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CLIMATE FOCUS

COMPLYING WITH ZERO-DEFORESTATION AGREEMENTS IN COLOMBIA

BARRIERS AND OPPORTUNITIES

June 2020

Complying with Zero-Deforestation Agreements in Colombia
Barriers and opportunities

For TFA

June 2020

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CONTENIDO

EXECUTIVE SUMMARY

In the framework of the Tropical Forest Alliance (TFA) 2020 global initiative and the TFA Colombia Zero-Deforestation Public-Private Partnership 2020, different actors have committed to eliminating deforestation from the supply chains of beef, dairy products, palm oil and cocoa. This study seeks to identify and evaluate the needs and barriers faced by the companies that signed these agreements in order to comply with the commitments made and to share opportunities for overcoming these barriers.

While Zero-Deforestation Agreements are an important starting point for eliminating deforestation in value chains, signatory companies require increased internal efforts, enabling conditions, support and tools to accelerate the implementation of their commitments.

This study includes a high-level roadmap that presents opportunities tied to identified barriers, their corresponding value chains, the actors involved and the types of resources required for their implementation. This roadmap will enable companies to make progress towards achieving their Zero-Deforestation commitments, both at individual and collective levels.

Barriers and opportunities for complying with Zero-Deforestation Agreements

In order to facilitate the analysis of barriers and opportunities, this study details the links that form the four value chains mentioned above and groups together the commitments made in the agreements into the following eight (8) areas of action: i) Corporate Goals; ii) Deforestation risk assessment ; iii) Supply; iv) Traceability; v) Monitoring, Reporting and Verification (MRV); vi) Technical Assistance; vii) Communication and Awareness raising; and viii) Financial.

To develop this study, the researchers worked with four leading companies on their value chains, to analyze barriers and identify opportunities in specific cases.

The following companies participated in the study: Alkosto (beef), Alquería (dairy products), Extractora del Sur de Casanare (palm oil) and Mariana Cocoa (cocoa).

Each of these companies has shown a firm determination to move forward and fulfill the commitments they have made to the Zero-Deforestation Agreements. Currently, each of the companies is at a different level of progress. Their determination and commitment to the agreement have not yet translated into the establishment of goals and internal policies that address deforestation and would serve as a roadmap and baseline to measure their actions. In this sense, a proposal has been made for developing a guide to support companies in establishing their corporate goals. This guide would be the same for all of the actors in the chains, as well as for implementing and monitoring actions to meet corporate goals that address deforestation.

It has been proposed that IDEAM should support the establishment of deforestation baselines for the beef, dairy and cocoa chains (the baseline for the palm oil chain has already been completed). This would make it easier for companies to carry out risk analyses, establish their baselines and design deforestation monitoring systems. While IDEAM did develop a baseline for the palm oil chain, Extractora del Sur de Casanare has pointed out difficulties in accessing this information and linking the baseline to their internal processes.

There is a lack of comprehensive mapping of suppliers and product traceability systems in the supply chains that were analyzed. While companies can more easily make progress with mapping their direct suppliers, mapping their indirect suppliers is more complex and requires methodological and technical support. This is in addition to establishing traceability systems, for which support from civil society entities is essential. Leading companies in the dairy sector generally have basic traceability systems associated with milk quality, but they do not include Zero-Deforestation criteria.

In the absence of protocols and standardized parameters for monitoring and reporting the progress of companies with fulfilling their Zero-Deforestation Agreements, TFA and other organizations that support companies in complying with their agreements could help in establishing homogenous methodological guidelines that facilitate the design and implementation of monitoring systems, including parameters to be monitored, monitoring frequency and uniform information sources for all participating actors.

Alkosto provides technical assistance associated with improving the productivity of its suppliers, quality control and agronomic management. This is also the case with Alquería's technical assistance programs such as *Plan Finca* (Farm Plan) and *Escuelas de Campo* (Countryside Schools), and Mariana Cocoa's ATA Guaviare program. In these settings, there is an opportunity to extend this assistance to issues associated with Zero-Deforestation, climate change and the restoration of deforested or degraded areas, as well as the economic implications of adopting these types of actions, which are usually difficult to estimate.

While the palm growers' trade association has made more progress with implementing the agreement, and also has a strategy to promote Colombian palm oil grown with 100% Zero-Deforestation to differentiate production practices compared to those in other countries, it should be noted that there are no communication strategies aimed at raising awareness among end consumers about the positive effects of Zero-Deforestation products. This means that there is an opportunity to establish sectoral communication strategies that can beneficially increase the demand for Zero-Deforestation products.

In the area of financial actions, there is a significant opportunity to design and implement financial instruments that provide adequate incentives for the promotion of best agricultural and livestock practices in all value chains. These instruments should be designed taking into account geographical location, type of farm, production cycle and land tenure, as well as incorporating climate financing options from the national and international public sectors. Alquería has been participating in initiatives to promote the financial inclusion of small-scale farmers for these purposes. However, companies generally have to assume high levels of financial risk, which adds to the lack of resources to expand technical assistance.

Recommendations and next steps

The commitment to achieve zero net deforestation by 2030 in the beef, dairy, palm oil and cocoa value chains is ambitious but achievable, provided that companies make sustained efforts, as well as coordinated actions with other actors participating in the TFA 2020 Framework. Concrete support is required from the public sector and other national and international support entities. Among the specific actions to be carried out, the following are notable:

- Establish corporate goals and policies that explicitly address eliminating deforestation from value chains.
- Deforestation risk assessment conducted by each company for their respective chain and the design and implementation of effective measures for their mitigation (tied to corporate goals). Having deforestation baselines for each value chain is essential.
- Consolidating the comprehensive mapping of supply chains, including direct and indirect suppliers, as well as polygon land surveys, where possible.
- Establish robust traceability systems to identify products, "from their origin to the consumer."
- Implementing monitoring systems based on practical and easy-to-apply guidelines, roadmaps for companies and the provision of tools for this purpose.
- Increase the coverage and quality of technical assistance focused on improving productivity and the components of cost-benefit analysis at a farm level while incorporating Zero-Deforestation aspects.
- Design and implement communication strategies for both supply and demand that include messages on the importance, value and benefits of Zero-Deforestation products.
- Improve access to formal financial services for primary producers, particularly for small-scale farmers, and design and implement innovative financial instruments that are tailored to the types of producers, the region and the production cycles in each value chain. These include incentives that can be covered by the Colombian Government's and climate financing schemes through jurisdictional approaches.

1. INTRODUCTION

1.1 CONTEXT

Governments, companies and investors in the agricultural sector will be under increasing pressure to stop deforestation while ensuring that food demand and nutritional needs are met. Since 1700, approximately one third of the native forest cover in Colombia has been removed as a result of different anthropogenic, historical and cultural processes.[1] Deforestation in the country was systemically accentuated at the beginning of the 20th century and since then population growth, economic development and the expansion of agriculture have had a drastic impact on natural ecosystems.[2]

Deforestation is receiving special attention at a time when COVID-19 is keeping the world on edge. The increase in contagious diseases and the spread of viruses are linked to increased contact between humans and other species.[3] The loss of forests (multi-species habitats) is a public health risk as it increases the likelihood of this contact. This is in addition to the impacts associated with the contribution of deforestation to climate change, the loss of biodiversity, displacement of indigenous populations and human rights violations, which must be taken into account.

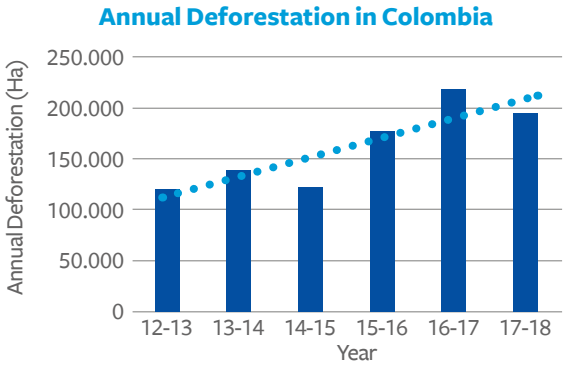

FIGURE 1A. Historical annual deforestation in Colombia

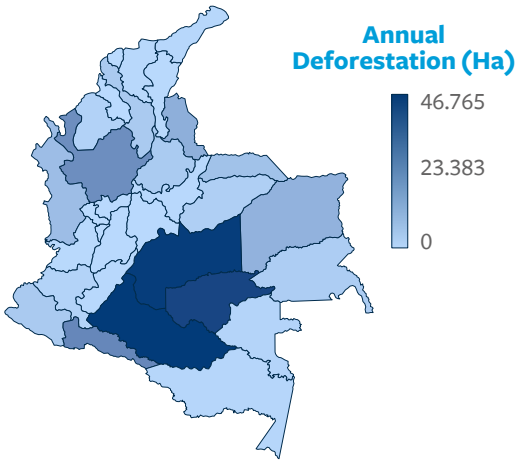

FIGURE 1B. Deforestation by Department 2017

Source: Adapted with data from IDEAM: 2019[4]

According to official reports, over the last six (6) years Colombia's deforestation rate has been on an upward trend (Figure 1a).[5] The Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) reported that in 2017 alone, 197,160 hectares (ha) of land were deforested, with the biggest losses occurring in the departments of Caquetá, Meta, Guaviare, Putumayo, Antioquia, Norte de Santander, and Vichada (Figure 1b).[6] Future projections are not optimistic; continuing at current rates, it is estimated that Colombia could lose up to 360,000 ha of forests in 2022.[7]

In the 2018 – 2022 National Development Plan and in its Integrated Strategy for Deforestation and Forest Management (Bosques Territorios de Vida), **the Government of Colombia has committed itself to**

[1] Pedraza et al., "Zero-Deforestation Agreement Assessment at Farm Level in Colombia Using ALOS PALSAR."
[2] Idem.
[3] Aneta Afelt, et al., Bats, Coronaviruses, and Deforestation: Toward the Emergence of Novel Infectious Diseases? Front Microbiol. 2018; 9: 702. Published online 2018 Apr 11. doi: 10.3389/fmicb.2018.00702
[4] IDEAM, "Forest and Carbon Monitoring System."
[5] IDEAM, "Forest and Carbon Monitoring System."
[6] Idem.
[7] Rozo, "The deforestation goal for the National Development Plan has been reduced."

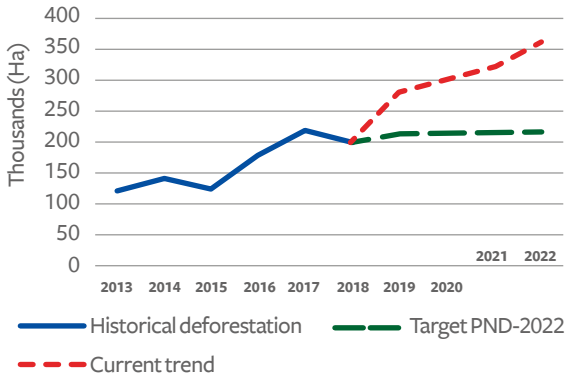

FIGURE 2. Deforestation projections in Colombia and reduction targets for 2020.[8]

Source: Calculated using 2019 data from IDEAM and data from the 2018-2022 National Development Plan 2018-2022

reducing deforestation by 30% compared to the current situation (Figure 2). The *Bosques Territorios de Vida* strategy includes different activities so that government, private sector and civil society actors implement integrated and coordinated actions. These actions include creating and signing five Zero-Deforestation Agreements in prioritized value chains.

The Government of Colombia formally entered the Tropical Forest Alliance 2020 (TFA 2020) global initiative in January 2017,[9] becoming the first Latin American country to join.[10] The TFA is a multi-stakeholder partnership that supports the implementation of private sector commitments to eliminate deforestation in agricultural and forestry value chains.

In Colombia, the TFA has promoted the creation of public-private agreements through which the government, companies and civil society organizations have committed to eliminating deforestation from their supply chains. The Colombian Government has committed to promoting the agreements using an effective governance perspective that will link public entities with stakeholders and facilitate access to official statistics, monitoring and information systems, as well as other key resources to ensure compliance with the agreements.[11]

As part of the TFA's work, companies have made various commitments to eliminate deforestation from their supply chains. To date, a total of three (3) Zero-Deforestation Agreements or equivalent documents have been signed under the TFA umbrella for the palm oil, dairy and beef chains and one (1) agreement has been created for the cocoa industry that is aligned with the TFA and called Cocoa, Forests & Peace (CF&P). The general commitments made by the companies in the four value chains are summarized in Box 1.

GENERAL COMMITMENTS: Zero-Deforestation AGREEMENTS

The commitments are contextualised to the different chains, especially in the Cocoa, Forests & Peace (CF&P)) agreement that was formulated outside of the TFA framework. Despite this, the four agreements pursue the following shared objectives:

- Reach the goal of zero net deforestation in Colombia by 2030.
- Avoid the transformation of strategic ecosystems.
- Close the agricultural frontier
- Position Zero-Deforestation value chains in national and international markets

BOX 1. General commitments made by the companies

Agreements are an important foundation for advancing towards the ultimate goal of eliminating deforestation in value chains. Nevertheless, the signatory companies require enabling conditions, support and tools to accelerate the implementation of their commitments. This study identifies the barriers and bottlenecks faced by signatory companies when trying to comply with the agreements. The study also highlights opportunities that companies and other actors can access to overcome these barriers. These two elements serve as the basis for the design of a roadmap that will enable companies to move forward, individually and collectively, in fulfilling their Zero-Deforestation commitments.

[8] IDEAM, "Forest and Carbon Monitoring System."
[9] TFA Colombia Alliance, "Public-Private Alliance for Zero-Deforestation - TFA Colombia 2020.
[10] Idem.
[11] "Public-Private Partnership Agreement between the Government of Colombia and the beef, dairy and palm oil value chains for the Zero-Deforestation of natural forests."

GENERAL DEFINITIONS

Natural forest: "Land occupied mainly by trees which may contain shrubs, palms, bamboo, herbs and vines, in which tree cover predominates with a minimum canopy density of 30%, a minimum canopy height (in situ) of 5 m at the time of identification, and a minimum area of 1 Ha.

Deforestation: Deforestation is the direct and/or induced conversion of natural forest cover to another type of cover in a given period of time.

Ecological restoration: is a form of restoration that results in a self-sustaining ecosystem, ensuring the conservation of species and goods and services.

BOX 2. General concepts of Zero-Deforestation Agreements

Source: DeFiers et al., (2006). Reducing Greenhouse Gas Emissions from Deforestation in Developing Countries: Considerations for Monitoring and Measuring, Report of the Global Terrestrial Observing System (GTOS) Number 46, GOFC-GOLD Report 26 (p.23). Rome, Italy.

Different sectors have made progress in developing action plans for specific value chains. The Colombian Government, led by IDEAM, is supporting the establishment of deforestation baselines, such as the baseline for the palm oil sector.[12] These baselines are fundamental inputs for companies so that they can establish clear goals and conduct self-analysis of the risk of deforestation for their supply chain.[13] In a plenary meeting held in February 2018, general guidelines were established for the self-analysis of supply chains by the companies that signed the palm oil agreement.[14] Both the baseline and the self-analysis tools help companies establish corporate goals and design action plans.

Moreover, **international markets are increasingly strict and demanding in terms of the origin of raw materials.** Global demand for commodities is increasingly focused on sustainability. Recently, the European Union, in the framework of its Green Deal,[15] has sought to achieve carbon neutrality, and is modifying its legislation to identify, prevent, mitigate and account for human rights abuses and environmental damage linked to supply chains.[16] Starting in 2021, increasingly strict regulations are expected to be in place for European markets and Colombia must adapt to these new requirements. Making progress with the implementation of Zero-Deforestation Agreements becomes a crucial aspect for Colombia in its national and international trade relations.

1.2 OBJECTIVE

This study aims to identify and evaluate the needs and barriers faced by private sector actors that are signatories of Zero-Deforestation Agreements in the palm oil, dairy, beef and cocoa chains when trying to comply with the commitments they have made as part of these agreements. In the interest of being a practical study that has the goal of supporting companies in the sector to comply with the agreements, opportunities for overcoming these barriers are also identified, as well as potential sources of support so that they can take advantage of these opportunities.

