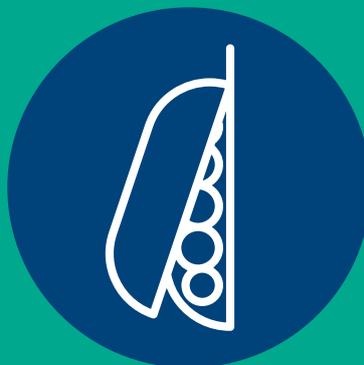
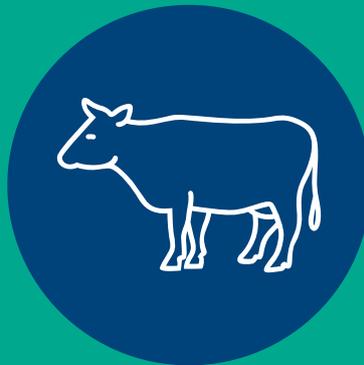
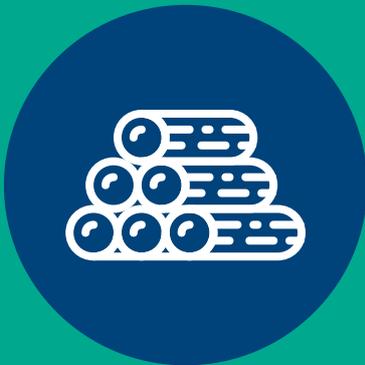


CENTER FOR SUSTAINABILITY STUDIES AT THE
GETULIO VARGAS FOUNDATION (GVces / FGV-EAESP)

Natural capital risks and opportunities for the financial sector

First edition – February 2017



FEBRABAN

Brazilian Federation of Banks

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GETULIO VARGAS FOUNDATION (GVces / FGV-EAESP)

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List of acronyms

ASEAN - Association of South East Asian Nations

HCV – High Conservation Value

BEI – Banking Environment Initiative

CDP – Carbon Disclosure Project

CERFLOR – Brazilian Forest Certification Program

CGF – Consumer Goods Forum

CRA – Environmental Reserve Quotas

FLEGT – Forest Law Enforcement, Governance and Trade

FSB – Financial Stability Board

FSC – Forest Stewardship Council

GHG – Greenhouse Gases

GRSB – Global Roundtable for Sustainable Beef

GTPS – Brazilian Roundtable for Sustainable Livestock

GTS – Soy Working Group

INPE – National Institute for Space Research

ISCC – International Sustainability and Carbon Certification

MRV – Measurement, Reporting, and Verification

PEFC – Programme for the Endorsement of Forest Certification

GDP – Gross Domestic Product

PRODES – Amazon Deforestation Monitoring Project via satellite

RSPO – Roundtable on Sustainable Palm Oil

RTRS – Roundtable on Responsible Soy

SAN – Sustainable Agriculture Network

NFS – National Financial System

UNESCO – United Nations Educational, Scientific, and Cultural Organization

Important concepts for reading this study

Natural Capital and Ecosystems Services¹: Society and the economy depend on natural capital and the proper functioning of services provided by ecosystems. Natural capital is the stock of environmental assets or resources provided by nature (renewable and non-renewable), which combine to produce a stream of benefits for society, known as ecosystem services². Natural capital thus includes resources such as water, air, soil, minerals, forests, biodiversity, and ecosystem services, such as pollination and the regulation of air quality, essential for humans. From an economic point of view, all natural resources and environmental processes provide goods and services, or enable and form part of production chains.

Zero deforestation³: Indicates that there should be no conversion of native vegetation, not even as permitted by law.

Zero net deforestation⁴: Acknowledges that some forest loss could be offset by forest restoration, provided that net forest and carbon density is maintained, and that natural forests are not converted into planted forests (for commercial and non-restorative ends).

Legal deforestation: The Forest Code (Law no. 12,651, May 25th, 2012) establishes what legal deforestation is in the Brazilian territory and, while establishing compensation mechanisms, also allows in certain cases for the conversion of native vegetation in areas which are not Legal Reserves (RL) or Areas of Permanent Preservation (APP), without the need for compensation.

¹ (UNEP FI & PRI, 2011)

² Ecosystem services are divided into four categories: i) provision of goods, such as grain, water, wood; ii) regulation, which are benefits obtained indirectly from nature, such as climate regulation and erosion control; iii) cultural, relating to the intangible benefits of human contact with ecosystems, such as recreation and scenic beauty; and iv) support or habitat, such as nutrient cycling, which enables conditions for the survival of species and preservation of genetic diversity. (GNF and DUH, 2015); (IIRC, 2013); (Daly & Joshua, 2010); (TEEB, 2010).

