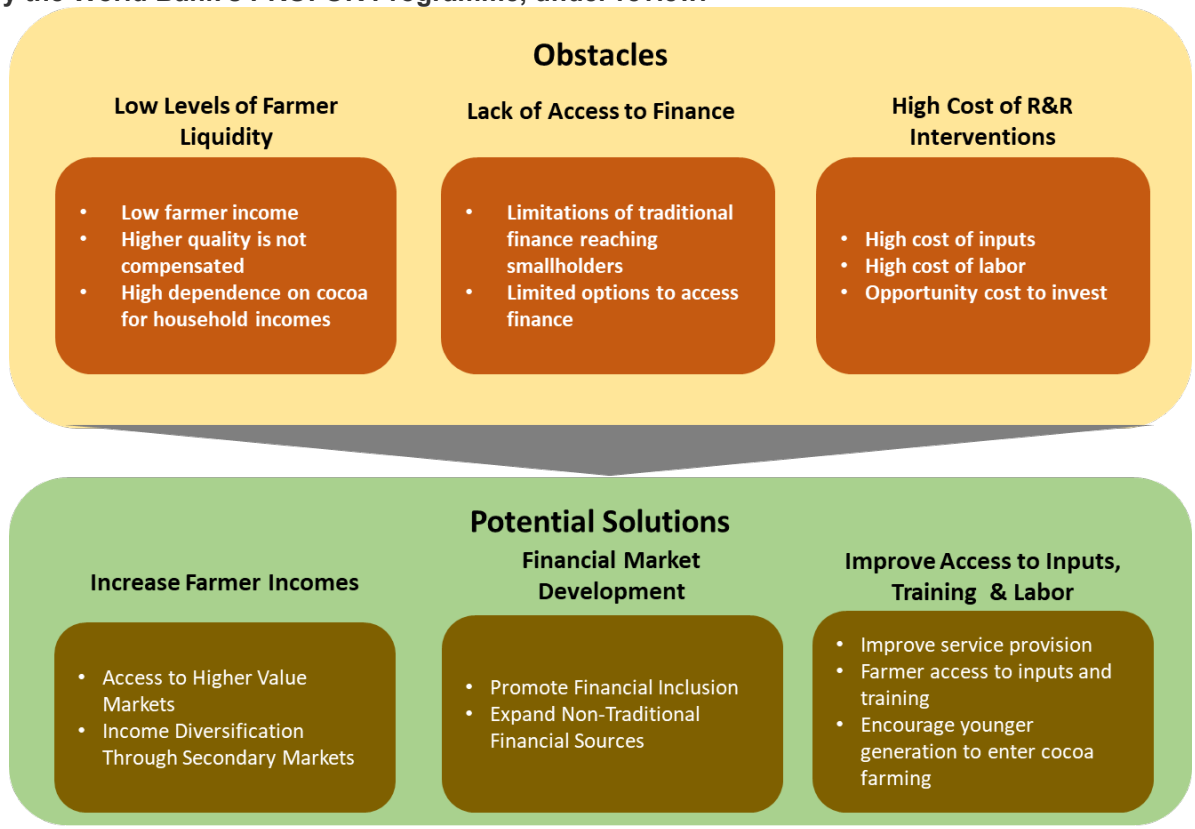
Through 90 Farmer Development Centers (FDC) across cocoa-producing areas, ECOM SMS offers farmers a package of agronomic, financial, and community development services. These services include training in Good Agricultural Practices; fertilizer provision, and crop protection; planting material; and community support, including access to improved infrastructure, water, sanitation, and education. Cocoa nurseries are connected to each FDC and they provide farmers with a subsidized source of new trees for cocoa farm renovation. Value-chain investors bear the costs of this Service Delivery Mechanism, and farmers also pay for certain services.

While the program does not mention any explicit deforestation-related goal, it envisages addressing a multitude of problems in the cocoa-growing communities that have been among the drivers of forest-clearance for cocoa cultivation in West Africa. Low soil fertility, diseased and old cocoa trees, and a lack of technical knowledge and resources have been among key drivers of deforestation for cocoa in West Africa. Improved smallholder income, higher yield through cocoa farm renovation, and the use of agroforestry and good agricultural practices are believed to reduce incentives for smallholders to clear forests for cocoa cultivation. ECOM SMS mechanisms is designed to improve traceability through clear and traceable steps in the sourcing of cocoa from farmers that receive training and support from ECOM SMS.