1.3 METHODOLOGY

A literature review was conducted for the preparation of this report in order to evaluate the structure and specific components of the four value chains, their role in relation to deforestation in the country and the problems they face in fulfilling their commitments to the Zero-Deforestation Agreements. This was followed by an analysis of the agreements and the commitments involved, which were then classified into priority action areas. Furthermore, current state of the implementation of the agreements' was analyzed using four (4) specific case studies.

In collaboration with four leading companies in their sectors, an analysis was carried out on progress made and barriers that impede the achieving of their commitments. Similarly, possible opportunities to make progress with the successful implementation of the agreements were identified. The following companies participated in this study:

Alquería (dairy products), Alkosto (beef), Extractora del Sur de Casanare (palm oil) and Mariana Cocoa (cocoa).

[12] Cenipalma, "Colombian palm agriculture is not a driver of deforestation.pdf."
[13] "Agreement of Intent for Zero-Deforestation in the Palm Oil Chain in Colombia."
[14] "Guidelines for Self-Analysis of Palm Oil Chains."
[15] A European Green Deal. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
[16] "EU justice chief promises new human rights laws in 2021: https://www.euractiv.com/section/global-europe/news/new-human-rights-laws-in-2021-promises-eu-justice-chief/

The evaluation of the case studies was conducted through a qualitative analysis using a semi-structured interview format through which primary information was collected. The goals of each company, its characteristics and their specific conditions were evaluated. Moreover, their current progress in relation to achieving the commitments they made as part of the Zero-Deforestation Agreements were examined. A comparative framework for the analysis of barriers and bottlenecks was designed, which was used as the basis for identifying opportunities (Annex). Finally, strategies and recommendations were proposed to overcome the barriers and take advantage of the opportunities to overcome them. A basic illustration of the methodology is presented in Figure 3.

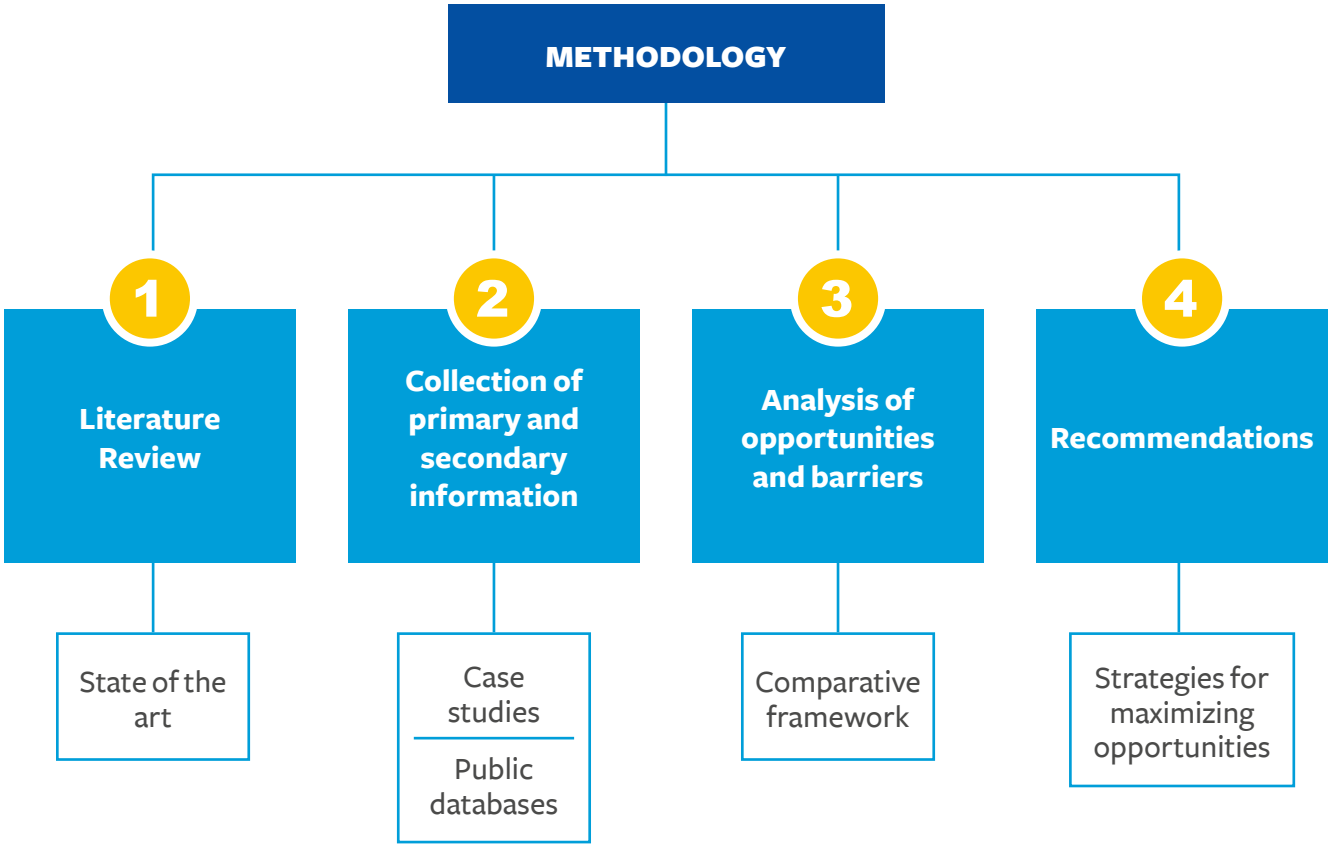

FIGURE 3. Methodology

2. BARRIERS AND OPPORTUNITIES FOR COMPLIANCE WITH ZERO-DEFORESTATION AGREEMENTS

2.1 BEEF CHAIN

2.1.1 Description and challenges of Zero-Deforestation

The beef value chain in Colombia consists of five (5) main links in which different actors participate in activities related to production, commercialization (primary and secondary), processing and consumption (Figure 4).

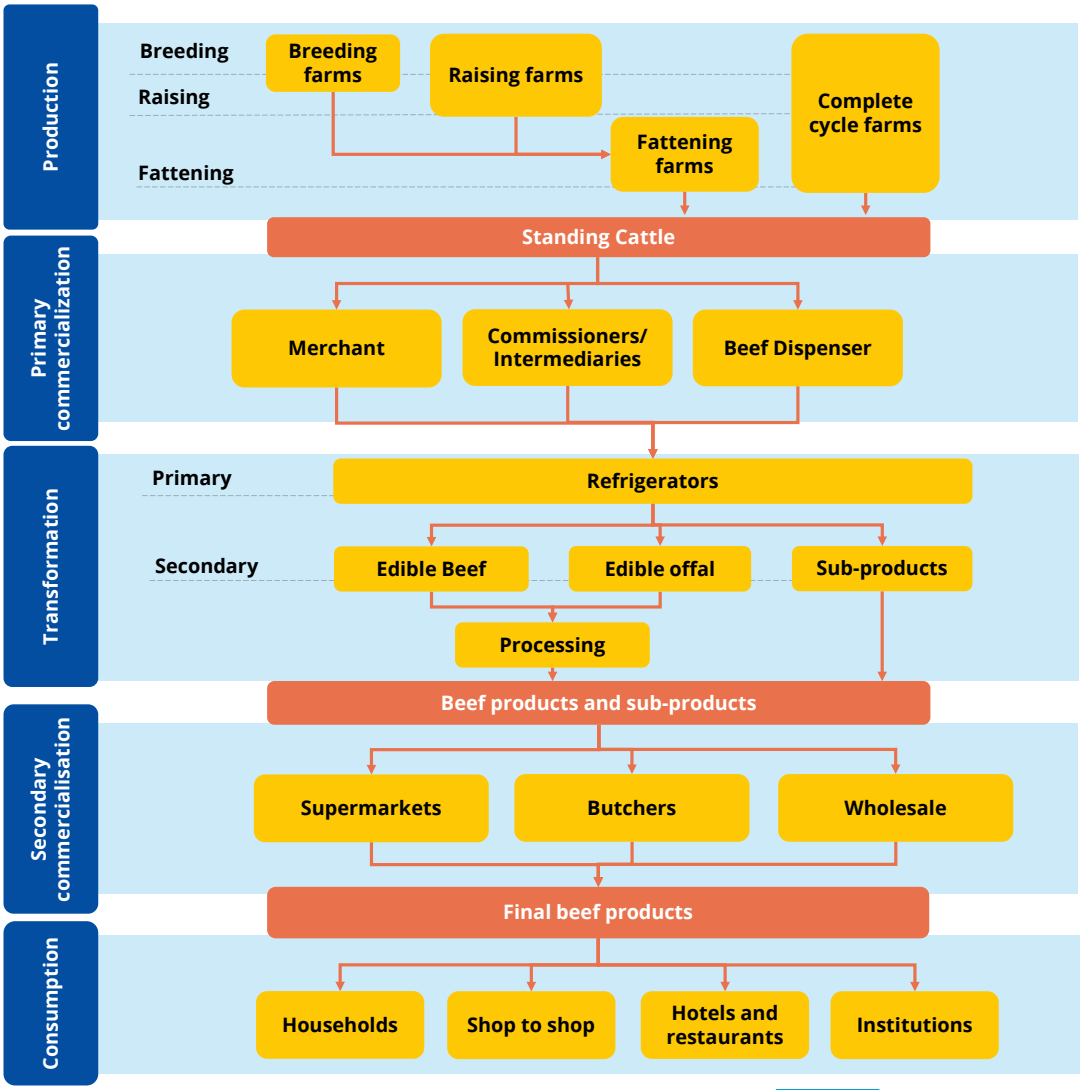

FIGURE 4. The Beef Value Chain
Source: Climate Focus

1) The first link is production (breeding, raising and fattening) which, due to its direct interaction with the agricultural frontier, natural forests and other eco-systems, presents the greatest risk associated with deforestation.

2) In the second link, live cattle is sold, either through purchases at farms, auctions and cattle fairs, or by means of intermediaries and agents who coordinate the transport of cattle to processing plants.

3) In the third link, the processing and rendering of cattle is carried out. In this process, the animals are slaughtered to obtain beef products and derivatives such as: beef, edible offal and other inedible byproducts. Processing plants select and distribute the products. These plants can range from clandestine slaughterhouses to specialized cold storage processing plants.

4) The finished products are sold in butchers, supermarkets and packaging centers

5) In the consumption link, end consumers such as families, shops, hotels, restaurants and others have access to the finished beef products.

2.1.2 Main commitments

Recognizing the impact of the livestock sector on the anthropogenic transformation of natural ecosystems in Colombia, members of the beef value chain signed the Public-Private Partnership Agreement between the Government of Colombia and the Beef Value Chain for the Zero-Deforestation of Natural Forests.[17] The overall objective of the agreement is to "promote efforts in the beef value and supply chains in Colombia that contribute to reducing deforestation through sustainable production models."[18] The agreement seeks to contribute to the country's goal of zero net deforestation of natural forests by 2030, reduce the sector's carbon footprint, prevent the transformation of strategic ecosystems, support the restoration of degraded areas and consolidate the concept of Zero-Deforestation using traceability systems.

Table 1 summarizes the main commitments made by the actors in the chain as part of this agreement. The commitments have been classified into eight (8) action areas, which formed the categories for analyzing the barriers and opportunities identified in this report.

TABLE 1. Beef value chain: main commitments made by the private sector.

ACTION AREAS	COMMITMENTS
1. Corporate Goals	Establish corporate goals aimed at eliminating deforestation.
2. Deforestation risk assessment	Conduct an analysis to identify suppliers in situations of risk associated with deforestation following 2010.
3. Procurement	Establish Zero-Deforestation procurement policies.
4. Traceability	Establish traceability systems that identify the history, location and trajectory of meat products along the value chain.
5. MRV	Implement monitoring, reporting and verification (MRV) systems.
6. Technical Assistance	Provide technical support to producers in at-risk areas associated with deforestation.
7. Communication and Awareness Raising	Design communication strategies to raise awareness among consumers and producers about the benefits and value of Zero-Deforestation meat products.
8. Financial	Include Zero-Deforestation production criteria in economic, financial and fiscal instruments and incentives.

[17] "Public-Private Partnership Agreement between the Government of Colombia and the Beef Value Chain for the Zero-Deforestation of Natural Forests and the Non-Transformation of Páramo."
[18] Ibid

2.1.3 Alkosto: Its role in the chain and the implementation of this agreement

Alkosto S.A. plays a specific role in each link of the value chain, with its greatest influence on the secondary commercialization link. Alkosto began operations in 1987 as a company dedicated to the sale of household products. Currently it has nine stores across Colombia (see Figure 5). Alkosto has established itself in the market as a nationally recognized brand, committed to excellence, social development and environmental care. As part of its commitment to the sustainable development of sectors in the beef chain, Alkosto is implementing a pilot project with its supplier farms to evaluate the viability of a highly productive, socially just and environmentally friendly livestock system (see Box 3).

PILOT PROGRAM - SUSTAINABLE FARMING

Alkosto is carrying out a pilot project for sustainable livestock farming and ecological restoration on a farm in Northeastern Antioquia where they have evaluated:

- Restoration of degraded grasslands
- Sustainable management of pastures and fodder
- Productivity
- Ecological restoration of natural forests.
- Wildlife release and conservation

In partnership with Corantioquia, the project seeks to evaluate the transition to efficient and environmentally friendly specialized systems.

BOX 3. Alkosto pilot project

FIGURE 5. Alkosto Shops

Alkosto participates in 3 links in the value chain, the production, transformation and commercialization of meat products. In primary production and commercialization, Alkosto has supplier farms that guarantee the basic supply of meat for its supermarkets. In addition, it purchases live cattle directly from farms located primarily in the Andean region. it carries out the processing and rendering process at partner rendering plants. Finally, it sells the beef, primarily through its own brand, *Carnes Alkosto*.

Alkosto has a supply scheme that seeks sustainability, however this has not yet become a corporate policy and its sustainable purchasing protocols are currently being developed. Its supply scheme is based on the Hazard Analysis and Critical Control Point (HACCP) system, under which, the *Carnes Alkosto* brand has been certified for 15 years. HACCP is a food safety management system focused exclusively on ensuring safety throughout the entire process, from production, to the materials and inputs used in the processing stage. It should be noted that the HACCP system does not include sustainability criteria. Alkosto's overall supply strategy is in the process of being aligned with the Zero-Deforestation Agreement and its short-term goal is to make progress with this process to position *Carnes Alkosto* as a Zero-Deforestation product that meets the agreement's criteria.

The Alkosto meat brand has a traceability system for its supply chain.[19] Its protocols and monitoring system are still being developed. The company's supply chain has roughly 30 meat suppliers with whom Alkosto has been working for approximately 15 years. The suppliers have exclusivity agreements and Alkosto offers them incentives and recognition of their products in the market. Alkosto supplies 95% of the meat in its stores through direct purchases from supplier farms located in Magdalena Medio, northeast Antioquia and the eastern Orinoquia region. The remaining 5% of its beef, which is not fully traceable, is supplied through regional meat packing plants and companies that import beef products.

Alkosto has the potential to implement a traceability system for its primary suppliers, representing 95% of its supply chain. The company has a loyalty policy with its suppliers, and in addition to a traceability system that is being developed and improved, it

[19] Video of Alkosto's process: https://www.youtube.com/watch?v=yDBFyDnMWgk

uses a monitoring scheme for procuring calves to ensure that its suppliers purchase them from farms that meet HACCP certification quality standards. Furthermore, Alkosto seeks to purchase animals that have two branding marks or less, which means that they are animals that have been sold by only one or two intermediaries. As its relationship with suppliers is generally a direct relationship, Alkosto has a great opportunity to develop a comprehensive traceability system.

2.1.4 Implementation barriers

Alkosto has corporate willingness and a strong commitment at a managerial level to make progress with the fulfillment of its commitments to the Zero-Deforestation Agreement. However, fifteen (15) main barriers have been identified for the agreement's implementation that constrain progress for Alkosto and other companies in the sector (see Table 2).