³ WWF Positioning at the 9th Conference of the Parties to the Biodiversity Framework Convention in 2008.

⁴ (WWF, 2008)

Preface

FEBRABAN and the GVces have formed a partnership, now in its third cycle of activities, in order to analyse the possible options for leveraging the transition to a Green Economy in Brazil, via resources intermediated by the National Financial System (NFS). As a result of the first year of this partnership a report was published in April of 2015 with the results of three complementary studies on the subject: the volume of allocated resources by the Financial Sector of the Green Economy, the institutional and regulatory framework for the National Financial System, and the relation between finance and sustainability in two sectors of the economy and two topics: agribusiness, renewable energy, biodiversity, and cities.

In the second cycle of this partnership, during 2015, a further three studies were developed: (i) a discussion on the opportunities and limits for the development of a Green Bonds market in Brazil, following international experiences; (ii) the opportunities and limitations in configuring Environmental Reserve Quotas (CRAs) as securities; and (iii) improvement of the methodology and quantification of the volume of resources intermediated by the National Financial System for the Green Economy and in sectors whose activities potentially cause socio-environmental impact.

During the third period of cooperation between FEBRABAN and GVces, in 2016, another three studies were produced. The first one seeks to make proposals for action of the National Financial System in the agendas of sustainable buildings and energy efficiency. The second study is about the identification of viable financing models for forest restoration as set forth in the New Forest Code (Law no. 12,651, May 25th, 2012). The third, which is the subject of this report, is about the risks and opportunities of financial operations in sectors with intensive use of natural capital. Its objectives are to identify trends, progress, and challenges in the control of deforestation in soy, livestock, forestry, and palm oil production chains, highlighting the risks and opportunities for operations in these sectors by the banking sector, with the aim of conciliating the strengthening of agriculture and livestock with criteria for socio-environmental responsibility.

The study was prepared by means of: i) bibliographic review, in particular on instruments for identification, measurement, and management of risk associated with natural capital for financial institutions and; ii) semi-structured interviews with 13 companies which are operational in Brazil and participate in palm oil, soy, livestock, and forest chains.

Chapter 1 presents the context of the study and important concepts for understanding the report. Chapter 2 discusses risks associated with the degradation of natural capital, particularly deforestation. It also presents potential implications for the financial sector (especially regarding its credit activities) of deforestation risk to its business portfolio. Based on interviews with representatives from 13 companies involved in the soy, livestock, forest, and palm oil chains, Chapter 3 maps their practices regarding deforestation and discusses the impact for financial institutions of practices reported by the companies interviewed. Chapter 4 summarizes the findings and Chapter 5 provides bibliographical references.



1. Context

Brazil is among the ten largest economies in the world, and is the second largest supplier of food and agricultural products. Brazil has been singled out as the supplier with the greatest potential for supplying a large part of the world's demand for food, which will grow by 70% by 2050⁵.

However, agriculture and livestock are activities which exert intense pressure on natural capital. Globally, agriculture accounts for 70% of total water consumption, and 30% of total energy consumption⁶. According to worldwide projections for the next decades, there will be a 10% increase in water extraction for irrigation by 2050⁷ and a 50% increase in global energy consumption by 2035⁸.

In Brazil, deforestation is an important factor in the degradation of natural capital. The Brazilian Institute of Geography and Statistics (2016) or IBGE, has reported an acceleration in the changes of land cover and land use, indicating that between 2012 and 2014 close to 4.6% of Brazilian territory underwent some type of alteration of its cover, a rate slightly above the 3.5% registered in the period 2010 to 2012⁹. Among the causes of alterations of cover and land use are: the expansion of agriculture and managed pastures, forestry, and artificial areas, as well as deforestation not only in areas of forest cover but also natural grasslands and areas with natural non-arboreal vegetation predominant in the Cerrado, Catinga, and Pampa biomes. Forests underwent a reduction of 0.8% in the period 2012-2014, which when compared to the rate of 1.8% between 2010 and 2012 points to a deceleration of this process. However, the reduction of natural grasslands has intensified, increasing from 7.8% (2010-2012) to 9.4% (2012-2014). There is thus a trend of expansion of agriculture and livestock preferentially into areas of natural grasslands. From 2012 to 2014, areas of forestry had an even higher growth rate: 23.8%, compared with 4.6% in the previous period (2010 to 2012). Areas of forestry grew especially on grasslands, natural and managed¹⁰.