The diverse obstacles to the implementation of smallholder programs call for a tailored set of incentives to enhance technical and operation capabilities and provide viable financing options. However, while basic incentives required for farm investments are known and have been deployed successfully by companies and other actors across different sectors, geographies, and scales, the concrete set of incentives must consider country contexts, capacities, and potential implementing agents and sources of funding (Figure 8). Essential incentives include the following:

- Enhanced training and implementation support though expanded and professionalized extension services
- The provision of affordable and/or subsidized inputs (fertilizer, pesticides) and planting materials (cocoa and shade trees)
- Increased access to markets through off-take agreements, floor prices, and aggregation models
- Improved loan conditions, including adjusted interest, grace periods, and alternative collateralization

Figure 8. Financing restoration and rejuvenation of cocoa farms: obstacles and solutions. Source: Climate Focus (2017). Forest Smart, Climate Smart Cocoa in West Africa, commissioned by the World Bank's PROFOR Programme, under review.



7.5 Shifting financial flows

To achieve forest-related climate goals, an increase in direct investment for reducing deforestation is essential, as is a divestment from activities and companies driving forest loss. Public incentives can help shift existing financial flows toward more sustainable activities while mobilizing new funding for scaled-up private investments into actions that contribute to sustainable landscapes. Such incentives must not only cover the design and implementation of new policies but also the reform of existing cross-sectoral policies and regulations, as well as the setup of systems to access results-based payments schemes. Instruments governments can make use of include, *inter alia*, the taxation of environmentally-degrading activities, fiscal incentives for deforestation-free investment, and subsidies of free technical assistance to producers and companies.

Blended finance and public-private partnerships may help to facilitate the transition to sustainable land-use investment. Governments and institutional investors can form strategic partnerships with private investors to demonstrate proof of concept or make state-sponsored rural credit contingent on proof of compliance with environmental regulations. Via loan portfolio guarantees, they can also assume some investment risks. In 2014, USAID took this approach by approving a US$133.8 million loan portfolio guarantee to Athelia Climate Fund, assuming half of the risks of the fund's REDD+ investments. The Sustainable Cocoa Production Program, a public-private partnership between Switzerland, the Sustainable Trade Initiative, the Netherlands, Indonesia, Swisscontact, and private sector cocoa companies, has taken the latter approach. By targeting more than 50,000 cocoa farmers for capacity development, the partnership improves agricultural productivity – thereby reducing pressure on forests – in Indonesia. Participating private-sector companies include Cargill, Mars, Mondelez, and Nestlé.

8 Concluding Remarks

With the 2020 deadline for a wide-range of private and public commitments relating to eliminating deforestation from supply-chains quickly approaching, our review of progress is sobering. Despite a vivid supply chain momentum and increased awareness among governments and private companies, there is no evidence that the rapidly increasing private-sector commitments have led to tangible reductions in deforestation. It is therefore timely to take stock of implementation progress toward deforestation-free commodities and re-think existing strategies and approaches.

While the barriers to success are mostly known, forming and financing implementation partnerships, backed by continuous high-level support, poses a formidable challenge. Issues related to illegality and corruption, lack of enforcement, and incoherent legislation indicate governance barriers that are hard to overcome. Shifting priorities and wavering commitment toward change are common challenges in many governments and company headquarters. High levels of domestic consumption in jurisdictions that are not yet committed to supply-chain reform exacerbate the collective action dilemma.

Challenges are more effectively overcome through a common understanding of needs and priorities, as well as a stronger alliance between stakeholders. Stakeholders require clear and reliable signals from the public and private sector as a basis for decision-making. Therefore, declarations and commitments need to be cemented in respective long-term strategies. For the public sector this means anchoring policies in long-term development strategies and legal frameworks. For the private sector, efforts should be supported at the CEO level and form an integral part of the operating and performance mandates and incentive structures of respective departments.

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[19] In this section, we assess to what extent companies translate these commitments into policies and have established systems to monitor and trace the implementation of policies and forest risks associated with their commodity production or sourcing. Throughout this section, we will provide case studies that illustrate successful policies or lessons for specific commodities or supply chains. An important caveat is the granularity of many efforts. In interviews with companies, we found that often actions only applied to specific parts of the supply chain or specific geographies or were in different stages of development.
[20] 2016 data provided by CDP.
[21] Point of origin refers to the mill and plantation for palm oil; the farm and plantation for soy; the forest, forest management unit, mill, and planation for timber; and the farm for cocoa and cattle.
[22] In March 2017, IBAMA, the Brazilian environmental protection agency, stated that JBS and several other meatpackers violated the agreement not to source cattle grazed on illegally deforested areas in the Amazon. Source: Climate Home (2017). Troubled meatpacker JBS sanctioned over Amazon deforestation. News article. At http://www.climatechangenews.com/2017/03/31/troubled-meatpacker-jbs-sanctioned-amazon-deforestation/
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