TABLA 2. Cadena de carne: principales barreras y cuellos de botella.

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
1. Corporate Goals	i. Companies have not established nor published goals and/or corporate policies to eliminate deforestation in their supply chains.	Companies in the beef sector are willing to work towards fulfilling the agreement, but have not yet established corporate goals and internal policies to serve as a base for their activities. Currently, there is no guide to support companies with establishing, implementing and monitoring corporate goals aimed at eliminating deforestation.	IB	EB
2. Deforestation risk assessment	ii. Absence of a deforestation baseline.	To date, there is no deforestation baseline for the beef value chain.		EB
	iii. There is no comprehensive analysis of the risks associated with deforestation.	Deforestation risk assessment are a crucial tool for identifying and understanding activities that can drive deforestation. To date, there is no concrete support for methods and tools to carry out these analyses of risks associated with deforestation.	IB	EB
3. Procurement	iv. There is no comprehensive map of the supply chain.	The comprehensive mapping of supply chains is fundamental for establishing goals and Zero-Deforestation policies. To date, there are no useful and easy-to-apply methodologies or tools for companies to map their value chains. This is why many companies in the beef sector have not made progress in this area.	IB	EB
	v. Lack of guidelines to implement sustainable procurement/ Zero-Deforestation protocols.	No specific guidelines have been established to incorporate Zero-Deforestation in purchasing protocols. Meat sector companies have supply protocols, but these do not include criteria to guarantee Zero-Deforestation. It is not clear what parameters should be included.	IB	EB
	vi. Lack of guidelines to establish forest conservation and restoration agreements.	To date, no guidelines have been created for establishing conservation and restoration agreements that would enable primary producers to conserve remaining forests and restore areas where deforestation has occurred since 2011.		EB

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
4. Traceability	vii. Absence of a national animal traceability system.	Colombia does not have a unified animal traceability system. The ICA agency manages two different software packages; SIGMA for mobilization and SINIGAN for individual identification, but they are not interoperable with one another, nor with SMByC.[20] Furthermore, they provide limited support to companies in their efforts to ensure the traceability of their products. Programs such as the livestock software used by the sector in Colombia can be useful for addressing traceability gaps.		EB
	viii. Absence of a national animal traceability system.	A fundamental step in implementing the agreements is establishing a system for tracing products back to their origin. Companies in the meat sector are unaware of methods and tools to carry out product traceability from origin to final consumption.	IB	EB
5. MRV	ix. Absence of guidelines to establish monitoring, reporting and verification for Zero-Deforestation.	There is no guidance, or consolidated information sources for the establishment and operation of a monitoring system that includes key indicators and reporting frequency.		EB
	x. Absence of monitoring systems.	Companies do not have deforestation monitoring systems.	IB	
6. Technical Assistance	xi. Absence of Zero-Deforestation training programs.	Some companies such as Alkosto provide technical assistance related to productivity, quality control and agronomic management but are unable to include support for issues associated with climate change, Zero-Deforestation and ecological restoration.		EB
	xii. Limited coverage for technical assistance.	The resources available to cover the costs of technical assistance are generally limited within companies, as well as in government organizations and outreach programs. As such, coverage is equally limited.	IB	EB
	xiii. Lack of knowledge of cost-benefit analyses that cover the implementation of best practices.	Primary producers are unaware of the benefits associated with implementing best livestock practices that address deforestation on their farms, which is why they are skeptical about implementing changes in their production systems.		EB
7. Communication and Awareness Raising	xiv. Absence of a communication strategy on the value and benefits of Zero-Deforestation products.	There is no communication strategy aimed at raising awareness among end consumers of the positive effects of Zero-Deforestation meat products. This has an impact on the low demand for Zero-Deforestation products.	IB	EB

[20] Viancha, J.; Kasprzyk, K.; Sullivan, C.; & Vianchá, M. (2020). *Traceability as a tool in the fight against deforestation: an assessment of traceability in the Colombian cattle sector.* Bogotá, Colombia: Fundación Proyección Eco-Social (FPES), National Wildlife Federation (NWF) and University of Wisconsin (UW).

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
8. Financial	xv. Limited economic incentives for the adoption of best practices by primary producers.	There are very few economic incentives for primary producers to adopt forest conservation strategies or restoration practices. It could even be said that there are disincentives, such as property taxes that require payments for forested areas.		EB

IB Indicates that the barriers are external to the company and involve participation from various actors.

EB Indicates that the identified barriers were at the company level.

2.1.5 Opportunities to overcome barriers and challenges

Some barriers can be overcome by companies, but most require support and collaboration with other actors in the chain.

Opportunities can be more effectively addressed if a collective agenda is established that enables signatory companies to move forward together. The table below presents the main opportunities identified to overcome the barriers described above and the activities and key actors required to take advantage of these opportunities.

TABLE 3. Beef chain: main opportunities

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
1. Corporate Goals	Design a single template to implement goals (SMART- Goals) that can be used by companies in the chain.	• TFA, Agreement
	Publish a corporate document that specifies goals and strategies to address deforestation in the supply chain	• Companies
2. Deforestation risk assessment	Define the deforestation baseline for the beef sector.	• IDEAM
	Establish conceptual and methodological guidelines for the deforestation risk assessment .	• Agreement • TFA • Entities that support the agreement and signatory companies
	Facilitate access to deforestation risk assessment tools. (e.g. GIS, deforestation baselines, etc.).	• IDEAM • Agreement • TFA • International cooperation
	Conduct analyses of the risks associated with deforestation in the supply chain.	• Companies • Entities that support the agreement and signatory companies.

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
3. Procurement	Perform a characterization of all suppliers including polygon land surveys.	• Companies
	Facilitate access to tools and guidelines to comprehensively map the supply chain, specifically with indirect suppliers.	• Agreement • TFA • Entities that support the agreement and signatory companies.
	Establish the conceptual and methodological guidelines for the incorporation of Zero-Deforestation criteria in procurement policies.	• Agreement • TFA • Entities that support the agreement and signatory companies.
	Design and implement forest conservation and restoration agreements that include financial and non-financial incentives for primary producers to commit to conserving remaining forests and restoring deforested areas.	• TFA • Government of Colombia • Companies • Primary producers
4. Traceability	Facilitate access to tools and technical training so that companies can establish a product traceability system.	• Government of Colombia • TFA • Public-private partnerships
	Establish a pilot for Zero-Deforestation product traceability and evaluate its potential for scaling up.	• TFA • Companies • Entities that support the agreement and signatory companies.
	Develop a unified national traceability system through the SMByC platform.	• Government of Colombia
5. Monitoring (MRV)	Design standardized protocols and parameters to monitor and report on the progress of the signatory companies.	• Monitoring group for the Agreement • TFA • Agreement • Companies
	Implement monitoring systems.	• Companies
6. Technical Assistance	Offer Capacity building programs to companies and suppliers on Zero-Deforestation, ecological restoration and climate change.	• Ministry of Agriculture and Rural Development (Min. Agriculture) and Ministry of the Environment and Sustainable Development (Min. Environment) • TFA • Agreements • International cooperation agencies
	Training on costs and benefits associated with implementing best practices through concrete examples.	• TFA • Agreement • Companies • Government of Colombia • Entities that support the agreement and signatory companies.

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
6. Technical Assistance	Develop digital tools to provide virtual technical assistance services.	• Government of Colombia • Ministry of Information and Communication Technologies (Min. ITC) • Companies • Entities that support the agreement and signatory companies.
7. Communication and Awareness raising	Develop a communication and awareness-raising strategy regarding the value and benefits of Zero-Deforestation beef products, aimed at industry, consumers, producers and local, regional, national and international government bodies.	• TFA • Agreement • Companies • Government of Colombia • Entities that support the agreement and signatory companies.
8. Financial	Develop and consolidate financial instruments and mechanisms, taking into account climate financing sources that encourage the adoption of best practices by primary producers, conservation and/or restoration of forests and deforested areas.	• Companies • Government of Colombia - Fund for the financing of the agricultural sector (Finagro) • Financial sector • International cooperation agencies
	Provide elements for a comprehensive cost-benefit analysis for Zero-Deforestation production systems in order to better understand the economics of reconfiguring the livestock model. Evaluate the impact of credit lines focused on livestock restocking.	• Finagro • Universities • Entities that support the agreement and the signatory companies.
	Focus government investment and livestock development on sustainable practices to eliminate deforestation.	• Government of Colombia • Colombian Federation of Cattle Farmers (FEDEGAN) and the New Federation of Cattle Farmers of Colombia (NFG)

2.1.6 Conclusions

Some barriers can be overcome by companies in the short term. Establishing corporate goals can give companies a clear direction. However, it would be useful to have a general guide to define these corporate goals so that all companies in the sector can set goals that can be measured uniformly. **The deforestation baseline is a key point for making progress in setting targets and implementing the agreement.** The baseline is a prerequisite for the self-analysis of risks associated with deforestation. IDEAM plays a crucial support role here.

Many of the barriers are associated with information and knowledge gaps. There is a lack of knowledge about the methods and tools available for analyzing the risks associated with deforestation, monitoring and traceability. Better and more frequent communication and education about the meaning of the agreement (its details) and providing guidance (roadmap) to support companies to meet their commitments is important. In this process, the TFA, through the Agreements, has an opportunity to lead joint efforts with the entities that support the Agreements and to provide technical support in these areas.

Companies have been able to characterize their suppliers. It is important to include the geo-referencing of properties and, if possible, the identification of productive polygons in this characterization process. Companies require access to tools and technical training so that they can full map their supply chain. This assistance can be managed through the entities that support the agreement and signatory companies.

Some of the external barriers are systematic and require support from the Colombian State. The scope of technical assistance services for the beef sector is limited. The Colombian Government and livestock associations have the opportunity to more effectively complement their efforts by supporting companies and producers through providing technical assistance. This has included strengthening the technical capacities of companies' staff in the field so that they share this knowledge with primary producers. Technical assistance initiatives associated with sustainable livestock policies could also be financed through the Sustainable Livestock Farming in Colombia Roundtable (MGSC) and its regional committees, or through the signatory companies that already have direct relationships with the MGSC and primary producers.

Zero-Deforestation products are essential for leveraging the transition process and meeting the growing demand for "sustainable" products. The Zero-Deforestation Agreement is an opportunity for companies to adapt their supply to an increasing demand for healthy, local, high quality and nutritious products that promote the conservation of forests and the environment. Compliance with the agreement facilitates the supply of these types of products and companies have the opportunity to establish brands and offer Zero-Deforestation products to help them access sustainable markets. Demand for Zero-Deforestation products can be promoted by implementing communication strategies focused on raising consumer awareness of the value and benefits of Zero-Deforestation beef products.

2.2 DAIRY CHAIN

2.2.1 Description and challenges for Zero-Deforestation

The dairy value chain consists of five (5) main links, in which different actors participate in activities related to production, commercialization (primary and secondary), processing, and consumption (see Figure 6).

1) The first link consists of the production of raw milk, which primarily involves small- and medium-scale farmers whose farms are located in both the high altitude and low altitude tropics.[21, 22] This first link involves land use and the anthropic transformation of natural ecosystems, such as Páramo (Andean tundra ecosystem) in the high altitude tropics and forests in the low altitude tropics.

2) In the second link, the raw milk is transported from the farms to the collection centers, which are responsible for collecting raw milk and storing it in cooling tanks. The type of collection center varies between informal locations where room-temperature milk is stored to cooperatives with access to refrigerated tanks and the collection centers of large milk processing companies.

3) In the third link, the cold milk is transported to the dairy processing centers, where the final dairy products are made. These centers include: (a) small traditional dairy product industries; (b) departmental-level processing industries; (c) national-level processing companies with a high capacity for collection, processing and transformation.

4) In the fourth link, the final products are sold through different channels including informal shops, neighborhood stores, supermarkets and super stores.

5) The links mentioned above facilitate access to finished dairy products for end consumers, which generally include Colombian households, restaurants, and public and private institutions.

[21] Cadena, Reina, and Rivera, "Regulated Price of Milk."
[22] Federico Holmann et al., "Milk production and its relationship to markets; the Colombian case."

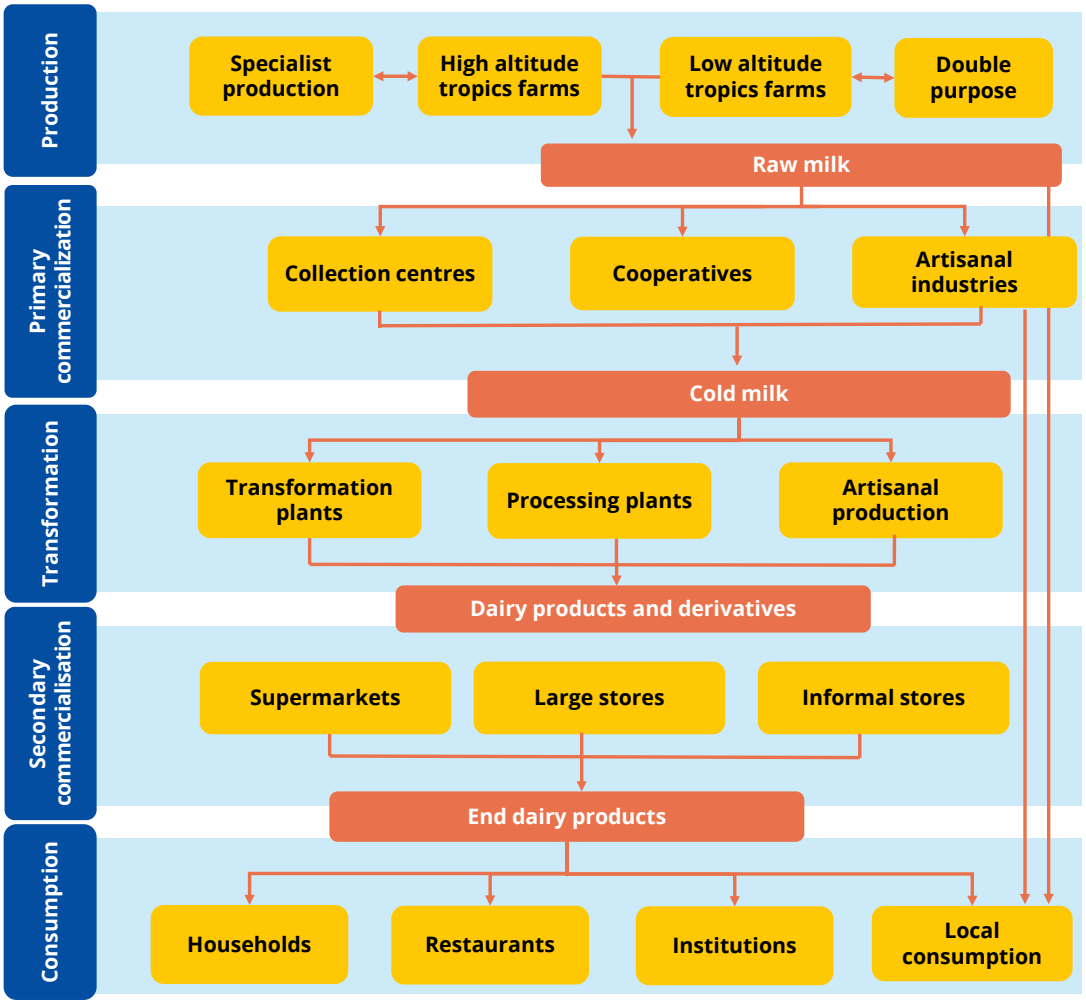

FIGURE 6. The Dairy Value Chain.
Source: Climate Focus

2.2.2 Main commitments

In the framework of TFA Colombia 2020, the "Public-Private Partnership Agreement between the Government of Colombia and the Dairy Value Chain for Zero-Deforestation of Natural Forests and Non-transformation of Páramo," was signed on May 6, 2019[23]. The signatories of this agreement aim to make joint efforts that contribute to the goal of zero net deforestation of natural forests by 2030 and prevent the transformation of paramos in the context of the dairy value chain in Colombia.[24]

The table below summarizes the main commitments made by private actors in the framework of the Zero-Deforestation Agreement for the dairy value chain. The commitments have been classified into eight (8) action areas that were used as categories for the analysis of barriers and opportunities.