On the other hand, the agricultural sector and the forest industry have the potential to contribute effectively to the conservation and restoration of natural capital through the use of good production and management practices which preserve soil quality, avoiding erosion and silting, sequestering carbon, and conserving water resources and biodiversity.

⁵ (OECD-FAO, 2015)

⁶ (UN Water, 2014)

⁷ (FAO, 2011)

⁸ (FAO, 2014)

⁹ (IBGE, 2016)

¹⁰ (IBGE, 2016)

Agribusiness is a key sector of the Brazilian economy, representing 21.46% of GDP¹¹ and 46.2% of Brazilian exports in 2015¹². However, its competitiveness may be harmed if not properly managed. This is because socio-environmental criteria can turn into non-tariff constraints, just as the implementation of carbon pricing mechanisms can have an impact on this sector. Also, growth in deforestation increases the difficulties in fulfilling Brazil's commitments to the global climate agreement¹³ and increases costs, as it reduces the time for adaptation of other economy sectors. In terms of opportunities, the differentials of Brazilian agribusiness need to be recognized and valued as an "environmental quality brand" in various markets.

As such, given the connection with natural capital on behalf of clients of financial institutions and the relevance of agribusiness for the country's economy, the issue requires the attention and monitoring of the NFS. Leaving natural capital out of risk analysis procedures could result, for example, in legal, reputational, credit, and market problems.

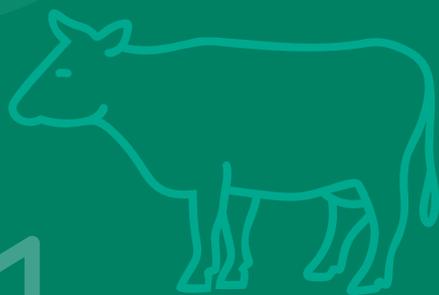
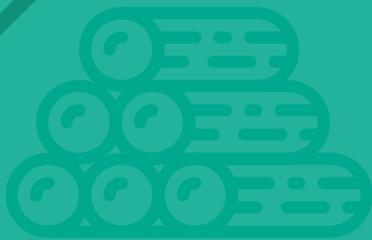
In this context, the objectives of this study are:

- ✓ **To identify trends, advances, and challenges for deforestation control in the soy, livestock, and forest products sectors;**
- ✓ **To propose improvement of socio-environmental risk analysis for financing these areas;**
- ✓ **To provide information so that the NFS may position itself before national and international demands relating to the reduction of deforestation;**
- ✓ **To identify possible opportunities for the National Financial System which conciliate the strengthening of the exporting agroindustry with socio-environmental responsibility criteria.**

¹¹ (CEPEA, 2016)

¹² (MAPA, 2016)

¹³ The Paris Agreement was approved by 195 countries in December 2015, during the 21st Conference of the Parties to the UNFCCC (United Nations Framework Convention on Climate Change). Its goal is to limit global warming by up to 2 °C, with efforts not to exceed 1.5 °C by the end of this century, through legally binding contributions from all parties to the Convention. The agreement was ratified by the Brazilian government in September 2016, in which, based on 2005, a commitment was made to reduce greenhouse gas emissions (GHG) by 37% by 2025, and 43% by 2030.



2. Risks and opportunities associated with the degradation of natural capital

Natural capital has been identified as one of the six types of capital relevant to the operation and value creation of an organization, the others being: financial, manufactured, intellectual, human, and social and relationship capital¹⁴. However, economic value is not usually associated with natural capital in the way it is with other forms of capital. As such, natural capital risks are rarely measured or featured in national accounts, or the accounting statements of companies or financial institutions.

Almost 60% of ecosystem services have been degraded over the last 50 years¹⁵ and forecast scenarios indicate that climate change and water scarcity will be the main impacts of changes to our ecosystems in the next 40 years,¹⁶ significantly affecting land use, food access, and water resources.¹⁷ The degradation of natural capital can therefore harm economic production by interrupting the flow of ecosystem services such as power, water, and raw materials that sustain the economy and provide essential goods and services¹⁸.