[23] "Public-Private Partnership Agreement between the Government of Colombia and the Dairy Value Chain for Zero-Deforestation of Natural Forests and Non-transformation of Paramos."

[24] "Public-Private Partnership Agreement between the Government of Colombia and the Dairy Value Chain for Zero-Deforestation of Natural Forests and Non-transformation of Paramos."

TABLE 4. Dairy value chain: main commitments of the private sector.

ACTION AREAS	COMMITMENTS
1. Corporate Goals	Establish corporate goals aimed at eliminating deforestation and the transformation of Páramo (Andean tundra ecosystem)..
2. Deforestation risk assessment	Conduct an analysis to identify suppliers that have faced risk situations associated with deforestation since 2010, including Páramo.
3. Procurement	Establish Zero-Deforestation and zero-Páramo transformation policies.
4. Traceability	Establish traceability systems that identify the history, location and trajectory of dairy products along the value chain.
5. MRV	Adopt monitoring, reporting and verification systems.
6. Technical assistance	Provide technical support to producers in areas that are at risk of deforestation or the transformation of paramos.
7. Communication and awareness raising	Design a communication strategy to raise awareness among consumers and producers of the benefits and value of Zero-Deforestation dairy products.
8. Financial	Work to include Zero-Deforestation production criteria in economic, financial and tax instruments and incentives.

2.2.3 Alquería: its role in the chain and implementation of the agreement

Alquería has positioned itself as a leading company in the dairy chain in Colombia. The company was founded in 1959 with the mission of bringing well-being and nutrition to Colombians. Alquería's mission and philosophy, together with its supporting corporate responsibility policies, reflect the company's commitment to social and economic development and respect for the environment. Its current mission is embodied in the "Planeta Larga Vida" sustainability strategy which was strengthened by the signing of the Zero-Deforestation Agreement. While the company participates in three links including production and commercialization, Alquería's main role is in the processing link.

Alquería has been involved in pioneering initiatives and today plays a role as an agent of change for a Zero-Deforestation dairy chain in which it can exert a positive influence on other actors in the chain. The company has fourteen (14) collection centers, five (5) production plants and twelve (12) distribution centers in which different dairy products are packaged and processed.

It has several business areas that include: nutrition, well-being, indulgence and snacks. In its commercialization process, the company interacts directly with end consumers who play a key role in the demand for products that do not cause deforestation or transform Páramo.

Alquería strategically participates in primary production. On the one hand, the company has its own farm and several associated farms through which it ensures a specific volume of supply. On the other hand, the company provides technical assistance and continuous support to its suppliers, both direct and indirect, who benefit from programs such as: *Plan Finca* (see box. 4), *Formación Campesina*, and *Escuela de Campo*.

The bulk of its supply chain consists of direct suppliers who represent roughly 70% of the total number of suppliers. The vast majority are small- and medium-sized farmers. The remaining 30% are indirect suppliers, associations, cooperatives and intermediaries.

Alquería has a protocol for purchasing goods and services based on its business activities. Raw milk purchasing management includes the selection and evaluation of suppliers.

FARM PLAN

Alquería's technical assistance and accompaniment program focused on providing planning skills for producers, especially in relation to:

- Grass and fodder management
- Livestock Management
- Productivity
- Quality Control
- Financial analysis.
- Environmental Management

Producers are receptive to changes in paradigms, as long as this is reflected in economic benefits that allow them to cover their basic needs and improve their quality of life.

BOX 4. Alquería's *Plan Finca*

The process seeks to create lasting business relationships with suppliers that Alquería recognizes as strategic partners. The suppliers ensure the milk's quality while meeting the social and environmental standards required by the company. Alquería supports them through its economic development, technical assistance and accompaniment programs.

Alquería's updated sustainable procurement protocol will be published in the upcoming 2020 Sustainability Report and includes four (4) key steps:

1) Characterization of producers that includes geo-referenced information of their farms, production type and conditions and milk quality.

2) Analysis of risks associated with deforestation and paramour transformation using a software tool (SIGAIND[25]) that identifies producers who are located in the agricultural frontier or defined Páramo areas.

3) Evaluation of new suppliers to establish future business relationships.

4) Identification of producers who require assistance and are outside the agricultural frontier or in defined Páramo areas.

Since the signing of the Zero-Deforestation Agreement, Alquería has been incorporating Zero-Deforestation and zero Páramo transformation criteria into its purchasing. To date, the company is in the process of characterizing 50% of its suppliers. As a short-term objective it plans to complete the characterization of 100% of its suppliers. Alquería has a traceability system for the milk it collects and is able to track every liter provided by its direct suppliers. Its traceability system is focused on quality control of the collected milk and can be used to cover Zero-Deforestation parameters.

2.2.4 Implementation barriers

Even prior to the signing of the agreement in May 2019, **Alquería had been working to include Zero-Deforestation and zero Páramo transformation criteria in its sustainability strategy**, a process which has encountered certain barriers and bottlenecks. This case study identifies fourteen (14) main barriers in the eight (8) action areas associated with the commitments made in the agreement.

[25] SIGAIND: http://www.sigag.com/

TABLE 5. Dairy chain: main barriers and bottlenecks

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
1. Corporate Goals	i. Companies have not established and published goals and/or corporate policies to eliminate deforestation from their supply chains.	Companies in the dairy sector have not made progress in establishing corporate goals aimed at eliminating deforestation. To date, there are no general guidelines that support companies for establishing, implementing and monitoring corporate goals.	IB	EB
2. Deforestation risk assessment	ii. Absence of a baseline for deforestation and defined Páramo.	Both the delimitation of Páramo at the national level and the deforestation baseline for dairy products are in the development process. Companies such as Alquería have been using an alternative baseline. However, an official baseline is identified as indispensable for collective progress in the sector and transparency.		EB
	iii. There are no comprehensive analyses of risks associated with deforestation and transforming Páramo .	Some companies (e.g. Alquería) are making individual progress in their Deforestation risk assessment , having carried out risk mapping using Everest, a risk management software, and SIGAIND. However, the methodologies still need to be aligned with the agreements' requirements. To date, the agreement has not provided methodological guidelines to facilitate analyses of risks associated with deforestation in a uniform manner by signatory companies.	IB	EB
3. Procurement	iv. There is no comprehensive map of the supply chain.	Supplier mapping is essential for having a complete and clear picture of suppliers to facilitate the implementation of Zero-Deforestation procurement policies. The main challenges lie in the difficulty of accessing remote rural areas, obtaining prior consent from suppliers to carry out polygon land surveys and their limited operational capacity. Furthermore, difficulties have been encountered with mapping indirect suppliers.	IB	EB
	v. Lack of guidelines to establish forest conservation and restoration agreements.	To date, no guidelines have been created for establishing conservation and restoration agreements that would enable signatories to understand what this type of agreement means and what they must commit to in order to conserve forests and Páramo, as well as restore areas where deforestation and paramour transformation has occurred since 2011. Companies in the dairy sector (e.g. Alquería) have identified suppliers who are willing to restore deforested areas on their properties and are currently drafting a conservation and restoration agreement that they hope to validate using the guidelines from the agreement.		EB
4. Traceability	vi. Absence of a national animal traceability system.	Colombia does not have a unified animal traceability system. The ICA agency manages two different software packages; SIGMA for mobilization and SINIGAN for individual identification, but they are not interoperable with one another.		EB

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
4. Traceability	vii. Internal traceability systems are in the early stages of development.	Consolidation for the operation of the traceability system has not occurred. In general, leading companies in the dairy sector have established traceability systems associated with milk quality, however, they do not include Zero-Deforestation criteria.	IB	
5. Monitoring (MRV)	viii. Absence of guidelines to establish a Zero-Deforestation monitoring, reporting and verification system.	There is no general guide on designing monitoring systems and protocols that help companies to design their own by accessing parameters and homogenous information sources that use standardized monitoring guidelines.		
	ix. Absence of monitoring systems.	Companies do not have deforestation monitoring systems.	IB	
6. Technical assistance	x. Absence of Zero-Deforestation Capacity building programs.	Field workers from the signatory companies in the dairy sector have not received technical training on Zero-Deforestation or similar concepts. This limits their capacity to share knowledge with other actors in the value chain.		EB
	xi. Limited coverage for technical assistance.	Dairy companies provide outreach services and technical assistance to their suppliers but their scope is limited. For optimal coverage, technical assistance programs such as Alquería's *Plan Finca* and *Escuelas de Campo* require more resources.	IB	EB
7. Communication and awareness raising	xii. Absence of a communication strategy on the value and benefits of Zero-Deforestation dairy products.	In general, consumers are not aware of the benefits of Zero-Deforestation products. Generating this consumer awareness can increase demand for Zero-Deforestation dairy products.	IB	EB
8. Financial	xiii. Limited economic incentives for the adoption of best practices by primary producers	There are limited economic incentives and financial instruments for primary producers to implement on-farm conservation or restoration practices. In some cases, property taxes are a disincentive for protecting forests and other strategic ecosystems.		EB
	xiv. The financial inclusion of small-scale farmers entails high levels of risk.	Alquería has participated in initiatives to promote the financial inclusion of small-scale farmers.[26] However, they have found that the company has to assume high levels of financial risk in addition to a lack of results. For this reason, they continue to explore opportunities to develop new initiatives.		EB

IB Indicates that the barriers are external to the company and involve a range of actors.

EB Indicates that the identified barriers are at the company level.

[26] Nelson and Durschinger, "Supporting Zero-Deforestation Cattle in Colombia."

2.2.5 Opportunities to overcome barriers and challenges

Some opportunities can be addressed at the company level, but most involve participation from other actors in the value chain. Table 6 outlines the main opportunities that were identified for the company and other businesses with similar barriers so that they can be overcome. Additionally, activities are presented that could be addressed by key support actors.

TABLE 6. Dairy chain: main opportunities

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
1. Corporate Goals	i. Design a single template to implement goals (SMART-Goals) that can be used by the companies in the value chain.	• TFA • Agreement
	ii. Publish a corporate document that specifies goals and strategies for addressing deforestation in the chain.	• Companies
2. Deforestation risk assessment	iii. Establish a deforestation and Páramo baseline.	• IDEAM
	iv. Establish methodological guidelines and tools for the analysis of risks associated with deforestation and transforming Páramo. v. Facilitate access to risk analysis tools. (e.g. GIS, deforestation baselines, etc.).	• TFA • Agreement • Entities that support the agreement and signatory companies. • International cooperation agencies
	vi. Conduct risk analyses associated with deforestation in the supply chain.	• Companies
3. Procurement	vii. Perform a characterization of all suppliers including polygon land surveys.	• Companies
	viii. Facilitate access to tools and guidelines to comprehensively map the supply chain, specifically indirect suppliers.	• TFA • Entities that support the agreement and signatory companies.
	ix. Design formats for forest conservation and restoration agreements as described in the agreement.	• TFA • Government of Colombia • Companies • Primary producers • Entities that support the agreement and signatory companies.
4. Traceability	x. Facilitate access to tools and technical training so that companies can establish a traceability system for their products.	• Government of Colombia • TFA • Public-private partnerships
	xi. Establish a pilot for Zero-Deforestation product traceability and evaluate its potential for scaling up.	• TFA • Companies • Entities that support the agreement and signatory companies.
	xii. Develop a unified national traceability system through the SMByC platform.	• Government of Colombia

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
5. Monitoring (MRV)	xiii. Design standardized protocols and parameters to monitor and report the progress of signatory companies.	• Monitoring group agreement • TFA • Companies
	xiv. Implement a monitoring system.	• Companies
6. Technical assistance	xv. Offer Capacity building to companies and suppliers on concepts associated with Zero-Deforestation and climate change.	• TFA • Entities that support the agreement and signatory companies.
	xvi. Promote public-private partnerships for the provision of technical assistance along the supply chain.	• MADR, MADS, • TFA, • Agreements • Companies
	xvii. Develop digital tools to provide virtual technical assistance services.	• Government of Colombia • MinTIC • Companies • Entities that support the agreement and signatory companies.
7. Communication and awareness raising	xviii. Develop a communication and awareness-raising strategy on the value and benefits of Zero-Deforestation dairy products aimed at industry, consumers, producers and local, regional and national government entities.	• TFA agreement • Entities that support the agreement and signatory companies.
8. Financial	xix. Develop and consolidate financial instruments and mechanisms that encourage the adoption of best practices by primary producers, conservation and/or restoration of forests and degraded areas.	• TFA • Government of Colombia - Finagro • Entities that support the agreement and signatory companies.
	xx. Establish strategic partnerships for the financial inclusion of small-scale farmers to reduce risks associated with poor practices.	• Companies • Financial sector • Government of Colombia - Finagro • International Cooperation Agencies

2.2.6 Conclusions

There is an opportunity to establish corporate goals and policies that address Zero-Deforestation in dairy supply chains. Leading companies such as Alquería can establish corporate goals that directly address deforestation. Smaller companies or cooperatives in the chain may not have this capability. As such, designing guidelines with general organizational goals that address deforestation and can be adopted by all signatories to the agreement is an essential component. **Establishing the deforestation baseline is a key point for achieving the commitments made in the agreement.** The baseline for deforestation and defined páramos is a prerequisite for conducting self-analyses of risks associated with deforestation. IDEAM plays a crucial role in this area.

Many barriers are associated with enabling conditions that are external to the signatory companies. A general barrier that has been identified is the lack of tools and methodologies available for the deforestation risk assessment, mapping the supply chain, and product monitoring and traceability.

Designing and developing general guidelines provides support to companies so they can adopt the required measures to meet their commitments.

Monitoring systems should be uniformly designed for the dairy sector with homogeneous indicators and reporting frequencies to facilitate information collection at the sectoral level.

There is a specific opportunity to make progress in establishing a traceability system. In the process of milk collection, a robust traceability system ensures product quality. These pre-established traceability systems can incorporate Zero-Deforestation criteria. Access to tools and training is required to adopt appropriate practices and criteria, which can be evaluated through a pilot with measurable and scalable milestones.

Leading companies in the dairy sector provide technical assistance services to their suppliers. These spaces could be used to raise awareness with small-scale farmers on subjects related to deforestation and transforming Páramo. Training field workers is useful for sharing knowledge with small-scale farmers. Furthermore, the government can support technical assistance programs by promoting public-private partnerships that are supported by innovative financial instruments.

Through the promotion of Zero-Deforestation livestock systems, primary producers can obtain economic, social and environmental benefits. Sustainable livestock production systems help increase the provision of environmentally-friendly goods and services while mitigating the negative effects of climate change.

Sustainable livestock systems also contribute to improving the quality of the milk, a factor that improves the price paid by consumers. The transition towards more sustainable production systems can be leveraged by strategies and campaigns to raise the awareness of both producers and end consumers in order to increase demand for Zero-Deforestation dairy products.

There is an opportunity to design and evaluate new financing instruments to facilitate small-scale farmers' access to financial services. Companies such as Alquería have implemented their own programs with satisfactory results. However, they have not been financially sustainable, which is why they continue to explore new opportunities and are open to serving as financial intermediaries for their suppliers. The implementation of financial inclusion strategies that take into account the needs of small-scale farmers, regional differences, producer type and climate risk zones is fundamental for improving production and containing the expansion of agricultural frontiers. Public-private partnerships in which companies play an intermediary role between producers and financial institutions have been successful as they reduce risk and facilitate access to financing. These could be explored along the value chain.[27] As part of these schemes, companies have the opportunity to teach producers how to create "tailor-made" products, promoting the efficient use of resources and financial returns for all parties involved.[28]

[27] Bravo et al., *Sectoral Strategy for the Dual Purpose Cattle Chain in Guaviare with an Agro-Environmental and Zero-Deforestation Approach.*
[28] *Idem*

2.3 PALM OIL CHAIN

2.3.1 Description and challenges for Zero-Deforestation

The palm oil sector is one of the agroindustry sectors with the highest growth expectations in the world. Its expansion prospects are based on its enormous market potential from the various uses of palm fruit derivatives, which include cosmetics, hygiene products, biofuels and energy generated from the by-products of plants from which oil can be extracted.

Currently, there are approximately 550,000 hectares of palm trees sown in Colombia, distributed over 24 departments, 122 municipalities and 64 palm industry hubs located in the northern, eastern, southwestern and central regions of the country. The 2016 production of crude palm oil reached 1,155,705 tons, of which, 754,371 tons were sold in the local market and 401,334 tons exported to the foreign market.

In relation to the different market segments, national biodiesel products represented 39.7% of all production followed by the fats and oils industry (22.5%), animal feed (2.7%), other uses (0.4%) with 34.7% of all production was exported. [29]

The palm oil chain can be divided into three parts: upstream (agricultural), midstream (industrial and oleochemical processing) and downstream (processing into food and hygiene products, fuels). In relation to deforestation, the agricultural link is the most relevant. In Colombia, there are approximately 6,000 producers of the palm oil fruit (downstream). Each crop or group of crops and the facilities where their fruits are processed constitute a palm production hub. Processing palm oil fruit (fresh fruit bunches – FFB) is carried out at a processing or extraction plant (midstream). Extraction is the process used to obtain crude palm oil (CPO) and palm kernel oil. Manufacturers of food and hygiene products and fuel are supplied by the extraction plants.

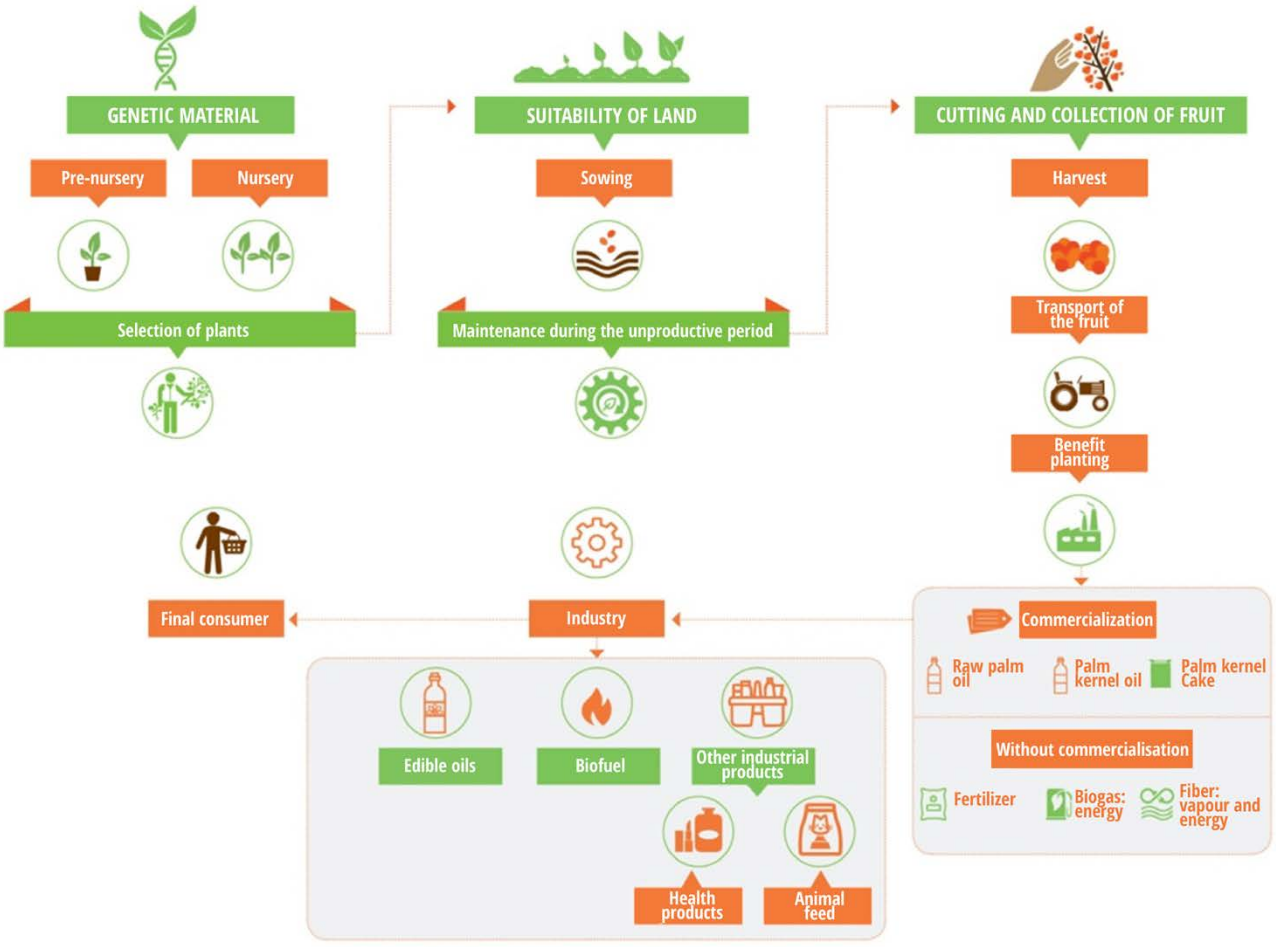

FIGURE 7. Palm oil value chain

[29] Fedepalma Statistical Yearbook, 2017

Within the framework of the *Agreement of Intent for Zero-Deforestation in the Palm Oil Chain in Colombia*, the IDEAM created a baseline of the deforestation that occurred between January 1, 2011 and December 31, 2017 on land where palm oil lots are located, which was based on data from the Palm Oil Research Center Corporation (CENIPALMA).

On the properties that grow palm oil fruit, 17,132 hectares were identified as having been deforested between 2011 and 2017, equivalent to 1.5% of the deforestation that occurred throughout the country during the same period. However, not all of this forest loss is attributable to establishing palm oil fruit plantations. Of the 17,132 ha that were deforested, approximately 2,838 ha were recorded on the palm tree plantations that are part of the CENIPALMA inventory (2018), while a forest loss of approximately 14,294 ha was identified in the areas outside these properties. Less than 1% of the country's deforestation between 2011 and 2017 was detected directly in palm oil plantations that are included in the CENIPALMA inventory (2018). 83% of the deforestation (2011-2017) that occurred on CENIPALMA palm oil plantations was located in the departments of Santander, Bolívar and Norte de Santander.[30]

2.3.2 Main commitments

"The Agreement of Intent for Zero-Deforestation in the Palm Oil Chain in Colombia," was established in the framework of TFA Colombia 2020. Through these commitments, the signatories aim to join forces to ensure that the palm oil production and supply chains are free of natural forest deforestation.[31]

Table 7 outlines the main commitments made by private actors in the Zero-Deforestation Agreement. The commitments were classified into eight (8) action areas identified in this study that were used as categories for the analysis of barriers and opportunities.

TABLE 7. Palm oil chain: main commitments of the private sector

ACTION AREAS	COMMITMENTS
1. Corporate Goals	Establish quantitative corporate targets for the Zero-Deforestation production and supply of palm oil in the supply chain for Colombia by 2020, in accordance with the objectives of the agreement, with an aspirational statement of when 100% Zero-Deforestation coverage of production and supply will be reached.
2. Deforestation risk assessment	Conduct an analysis to identify suppliers in risk situations associated with deforestation since 2010.
3. Procurement	Establish a policy or plan for the progressive purchase of palm oil and/or its derivatives/byproducts that are certified as deforestation free through the Zero-Deforestation monitoring and validation mechanism, or through international certifications such as RSPO, Rainforest Alliance, ISCC or the Starling Verification.
4. Traceability	Establish traceability systems that monitor geo-referenced information about the origin of palm oil.
5. MRV	Adopt monitoring, reporting and verification systems.
6. Technical Assistance	Promote a technical assistance model that includes promoting production sustainability, natural forest conservation and preventing ecosystem degradation through transformation that may affect productivity.

[30] 2011-2017 Deforestation baseline for African Palm Oil crops (Elaeis guianeenis) and Hybrid Palm Oil (E. oleifera x E. guineensis), IDEAM (2019)
[31] "Agreement of Intent for Zero-Deforestation in the Palm Oil Chain in Colombia"

ACTION AREAS	COMMITMENTS
7. Communication and Awareness Raising	Through a communication strategy, communicate and highlight the results of the agreement in terms of conservation and halting deforestation through communication channels that raise awareness and generate responsible consumption campaigns to promote Zero-Deforestation palm oil.
8. Financial	Promote dialogue with the financial sector and target financial and rural extension instruments to support the palm sector in actions or investments that promote best agricultural practices, Zero-Deforestation and preserving areas with high conservation value.

2.3.3 Extractora del Sur de Casanare: its role in the palm oil value chain and in implementing the agreement

Founded in 2001, Extractora del Sur de Casanare is a private company in the agroindustry sector that processes and sells palm oil.

Extractora del Sur de Casanare is located in the village of El Fical Km 20 in the department of Casanare. This is a rural zone in the municipality of Villanueva. The plant has a 60 tons/hour capacity and is supplied by more than 70 farmers including small-, medium- and large-scale growers.

FIGURE 8. Geographical location Extractora del Sur de Casanare (ESC)

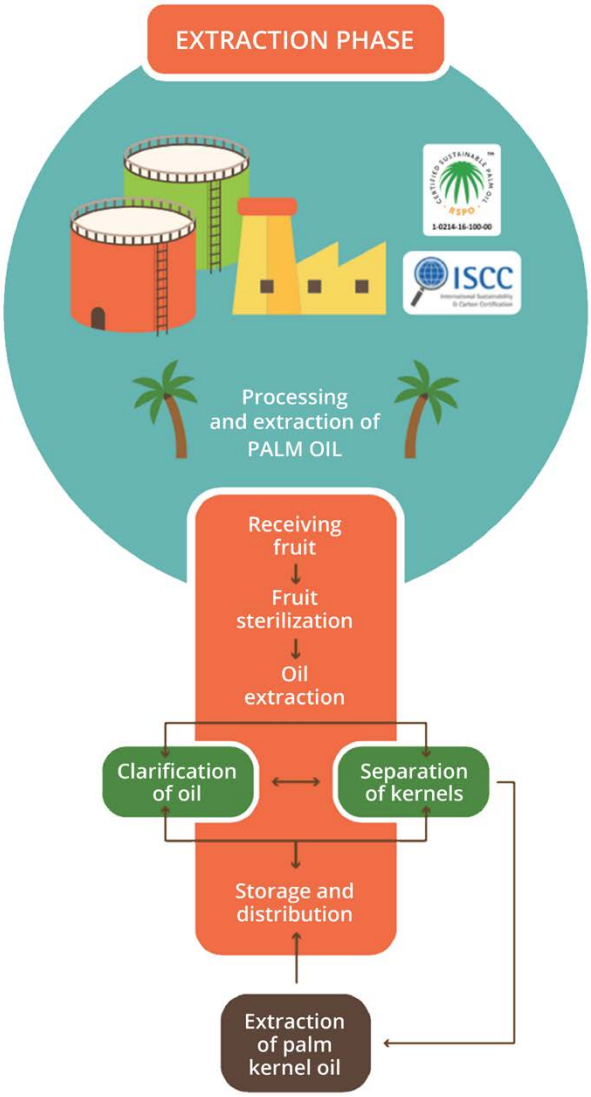

FIGURE 9. The palm oil extraction chain
Source: Sustainability Report 2019, Extractora del Sur de Casanare

In its value chain, it promotes the sale of differentiated oils, through the continuous verification of best agricultural, environmental and social practices established in the principles and criteria of the Sustainable Palm Oil Roundtable (RSPO), which has been in place since 2016. This work is carried out with technical accompaniment provided by its network of palm fruit suppliers (especially for small- and medium-scale palm growers), through awareness-raising, training and technical assistance activities.

The process of implementing the sustainability standard for the International Sustainability and Carbon Certification (ISCC) began in 2018, in which efforts are focused on sustainable land use, traceability and verification of greenhouse gases throughout the supply chain. In 2019, Extractora del Sur de Casanare, as well as Palmar del Oriente, were certified.

Committed to the management of sustainable development and obtaining international certifications following the signing of the national Zero-Deforestation Agreement in the palm oil chain, Extractora del Sur de Casanare's main achievement in 2019 was the comprehensive geo-referenced mapping of its fruit supply base and production volume. This company has made progress with its commitment to monitor and ensure that the raw materials supplied by their strategic partners come from plantations that are located in Zero-Deforestation areas.

The next step to be taken within the framework of the Zero-Deforestation Agreement for palm oil consists of reporting this information, including self-analysis of fruit and oil production volumes, as well as geo-referenced information or polygon land surveys from suppliers' plantations. This information will be submitted to IDEAM for an analysis in relation to the national deforestation baseline (2011-2017) for palm oil, which will establish the level of exposure of its supply chain.

Together with the company's Zero-Deforestation initiatives, progress is being made with implementing improved environmental practices, which have resulted in increased use of renewable fuels (69%) and a 30% reduction in water consumption. Furthermore, its carbon footprint is measured via the ISCC measurement methodology. The most recent measurement yielded 797.8 CO2eq/dry ton of CPO.

2.3.4 Implementation barriers

Extractora del Sur de Casanare has participated in the national Zero-Deforestation Agreement for the palm oil value chain since its inception. According to its corporate values, it is committed to offering the market a sustainable product that guarantees the viability of its business while implementing environmental protection and social responsibility actions.

Even though the company has made progress in characterizing its supply chain through the collection of basic information for self-analysis, the following barriers and bottlenecks associated with the implementation of the agreement are evident in the process (see Table 8):

1) **Clarity regarding the IDEAM baseline.** The company hoped to have reference maps but staff believe that the scale of the baseline will make it difficult to conceptualize the state of different palm growing areas at the national level, particularly in the eastern region. Extractora del Sur de Casanare stated that a major barrier to the analysis of suppliers' properties is that for some there is only one location coordinate, which means that they do not have a polygon survey of their plantation.

2) **Baseline socialization time and cross-referencing information.** The official submission of the first baseline report was delayed by one year according to the initial work plan, which pushed back the setting of quantitative goals by the companies that are signatories to the agreement. This situation also highlighted the need to strengthen the implementation capacities of the IDEAM, especially when it is necessary to contrast national information with the company's self-analysis.

3) **Frequency of satellite data.** Having access to deforestation maps only once a year seems to be insufficient to establish an effective monitoring and prevention strategy. Because the images are owned by IDEAM, they are not provided as a reference image for the company's direct use. To date, the baseline assessment covers the 2011 – 2017 period, which also representing a delay with providing more recent information up to 2019.

4) **Incentives for forest conservation.** Highlighting the importance of forest conservation to suppliers is a challenge when they primarily respond to financial incentives that currently don't exist for this issue. Market recognition in terms of a differentiation premium is not clear, nor are there any government initiatives such as low interest loans or tax incentives that prioritize forest protection.

5) **Continuous monitoring by government authorities.** A government presence is significantly lacking in rural areas where the risk of deforestation is highest and where the presence of illegal armed groups is a threat.

TABLE 8. Palm chain: main barriers and bottlenecks

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
1. Corporate Goals	i. Companies have not defined and published corporate goals for eliminating deforestation.	To date, the company has made progress with a self-analysis of its supply chain and supplier coordinates in order to diagnose the current state of the chain compared to the national deforestation baseline for palm oil cultivation established by IDEAM. Based on this assessment, the company will be able to formulate its specific goals		EB
2. Deforestation risk assessment	ii. The company must further characterize its supply chain, specifically by analyzing the risks associated with deforestation.	Extractora del Sur de Casanare has made progress with environmental and social impact studies and analysis of high-level conservation, facilitating analysis of the risks associated with its supply chain. However, the corresponding analysis of the company's fruit suppliers (especially small and medium producers) in terms of deforestation is limited. It is expected that the result of the analysis by IDEAM will allow for the identification of third party plantations in relation to potential sources of deforestation. In cases where there is no availability of the respective polygons (if a reference coordinate from each supplier is available, this represents 50% of what is required), this will limit the conclusions of the analysis.		EB
3. Procurement	iii. There is a partial characterization of the supply chain.	A comprehensive characterization of the supply chain is necessary to have a clear picture for the definition of priorities and the formulation of zero-deforestation supply policies. However, the main challenge is to be able to access a similar level of detail for the case of supplier sites.	IB	
4. Traceability	iv. Availability of a traceability system that still needs to be complemented in relation to suppliers.	Currently the company is able to identify the quantities and origin of the processed fruit. The information restrictions are primarily exist with full georeferencing (identification of polygons) that is not available for 50% of the company's suppliers.		EB
5. Monitoring (MRV)	v. Absence of a protocol for monitoring, reporting and verification of non-deforestation.	In the framework of the Zero-Deforestation Agreement, there is still no general guidance to help companies design and adopt a monitoring system tailored to their needs (in terms of parameters to be monitored, frequency and data source to be used). At present, the group of companies that are signatories to the agreement is making progress with the consolidation of its self-analysis and submitting a report to IDEAM for an analysis compared with the national deforestation baseline.		EB

ACTION AREAS	BARRIERS, BOTTLENECKS (OR VOIDS)	DESCRIPTION	INTERNAL	EXTERNAL
6. Technical Assistance	vi. Limitations in operational capacity for full and continuous supplier coverage through technical assistance, particularly in relation to Zero-Deforestation.	ESC provides accompaniment and support to its providers through awareness-raising, training and technical assistance covering agronomic, environmental and social areas. However, it does not yet specifically address Zero-Deforestation, either through inspection or control of supplier sites.	IB	EB
7. Communication and Awareness Raising	vii. Need to complement existing communication strategies by raising awareness about the value and benefits of Zero-Deforestation.	As part of the company's communication and supplier awareness strategies, and in terms of environmental and social considerations within the framework of its RSPO and ISCC certifications, ESC implements forest protection and High Conservation Value (HCV) programs, especially through training activities with producers. Complementarily, it supports the national strategy of a guild to promote the use of 100% Colombian palm oil, which aims to highlight the differences between local production practices and those in other countries. These initiatives define a communication and awareness strategy associated with Zero-Deforestation in the supply chain.	IB	EB
8. Financial	viii. Absence of financial inclusion instruments for small farmers.	Extractora del Sur de Casanare offers financial facilities to its suppliers such as timely payments. However, the company does not have strategies to promote direct access to the financial system for small suppliers.		EB
	ix. Limited financial/ economic incentives	The company recognizes that to encourage the adoption of actions aimed at protecting forests, economic incentives are a fundamental factor for raising awareness and increasing commitments from palm growers. The current situation in which the market does not pay a premium for the condition of Zero-Deforestation is identified as a barrier since it implies that the producer (especially the small one) must assume most of the costs associated with the protection of forests.		EB

IB Indicates that the barriers are external to the company and involve the participation of multiple actors.

EB Indicates barriers identified within the company

2.3.5 Opportunities for overcoming barriers and challenges

TABLE 9. Palm oil chain: main opportunities

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
1. Corporate Goals	i. Design a unique template for the implementation of goals (SMART-Goals) that can be used by the companies in the value chain.	• TFA
	ii. Design and publish a document that specifies corporate goals and strategies focused on Zero-Deforestation based on the results of IDEAM's analysis of its supply chain.	• Company, advisory panel Zero-Deforestation Agreement, IDEAM
2. Deforestation risk assessment	iii. Define conceptual and methodological guidelines for the analysis of risks associated with deforestation.	• Technical Secretary Agreement, Zero-Deforestation Agreement Advisory Panels, TFA
	iv. Provide access to risk analysis tools that are complementary to IDEAM's own evaluation.of the national deforestation baseline for palm oil cultivation (e.g. GIS). v. Evaluate the possibility of other satellite monitoring systems that complement IDEAM's information in a more precise and regular manner.	• IDEAM/Government of Colombia • TFA
3. Procurement	vi. Provide guidelines and tools for supply chain mapping	• TFA
4. Trazabilidad	vii. Facilitate access to available tools for traceability viii. Make traceability pilots that are scalable ix. Strengthen the characterization of the supply chain by collecting complementary data such as: age of the plantations and cadastral property identification. This data provides additional tools for identifying the possible deforestation of plantation sites, which is particularly difficult to do in the case of small producers. x. Inclusion of international buyers in the commitments for the Zero-Deforestation Agreement to integrate compliance with corporate no deforestation, no peat and no exploitation policies (NDPE).	• TFA, Government of Colombia • Donors • Companies
5. MRV	xi. Design standardized protocols and parameters for monitoring and reporting the progress of signatory companies.	• Technical Secretary Agreement, Zero-Deforestation Agreement Advisory Panels, TFA
6. Traceability	xii. Establish public-private partnerships for technical assistance along the value chain xiii. Include activities to promote the adoption of best practices by suppliers in relation to the protection of forests as part of the work carried out by the technical assistance unit.	• Government of Colombia • Donors • Companies

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
7. Comunicación y sensibilización	xiv. Strategies and campaigns to raise consumer awareness in shops and supermarkets xv. Design of a communication strategy and awareness raising with suppliers regarding the value of forest protection (e.g. provision of ecosystem services and its relation to the sustainability of palm growing).	• TFA, retailers, and settlement support groups • Companies
8. Financieros	xvi. Design innovative financial mechanisms that take into account and value the condition of Zero-Deforestation.	• Financial Sector (e.g. FINAGRO, Commercial Banking) • Company
	xvii. Establish strategic partnerships for the financial inclusion of small producers.	• Companies • MADR • Donors

2.3.6 Conclusions

Response to internal business barriers. Extractora del Sur de Casanare, with its support team, can make progress with the definition of specific goals for Zero-Deforestation, in addition to advanced management practices in environmental and social areas. To carry out these actions the company needs access to the results of the evaluation by IDEAM in which the location of all fruit suppliers is analyzed for the construction of the national deforestation baseline for palm oil crops. Due to the limited georeferencing available (just one coordinate instead of complete polygons) for small and medium-scale suppliers, it is necessary for the company collect complementary data (i.e. age of the plantations, cadastral property identification) that can provide more data to assess the Zero-Deforestation status of suppliers. The agreement should define general guidelines on organizational/corporate goals, mapping of the supply chain and risk analysis in relation to deforestation so that they can be adopted by signatory companies.

Response to external factors for the companies when complying with the agreement. Although it has been identified that different palm oil buyers, both international and national, are making increasing demands on the traceability of the supply chain and its Zero-Deforestation status, staff from Extractora del Sur de Casanare stated that a barrier for their work was the additional costs associated with the monitoring of suppliers. There is a need for economic incentives for both companies and palm growers (especially small and medium-sized growers) to monitor Zero-Deforestation. As the conditions placed by purchasing companies on products sold by the extractors become more extensive, it is necessary to have financial and economic instruments that contribute to and/or recognize the actions and costs associated with the protection of forests.

Opportunity to make progress with the establishment of a traceability system. The palm oil chain in Colombia has made progress in terms of traceability in aspects such as product quality and the adoption of sustainability standards criteria including RSPO or ISCC. Consolidating a traceability system in relation to deforestation risks implies additional challenges in terms of georeferencing and identification of forest cover outside of the land used by the companies (extraction activities and the company's own plantations). It should also be noted that there are installed capacities in terms of relationships and support provided to suppliers through technical assistance, as well as an advanced roadmap for the adoption of complementary environmental criteria for palm tree production.

Companies in the sector provide awareness-raising, training and technical assistance to their suppliers. This is an example of the installed capacity that is available in the sector. Through the provision of technical support services, companies provide support to their suppliers in agronomic, environmental and social area. Although Extractora del Sur de Casanare identifies that there are operational limitations for the verification / monitoring of deforestation by its suppliers, the company's work can include raising awareness about the value of protecting forests (i.e. ecosystem services and benefits for the sustainability of palm crops) and promoting best practices.

Funding programs should be directed at facilitating financial access for small-scale farmers. The financial inclusion of rural producers is one of the biggest challenges for the Zero-Deforestation Agreement. It identifies the need to design a new financial inclusion strategy, which takes into account the needs of all stakeholders and particularly small farmers in areas that are at risk from deforestation.

Another significant challenge is land ownership: Verification of land ownership facilitates clarity of the boundaries of each provider's plantation, which allows for an accurate polygon survey. In the case of suppliers who do not have the paperwork to certify ownership of their land, this work begins to become difficult, especially if the supplier is in a dispute with another landowner regarding the borders of their property.

2.4 COCOA CHAIN

2.4.1 Description and challenges of Zero-Deforestation

The cocoa value chain consists of five (5) main links associated with the production, marketing, processing and consumption of cocoa (see Figure 10).

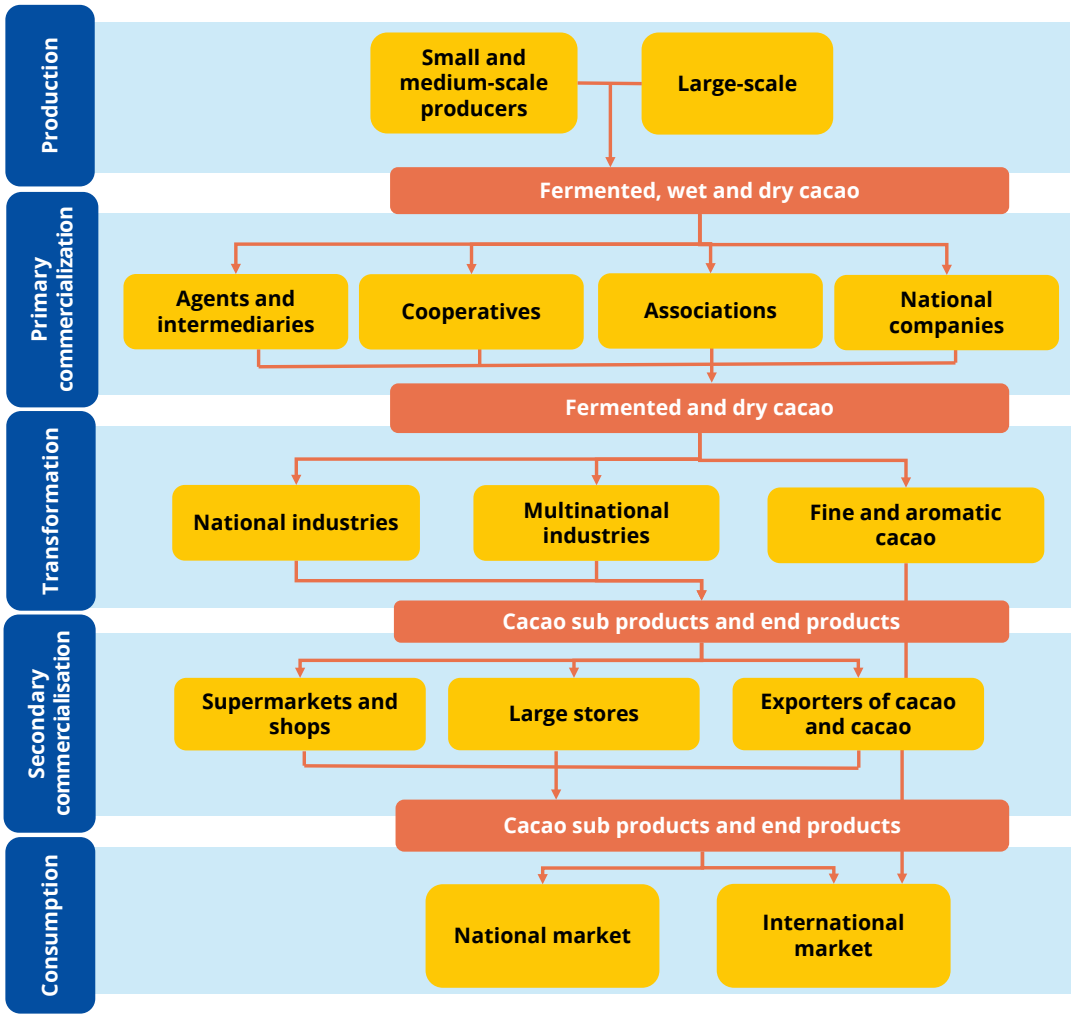

FIGURA 10. La cadena de valor de cocoa
Fuente: Climate Focus

1) The first link is primary production: 95% of the cocoa produced in Colombia comes from small and medium-sized farms. The remaining 5% is produced on large-scale farms. [32] Following the harvest, the cocoa bean is fermented; fermentation is a process that in most cases is carried out on the farms themselves, although a smaller amount of cocoa is fermented in fermentation centers operated by associations or companies.

2) The fermented cocoa is transported to collection centers that are either independently operated or belong to the National Federation of Cocoa Growers (Fedecacao), associations and cooperatives. Casa Luker and the Nutresa Group operate purchasing centers.[33] Companies usually do their own fermentation to homogenize the process and ensure quality.

3) The third link in the cocoa value chain is transformation. The country's large companies - Casa Luker and Grupo Nutresa - which buy around 80% of the cocoa produced in Colombia have a significant influence on this process.[34] The transformation process is also carried out by small and medium-sized companies and the artisanal cocoa industry.

4) As part of the fourth link in the cocoa value chain, the finished products are sold at a national level by supermarkets, department stores and local shops. At the same time, investors and export companies buy dry cocoa to export to international markets, primarily Europe and North America.

5) The consumption of finished products from the national industry generally takes place within Colombia through the drinking of hot chocolate.

2.4.2 Main Commitmentss

In recognition of the potential role of the cocoa sector in Colombia, a public-private initiative was launched to promote zero-deforestation production models that would protect and restore forests in the cocoa supply chain and promote better livelihoods for producers while consolidating peace. This initiative was titled the *"Cocoa, Forests & Peace"* (*Cocoa Bosques y Paz*) Agreement. Partly inspired by the experience of the Cocoa & Forest Initiative (CFI [35]) that was initially implemented in West Africa, Table 7 summarizes the commitments that form the CF&P agreement, specifically in Priority Area 1 of the agreement: *"Cocoa for Forest Protection and Restoration"*.[36] The commitments were classified into 8 action areas that were used for the analysis of barriers and opportunities.

TABLE 10. Cocoa chain: main commitments from the private sector

ACTION AREAS	COMMITMENTS
1. Corporate Goals	Establish corporate goals aimed at eliminating deforestation.
2. Deforestation risk assessment	Conduct an analysis to identify suppliers in situations of risk associated with deforestation after 2010.
3. Procurement	Establish zero-deforestation procurement policies.
4. Traceability	Establish traceability systems that research the history, location and trajectory of cocoa products throughout the value chain.
5. MRV	Adopt monitoring, reporting and verification systems.
6. Technical assistance	Provide technical support to producers who are in areas at risk of deforestation.

[32] Abbott et al., Analysis of the Cocoa Production Chain in Colombia.
[33] *Idem*
[34] *Idem*
[35] https://www.worldcocoafoundation.org/initiative/cocoa-forests-initiative/
[36] The Cocoa, Forests and Peace initiative has 3 priority areas. This study focuses only on Priority Area 1: "Cocoa for forest protection and restoration".

ACTION AREAS	COMMITMENTS
7. Communication and awareness raising	Implement communication strategies to raise awareness among consumers and producers about the benefits and value of zero-deforestation cocoa and chocolate products.
8. Financial	Work to include criteria for deforestation-free production in economic, financial and fiscal instruments and incentives.

2.4.3 Mariana Cocoa: a private company's role in the chain and implementation of the agreement

Mariana Cocoa Export S.A. S (Mariana Cocoa) was established in the department of Santander in 2003. The company has direct participation in the marketing and transformation links in the cocoa value chain and indirectly participates in the production link. I**n order to strengthen its commercial portfolio, contribute to sustainable development, and protect natural ecosystems, Mariana Cocoa joined the CF&P initiative in November 2019.** Mariana Cocoa actively participates in the spaces provided for dialogue and contributes new ideas within the framework of the agreement. The company has shown a willingness to comply with the commitments of the agreement and is providing all of the resources it can by drawing on its business experience to make progress with the fulfillment of the goals. Mariana Cocoa's business model includes two main areas:

- **Export:** Purchase of cocoa beans for export.
- **Model of transformation:** Transformation of cocoa "Bean-to-bar". The company has a chocolate bar brand called "Carlota Chocolate".

In addition, Mariana Cocoa has provided services to development programs financed by international cooperation agencies for the transfer of technology, technical training and the establishment of quality control processes for cocoa producers.

Mariana Cocoa is not a primary producer of cocoa, but plays an important role in the primary link of the value chainr. The company has been a key partner of international cooperation programs, such as "Colombia Responds" and "Territories of Opportunity" financed by USAID[37] and the "Environments for Peace" program financed by UNDP[38] in which Mariana Cocoa provided technical advisory services, rural outreach and training to small and medium producers. In addition, the company has been working with the Colombian Agricultural Research Corporation (Agrosavia), the National Learning Service (SENA) and the Industrial University of Santander (UIS) to strengthen the training of technical staff who are to become cocoa analysis and quality control specialists. In one of their most prominent projects, ATA Guaviare, Mariana Cocoa provided training to a group of young people who today provide technical advisory services to the cocoa industry (see Box 5).

ATA GUAVIARE PROGRAM

Mariana Cocoa promoted the formation of the technical assistance company ATA Guaviare S.A.S. In the process they trained young people on topics including:

- Integrated crop management
- Integrated quality management
- Post-harvest management
- Cocoa tasting

Following this process, the young entrepreneurs decided to create the company that began operations in early 2020.

BOX 5. ATA-Guaviare Program

Mariana Cocoa exports cocoa beans to different international markets, both from Colombia directly and from Ecuador through an associated company. In Colombia, Mariana Cocoa buys cocoa beans in the Santander region. Since the bulk of its operation is concentrated on exporting cocoa, the company has high quality control standards that include the traceability of the bean as far as possible, ensuring the quality of the product. Mariana Cocoa carries out the traceability and monitoring of the cocoa collected with the help of the ERP[39] system. This ensures quality and involves geo-referenced property characterization at the farms of direct suppliers, who represent 70% of the company's supply chain. This information is contrasted during the invoicing process with the ERP software to

[37] United States Agency for Development
[38] United Nations Development Program
[39] ERP system: Enterprise Resource Planning software

facilitate a double check. However, in the case of indirect suppliers - which represent 30% of its supply chain – that include associations, cooperatives and intermediaries, the company does not achieve complete traceability of the cocoa to its origin.

Because of its participation in different links in the value chain, Mariana Cocoa plays an important role in promoting the zero-deforestation value chain. As a buyer, exporter and processor, Mariana Cocoa's experience illustrates some of the barriers and opportunities for complying with the CF&P agreement.

2.4.4 Implementation barriers

Mariana Cocoa has expressed its willingness to implement the commitments from the agreement, however the company has faced barriers and bottlenecks in the process that are presented in the table below.

TABLE 11. Cocoa chain: main barriers and bottlenecks

AREA OF ACTION	BARRIERS, BOTTLENECKS, OR GAPS	DESCRIPTION	INTERNAL	EXTERNAL
1. Corporate goals	i. Companies have not defined and published goals and/or corporate policies to eliminate deforestation from their supply chains	Companies are willing to move forward with the agreement, and are still in the process of setting goals that will serve as the basis for their activities to address deforestation. Currently, there is no guidance to support companies in setting, implementing and monitoring corporate goals to eliminate deforestation.	IB	EB
2. Deforestation risk assessment	ii. Absence of deforestation baseline	To date, there is no deforestation baseline for the cocoa value chain.		EB
	iii. There is no comprehensive analysis of risks associated with deforestation	Risk analyses are a crucial tool for identifying and understanding activities that can drive deforestation. To date there is no useful and concrete support on methods and tools to carry out these analyses of risks associated with deforestation.	IB	EB
3. Procurement	iv. Complete map of the supply chain is missing	The complete mapping of the supply chain is fundamental for establishing goals and Zero-Deforestation policies. To date, there are no useful and easy-to-apply methodologies or tools for companies to map their value chain. Cocoa buying companies carry out a partial mapping of their suppliers that is usually done biannually for direct suppliers. General data is collected in this process and in some cases georeferencing is included, but the use of polygons to map the farms is not used. This characterization is not currently undertaken for indirect suppliers.	IB	
	v. Lack of guidelines to implement sustainable procurement/ Zero-Deforestation protocols.	The current supply policies for cocoa buying companies, including Mariana Cocoa, primarily focus on ensuring the quality of the bean. However, the companies do not have specific guidelines for incorporating non-deforestation criteria into their purchasing protocols. It is not clear what parameters should be included.		EB
	vi. Lack of guidelines for the establishment of forest conservation and restoration agreements.	To date, no guidelines have been defined for establishing conservation and restoration agreements that would allow primary producers to restore areas where deforestation has occurred after 2011. This barrier also limits progress in establishing cocoa systems through which primary producers can access economic incentives.		EB

AREA OF ACTION	BARRIERS, BOTTLENECKS, OR GAPS	DESCRIPTION	INTERNAL	EXTERNAL
4. Traceability	vii. Internal traceability systems in early stages of development.	While ERP systems are a good start, they do not yet allow for the certification of the zero-deforestation condition for both direct and indirect suppliers. Small and medium sized companies require support to ensure full product traceability. To date they do not have tools that are easy to access and use. Companies in the sector are unaware of methods and tools to carry out product traceability from origin to final consumption and have been limited to focusing on the traceability of products from indirect suppliers.	IB	EB
5. MRV	viii. Absence of guidelines for the establishment of a system for monitoring, reporting and verification of non-deforestation.	The CF&P agreement does not have guidelines on consolidated information sources for the establishment and operation of a monitoring system, including key indicators and reporting frequency. This systemically limits progress for the design and implementation of monitoring systems within companies.		EB
	ix. Absence of monitoring systems.	Companies do not have a monitoring system for deforestation	IB	
6. Technical assistance	x. Absence of training programs for non-deforestation.	There are possibilities for technical advice in relation to productivity, quality control and agronomic management, but support is required on issues associated with climate change, and non-deforestation.	IB	EB
	xi. Limited technical assistance coverage.	Limited possibility to access, implement and provide continuity to technical assistance and rural outreach programs. Mariana Cocoa has provided technical advisory services for international cooperation programs, however, the company does not have the capacity to provide frequent assistance to all of her providers.	IB	EB
7. Communication and awareness	xii. Absence of a communication strategy on the value and benefits of zero-deforestation cocoa products and chocolate.	Although work has been carried out to position "Fine or Flavor Cocoa" (Fedecacao), there are still no coordinated efforts to highlight the benefits of non-deforestation and land restoration in the productive sector. This would position Colombian Cocoa as a zero-deforestation product in the market.	IB	EB
8. Financial	xiii. Limited economic incentives for the adoption of best practices by primary producers.	There are few economic incentives for primary producers to adopt forest conservation practices, restoration practices and agroforestry systems.		EB
	xiv. Limited access to financial services.	Small and medium enterprises and producers require support from government financial institutions as they find it difficult to access loans from the private sector.		EB

IB Indica que las barreras son externas a la empresa e involucran la participación de múltiples actores.

EB Indica que barreras fueron identificadas al interior de la empresa

2.4.5 Opportunities to overcome barriers and challenges

Table 12 presents some opportunities to overcome the identified barriers, which to date have experienced limited progress with implementing the CF&P agreement.

TABLE 12. Cocoa chain: main opportunities

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
1. Corporate goals	i. Design a single template for the implementation of goals (SMART-Goals) that can be used by all companies in the same way.	• TFA • Agreement
	ii. Publish a corporate document specifying goals and strategies for addressing deforestation in the supply chain.	• Companies
2. Deforestation risk assessment	iii. Define a deforestation baseline.	• IDEAM
	iv. Define conceptual and methodological guidelines for the analysis of risks associated with deforestation.	• CF&P Agreement • TFA • Entities supporting the agreement and signatory companies
	v. Facilitate access to Deforestation risk assessment tools. (i.e. GIS, deforestation baselines, etc.).	• IDEAM • CF&P Agreement • Entities supporting the agreement and signatory companies
	vi. Conduct Deforestation risk assessment associated with deforestation in the supply chain.	• Companies
3. Procurement	vii. Perform a characterization of all suppliers, including polygon surveys.	• Companies
	viii. Facilitate access to tools and guidelines for the complete mapping of the supply chain, specifically with indirect suppliers.	• CF&P Agreement • TFA • Entities supporting the agreement and signatory companies
	ix. Define the conceptual and methodological guidelines for the incorporation of non-deforestation criteria in supply policies.	• TFA • CF&P Agreement
	x. Design a basic summary of the required tasks based on the guidelines from the zero-deforestation agreement.	• TFA • Government of Colombia • Companies Primary producers • Entities supporting the agreement and signatory companies
4. Traceability	xi. Facilitate access to tools and technical training so that companies can establish a product traceability system. (e.g. Trace).	• Government of Colombia - IDEAM • European Forest Institute's Trace Initiative • TFA • Public-Private Partnerships

ACTION AREAS	OPPORTUNITIES	KEY ACTORS
4. Traceability	xii. Develop a unified national traceability system through the SMByC platform.	• Government of Colombia
5. MRV	xiii. Designing standardized protocols and parameters for monitoring and reporting the progress of signatory companies.	• TFA, • CF&P monitoring group • Companies
	xiv. Implement monitoring system.	• Companies
6. Technical assistance	xv. Public-private partnerships for the provision of technical assistance along the chain	• Companies • Ministry of Agriculture and Rural Development (Ministry of Agriculture) and of Environment and Sustainable Development - Minambiente) • Public-Private Partnerships • Entities supporting the agreement and signatory companies • International Cooperation Agencies
	xvi. Develop digital tools to provide virtual technical assistance services.	• Government of Colombia • Ministry of Information and Communication Technologies (MinTIC) • Companies • Entities supporting the agreement and signatory companies
7. Communication and awareness	xvii. Develop a communication and awareness strategy on the value and benefits of Zero-Deforestation cocoa products that are aimed at industry, consumers, producers and local, regional, national and international government entities.	• TFA, CF&P Agreement • Fedecacao • Companies • Retailers
	xviii. Promote zero-deforestation cocoa consumption	• Government of Colombia • Fedecacao • Companies. • Entities supporting the agreement and signatory companies
8. Financial	xix. Develop and consolidate financial instruments and mechanisms that use climate financing sources and encourage the adoption of best practices by primary producers to promote the conservation and/or restoration of forests and degraded areas.	• Companies • Financial sector • Government of Colombia - Finagro • International Cooperation

2.4.6 Conclusions

The international position of Colombian cocoa can benefit from progress with the implementation of the CF&P agreement. The strict requirements from the specialty niche markets include the establishment of a system to verify that cocoa grown in the country is Zero-Deforestation and deserves access to differentiated markets.

The CF&P agreement has the advantage of having - and being able to report on - important progress made in public-private cooperation in the cocoa sector in Ghana and Ivory Coast as part of the Cocoa and Forests Initiative (CFI). IFC signatory companies, with support **from the World Cocoa Foundation (WCF) and its technical partners, have developed key tools for collaborative progress.** These include a common Action Plan template that provides clear guidance for the definition of corporate goals by ensuring that they are comparable, as well as a template for annual reporting on established goals[40]. It is important to decide on own targets to address deforestation. The establishment of these targets would benefit from a single guide or template similar to what was implemented in the CFI agreement. This supports and guides stakeholders on how to formulate shared corporate targets and designing strategies to achieve them.

Technical recommendations are also being developed for the design and implementation of agroforestry systems, tools for risk analysis and the creation of regional maps of cocoa plantations. Facilitating organizations such as TFA will be able to support the development of tools as part of the CF&P agreement by drawing on the lessons learned from the CFI.

Although cocoa is not a driver of deforestation in Colombia, it is important to carry out a deforestation risk assessment associated with deforestation.[41] The analyses are important because they facilitate the understanding of critical aspects and timely action to mitigate current and future risks. The actors in the chain can make progress in this analysis at an individual level, however, they would benefit from the support and collaboration of other actors. Facilitating organizations and support entities can help define methodological guidelines and facilitate access to tools for carrying out risk analyses.

Opportunities to overcome external barriers require the collective participation of multiple stakeholders. Companies can make progress with the full mapping of their supply chain, including direct and indirect suppliers (fundamental input for the establishment of supply policies) and monitoring and traceability systems. Support from facilitating organizations could focus on defining guidelines for the establishment of Zero-Deforestation policies, monitoring systems and protocols. Additionally, these organizations can help the companies access methods and tools to ensure the traceability of their products.

The inclusion of small producers in the process is essential for fulfilling the commitments of the agreement. To achieve this objective, it is important to have necessary technical assistance and Zero-Deforestation business development services. This work will define technological models for agroforestry production and financial instruments to support these processes, which could be implemented through public-private partnerships. As with the other value chains, it is important to promote the consumption of zero-deforestation cocoa in the national market.

[40] Example from Cargill, accessed at: https://www.cargill.com/doc/1432137722021/cocoa-and-forest-initiative-ccc-action-plan.pdf
[41] Harry, Castro-Llanos, and Castro-Nunez, "Colombian Cocoa, Forests and Peace Initiative."

3. RECOMMENDATIONS AND NEXT STEPS

The commitment to achieve zero net deforestation by 2030 in the beef, milk, palm oil and cocoa value chains are goals that, although ambitious, are possible to achieve as long as companies make significant efforts. Coordinated actions between companies and other actors within the framework of the agreements are necessary to achieve this goal. The companies and other actors that have signed the zero-deforestation agreements are implementing actions and have shown a willingness to achieve these commitments, however there is a strong need for support from different areas of the public sector and other national and international entities.

Some of the concrete actions that need to be taken include:

1) **Corporate goals:** Companies in all of the value chains included in this study have a short-term opportunity to define goals (SMART[42]) and corporate policies associated with eliminating deforestation from their supply chains and to make them public so that the wider community begins to recognize the problem of deforestation and possible solutions. Companies can count on the support of TFA and other actors (companies) that have signed the agreements to achieve uniformly designed goals.

2) **Deforestation risk assessment:** these are indispensable for identifying the risks of deforestation in companies' supply chains and taking measures to mitigate these risks. Risk analyses require a key effort from companies in all four value chains included in this study. To carry out this risk analysis it is important to have key inputs and information that only the Colombian government (IDEAM) can provide, such as the deforestation baseline for each of the value chains. The palm oil value chain has made progress, but lacks up to date information, level of detail and open access to identify compatibility with business risk analyses. One year after signing the agreement, the baseline for the other chains included in this study have not yet been prepared. In addition, for the analysis of the risk of deforestation for each company in each chain, there is a clear opportunity for TFA and international cooperation agencies to offer support in the form of preparing guides and other tools for uniform risk analysis, which are cost-effective for signatory companies and their suppliers.

3) **Procurement:** : A complete and accurate mapping of the supply chain is essential to be able to say that a company and its suppliers are meeting their Zero-Deforestation goals. Companies have the responsibility to carry out the characterization of all of their direct and indirect suppliers, including conducting polygon surveys and georeferencing sites. It is simpler for companies to map their direct supply chain, but when it comes to mapping their indirect suppliers, they require support from TFA, joint actions with other companies in similar situations and the organizations, donors and international cooperation that are involved in the agreement. The support entities can provide tools and technical training for this purpose, paying special attention to identifying indirect suppliers and facilitating the establishment of productive areas. A clear mapping of the supply chain, along with a traceability system (see Section 4) are key elements to promote transparency and trust between the sector and its potential investors.

4) **Traceability:** a traceability system is essential for verifying the Zero-Deforestation status of products entering the market and companies in the sector. Establishing this system requires support from the public sector and other entities. Tracing products at the farm level requires the effective participation of

[42] **SMART** Specific: well-defined, clear and unambiguous; **Measurable**: with specific criteria to measures progress towards the goal; **Achievable**: attainable and not impossible to achieve; **Realistic**: within reach, realistic and relevant to your purpose; **Timely**: with a clearly defined timeline, including a start date and an end date.

multiple actors in the chain who see the value of participation. It is important that tracing does not represent a disincentive (e.g. by requiring the provision of confidential commercial information). The design of traceability systems must be included in purchasing policies, which in turn must be tied to corporate Zero-Deforestation goals. The Colombian government could facilitate the implementation of such a system through incentives such as subsidies or public investment to reduce the costs of identifying a product from "origin to consumer". The design and operation of a robust traceability system requires the collaboration of public-private partnerships. These include actors in the same value chain that share Zero-Deforestation goals and are supported by the government through suitable incentives as well as by TFA, other support entities and international donors. The first step could be to pilot a traceability system for each value chain and each region/jurisdiction.

5) **Monitoring (MRV):** Monitoring systems are of similar importance since, without them, it is not possible to verify claims about a "Zero-Deforestation" product. Companies are responsible for monitoring the targets they have established as a corporate policy to address Zero-Deforestation in their value chains. In order to monitor their progress and the commitments made in the zero-deforestation agreements, it is useful that these goals are defined in a uniform manner with other members of the value chain using the same information sources and tools. In this sense, companies could be supported by TFA, other entities involved in the agreement and international cooperation agencies to produce practical and easy to use guides for the design of a monitoring system, the parameters that need to be monitored, the frequency required for monitoring and useful tools. The Colombian Government, through IDEAM, will be able to provide official updated information with a frequency and level of detail similar to the baseline. Donors and TFA could facilitate the use of satellite tools for future monitoring of the baseline. The design of unified roadmaps for members of each value chain, accompanied by monitoring protocols with uniform parameters and instructions on the frequency of monitoring will be useful for companies and their suppliers. These efforts must be accounted for by the government in its official monitoring of deforestation and the country's compliance with its Nationally Determined Contribution (NDC). Finally, civil society is responsible for following up with both companies and the government on the fulfilment of their commitments and also have an important role contributing to the design and implementation of the tools.

6) **Technical assistance:** in the context of Zero-Deforestation Agreements, technical assistance focuses on improving productivity and discouraging the expansion of the agricultural frontier. Strengthening local capacities and increasing technical knowledge is necessary not just to increase and improve production, but also to raise awareness of the risks associated with production and the negative effects of deforestation and climate change. The scope of technical assistance services in Colombia's rural areas is limited. This means that this task must be carried out for each value chain and region in the country through different types of public-private partnerships in which the company, the public sector, and international cooperation agencies coordinate Zero-Deforestation efforts adjusted to feasibility and market criteria.

7) **Communication and awareness raising:** awareness raising through communication strategies is important, both for the productive sector and demand. For the productive sector, communication strategies about the importance of non-deforestation in the value chains can be associated with technical assistance programs aimed at improving productivity and cost-benefit analyses that demonstrate the profitability of implementing best agricultural and livestock practices. To promote demand for these products, it is essential to be able to share the positive experiences of producers who have already begun to take steps towards Zero-Deforestation production with end users of the cocoa. It is important that there is support for publicizing Zero-Deforestation products with the processing industry, distributors and retail chains. Colombia has the potential to differentiate itself internationally as a source of Zero-Deforestation products. Communication about Zero-Deforestation communication can be an activity carried out by companies and the Colombian government in collaboration with TFA and other support entities that have signed agreements with the financial support of donors and international cooperation.

8) **Financial aspects:** There are two opportunities regarding the financial aspects that could be addressed to achieve the fulfillment of Zero-Deforestation Agreements: (i) improve access to (formal) financial services for primary producers and (ii) design and implement innovative financial instruments that - adjusted to the productive cycles of each value chain in accordance with the type of producer and the region - include incentives that can be provided by the Colombian government and climate financing schemes through jurisdictional approaches for low-carbon development such as the Biocarbon Fund in the Colombian Orinoquia and Visión Amazonía in the Amazon region. Zero-Deforestation agreements are congruent with these programs (and others that will be designed in the future) and work needs to be jointly carried out to implement practical and permanent solutions that eliminate deforestation in Colombia through solutions involving public-private partnerships.

Table 13 summarizes the different barriers and opportunities for each specific value chain, as well as the barriers and opportunities that are shared by all chains and actors. The table specifies the key actors and the resources required to take advantage of the opportunities that lead to overcoming barriers and preventing compliance with zero-deforestation agreements.

TABLE 13. Barriers and opportunities

AREA OF ACTION	BARRIER	PRIORITY	COMPLEXITY	OPPORTUNITY	VALUE CHAIN TO WHICH IT APPLIES	VALUE CHAIN TO WHICH IT APPLIES	RESOURCE TYPE (human, technological, financial)
Corporate Goals	I. Companies have not defined and published targets and/or corporate policies to eliminate deforestation from their supply chains	Medium	Low	Design a template for the implementation of goals (SMART Goals) that can be used by the signatory companies.	Beef Milk Cocoa Palm	• Companies • TFA • Agreements	Human
		High	Low	Publish corporate goals and strategies for addressing deforestation in the supply chain.	Beef Milk Cocoa Palm	• Companies	Human
Deforestation risk assessment	II. Absence of a deforestation baseline and specific parameters	High	Medium	Define deforestation baselines for each value chain at an appropriate level of detail.	Beef Milk Cocoa	• IDEAM	Human and Technological
	III. There is no comprehensive analysis of risks associated with deforestation	High	Low	Define conceptual and methodological guidelines for the analysis of risks associated with deforestation.	Beef Milk Cocoa Palm	• TFA • Agreements • Entities supporting the agreement and signatory companies	Human
		Medium	Low	Facilitate access to risk analysis tools. (e.g. GIS, deforestation baselines, etc.)	Beef Milk Cocoa Palm	• IDEAM • TFA • International cooperation • IDTFA	Technological and Financial
		High	Low	Carry out risk analyses associated with deforestation in the supply chain.	Beef Milk Cocoa Palm	• Companies • Entities supporting the agreement and signatory companies	Human Financial

AREA OF ACTION	BARRIER	PRIORITY	COMPLEXITY	OPPORTUNITY	VALUE CHAIN TO WHICH IT APPLIES	VALUE CHAIN TO WHICH IT APPLIES	RESOURCE TYPE (human, technological, financial)
Procurement	IV. Complete map of the supply chain is missing	High	Medium	Undertake a characterization of all suppliers, including polygon surveys.	Beef Milk Cocoa Palm	• Companies	Human Financial
		High	Low	Facilitate access to tools and guidelines for the complete mapping of the supply chain, specifically associated with indirect suppliers.	Beef Milk Cocoa Palm	• TFA • Entities supporting the agreement and signatory companies • International cooperation agencies	Technology
	V. Lack of guidelines for implementing protocols on sustainable purchasing/Zero-Deforestation	High	Low	Define the conceptual and methodological guidelines for the incorporation of Zero-Deforestation criteria in procurement policies.	Palm Cocoa Beef	• Companies • TFA • Entities supporting the agreement and signatory companies	Human
	VI. Lack of guidelines for the establishment of forest conservation and restoration agreements	Medium	Low	Design a basic list of tasks that producers need to carry out to fulfill the conservation agreement in accordance with the guidelines of the Zero-Deforestation Agreement.	Palm Milk Beef	• TFA • Government of Colombia • Entities supporting the agreement and signatory companies • Companies • Suppliers	Human
Traceability	VII. Absence of a national animal traceability system	Medium	High	Develop a unified national traceability system through the SMByC platform.	Beef Milk	• Government of Colombia	Human Financial Technological
	VIII. Internal traceability systems are in the early stages of development	High	High	Facilitate access to tools and technical training for companies to establish systems that ensure the traceability of their products.	Beef Milk Cocoa	• Companies • TFA • Entities supporting the agreement and signatory companies	Technological Human
		Medium	Medium	Establish a pilot for Zero-Deforestation product traceability and evaluate its potential for scaling up.	Beef Milk Cocoa	• TFA • Company • Entities supporting the agreement and signatory companies	Financial
MRV	IX. Absence of guidelines for the establishment of a monitoring, reporting andVerification mechanism fornon-deforestation	High	Low	Design standardized protocols and parameters for monitoring and reporting on the progress of the signatory companies.	Beef Milk Cocoa Palm	• TFA • Entities supporting the agreement and signatory companies • Company • Government • PPP	Human
	X. Absence of monitoring systems	Medium	High	Implement monitoring systems.	Beef Milk Cocoa Palm	• Companies	Human

AREA OF ACTION	BARRIER	PRIORITY	COMPLEXITY	OPPORTUNITY	VALUE CHAIN TO WHICH IT APPLIES	VALUE CHAIN TO WHICH IT APPLIES	RESOURCE TYPE (human, technological, financial)
Technical assistance	XI. Absence of training programs on Zero-Deforestation	High	Medium	Offer training programs to companies and suppliers on topics associated with zero deforestation, ecological restoration and climate change to complement existing conservation criteria in different areas.	Beef Cocoa Milk Palm	• MADR and MADS • TFA • PPP • International Cooperation Agencies	Human Financial
		High	Medium	Strengthen technical assistance plans for the improvement of quality and productivity using zero deforestation business models.	Beef Milk Cocoa Palm	• TFA • ICA • International Cooperation Agencies • Entities supporting the agreement and signatory companies	Human Financial
		High	Medium	Training on costs and benefits associated with the implementation of best practices through concrete examples.	Beef	• TFA, Agreement • Companies • Government of Colombia • Entities supporting the agreement and signatory companies	
	XII. Limited technical assistance coverage	Medium	High	Support technical training programs for suppliers through signatory companies and the provision of digital tools that expand the scope of the training.	Beef Milk Cocoa Palm	• Companies • MADR • Guilds • International Cooperation Agencies • TFA	Human Financial
		Medium	High	Public-private partnerships for the provision of technical assistance in the value chains.	Cocoa Palm Milk	• MADR • TFA, • Agreements • Companies	Human Financial
Communication and awareness	XIII. Absence of a communication strategy on the value and benefits of Zero-Deforestation products.	Medium	High	Develop a communication and awareness strategy about the value and benefits of zero deforestation products.	Beef Milk Cocoa Palm	• TFA, • Companies • Government of Colombia • Entities supporting the agreement and signatory companies	Human Financial
		Medium	High	Promote the consumption of zero deforestation products and position Colombia as a zero deforestation producer in international markets.	Beef Milk Cocoa	• TFA • Guilds • Companies • Entities supporting the agreement and signatory companies	Human Financial

AREA OF ACTION	BARRIER	PRIORITY	COMPLEXITY	OPPORTUNITY	VALUE CHAIN TO WHICH IT APPLIES	VALUE CHAIN TO WHICH IT APPLIES	RESOURCE TYPE (human, technological, financial)
Financial	XIV. Limited economic incentives for the adoption of best practices by primary producers	High	Medium	Develop and consolidate financial instruments and mechanisms using climate funding sources that encourage the adoption of best practices by primary producers, environmental conservation and/or the restoration of forests and degraded areas.	Beef Milk Cocoa Palm	• Companies • Government of Colombia - Finagro • Financial sector • International Cooperation Agencies	Financial
		High	Medium	Focus government investment and agricultural promotion on sustainable practices aimed at eliminating deforestation.	Beef Milk	• Government of Colombia • FEDEGAN and NFG	Financial
		Low	High	Provide elements for a comprehensive cost-benefit analysis of Zero-Deforestation production systems.	Beef	• Finagro • Universities • Entities supporting the agreement and signatory companies	Financial
	XV. High levels of risk for small-scale agricultural producers.	Medium	High	Establish strategic partnerships for the financial inclusion of small-scale producers.	Palm Milk	• Companies • Financial sector • Government of Colombia - Finagro • International Cooperation Agencies	Financial and Human

ANNEX. BARRIER ASSESSMENT FRAMEWORK

For the analysis of the barriers, an analysis framework was designed that includes 5 steps (Figure 11). To facilitate the analysis of the information, a template was designed for the evaluation of barriers and opportunities (see Table 14).

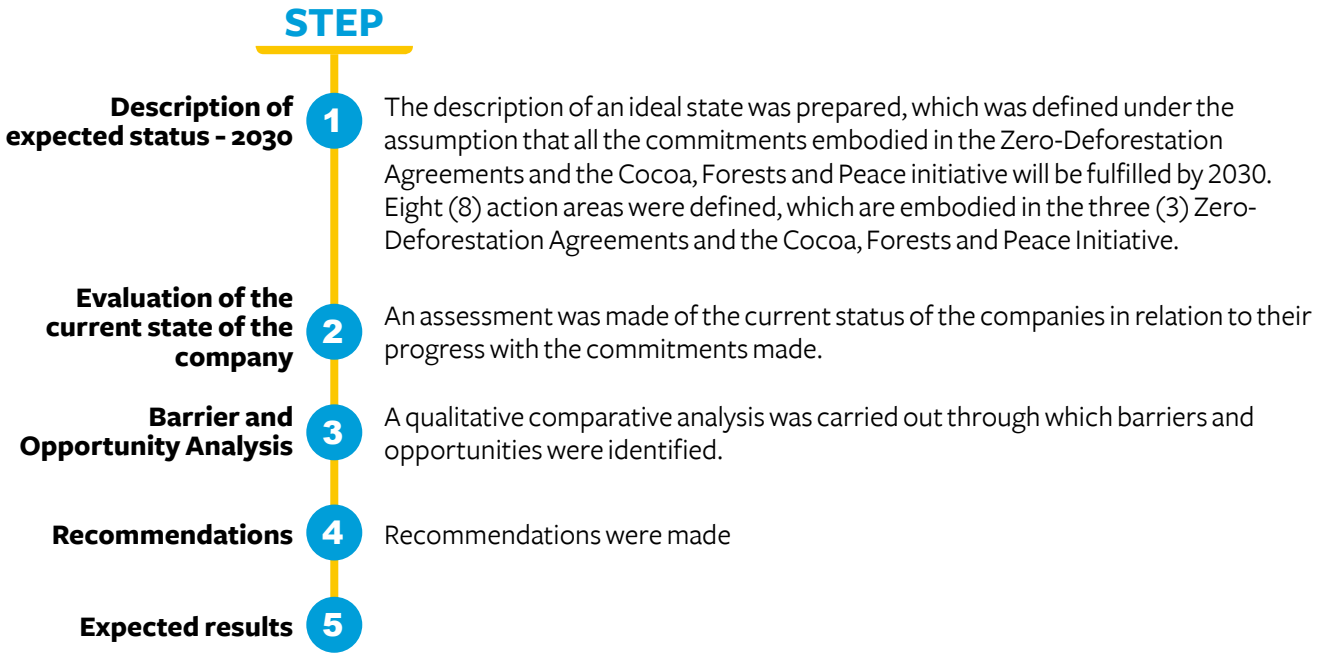

FIGURE 11. Framework for barrier assessment

TABLE 14. Template 1: Framework for the evaluation of barriers

	1. DESCRIBE THE IDEAL STATE BASED ON COMMITMENTS	2. DESCRIBE THE CURRENT STATE OF THE COMPANY'S BENCHMARKS BASED ON THE INTERVIEWS					3.CONDUCT A GAP ANALYSIS BETWEEN THE BENCHMARKS AND THE COMPANY'S CURRENT STATE, IDENTIFYING BARRIERS AND OPPORTUNITIES		4. MAKE RECOMMENDATIONS TO OVERCOME THESE BARRIERS
	Commitments	Evaluation				Description	Barrier or bottle-neck	Opportunities	Recommendations
		Yes	M	No	T				Essential
Prioritized Areas 1	Commitment 1				0				
	Commitment 2								