The degradation of natural capital differs from the depreciation of manufactured capital in three ways: i) it is frequently irreversible, or requires long-term recovery; ii) it is irreplaceable, since the restoration of ecosystems is unlikely to bring back the previous genetic diversity; and iii) ecosystems may collapse abruptly, as their tipping point is usually unknown. These three factors highlight the risks related to the use of natural capital which are often neglected¹⁹.

According to the World Economic Forum (The Global Risks Report 2016 - 11th edition , 2016), among the most alarming global risks, 5 (five) were directly related to natural capital, these being: i) failure in mitigating and adapting to climate change; ii) water crisis; iii) loss of biodiversity and collapse of ecosystems; iv) extreme weather events; v) natural disasters.²⁰ In addition, both the impact and the frequency of other risks ranked among the top 10 are also potentially affected by changes in natural capital such as large-scale involuntary migration and energy price shocks.

¹⁴ (Integrated Reporting, 2013)

¹⁵ (World Economic Forum, 2010)

¹⁶ (MA, 2005)

¹⁷ (UNEP FI & PRI, 2011)

¹⁸ (WBCSD, Meridian institute and WRI, 2008) e (OECD, 2001)

¹⁹ (UNU-IHDP and UNEP, 2012)

²⁰ (World Economic Forum, 2016)

There are direct and indirect links between the risks associated with the degradation of natural capital and the financial sector. While financial institutions have a direct impact on natural capital (such as energy and water consumption), the most important natural capital risks and opportunities for financial institutions lie in their financing and investment activities.²¹ Problems related to the degradation of natural capital for the borrower may have consequences for financial institutions, such as for example, impairing the ability of financed companies to pay back their loans, or generating loss of value for shareholders.

If on the one hand aspects linked to natural capital can represent risks for the operations of financial institutions, on the other, markets related to the maintenance and conservation of natural capital can be business opportunities for the productive sector and financial institutions concerned with the issue.²² Table 1 describes some of the risks and opportunities for financial institutions involving aspects related to natural capital, which have been listed based on the general categorization of risks for financial institutions. Other more specific risk categories, such as climate risks, can be found in the recommendations of the Financial Stability Board²³ (FSB), and are not described here as they fall outside the scope of this report.

Table 1 – Risks and opportunities associated with natural capital for financial institutions and their definitions

Physical Risks

PHYSICAL: Impacts on liabilities and the value of financial assets, which may be acute (due to extreme events) or chronic (more frequent and intense events).

OPERATIONAL: possibility of losses resulting from failure, deficiency, or inadequacy of internal processes, people, and systems, or external events.

Non-physical Risks

LEGAL: Loss resulting from the inadequacy or deficiency of contracts signed by the institution, as well as penalties due to non-compliance with legal provisions and damages for third parties arising from the activities developed by the institution.

REPUTATIONAL: possibility of losses arising from negative perception about the institution by clients, counterparties, shareholders, investors, government agencies, community or supervisors that may adversely affect the sustainability of the business.

MARKET RELATED: possibility of financial or economic losses arising from fluctuation in market values of positions held by the Institution.

²¹ (GNF and DUH, 2015)

²² (GNF and DUH, 2015)

²³ The "Recommendations of the Task Force on Climate-related Financial Disclosures" report, from December 2016, describes two main categories of climate risk: risks related to the transition to a low carbon economy (policy and legal, technology, markets, and reputation), and risks related to the physical impacts of climate change (acute and chronic) (Financial Stability Board, 2016).

CREDIT RELATED: possibility of the occurrence of losses associated with the failure of the borrower or counterparty to meet their respective financial obligations under agreed terms, the devaluation of a credit agreement due to the deterioration of the borrower's risk classification, the reduction of earnings or remuneration, advantages granted in renegotiation, and recovery costs.

RELATED TO CREDIT CONCENTRATION: possibility of credit losses arising from significant exposure to a counterparty, a risk factor, or groups of related counterparties through common characteristics.

LIQUIDITY RELATED: the occurrence of imbalances between marketable assets and liabilities - mismatches between payments and receipts - which may affect the institution's ability to pay, taking into account the different currencies and settlement periods of its rights and obligations.

STRATEGY RELATED: the possibility of losses arising from adverse changes in the business environment, or inadequate assumptions in decision-making.

SYSTEMIC: Possibility of losses due to financial difficulties of one or more institutions that cause substantial damages to others, or rupture in the normal operational conduct of the National Financial System.

Opportunities

Commercial benefits for businesses, investors, and economies stemming from innovative policy, technologies, and markets for a Green economy encompassing natural capital management strategies. The financial impacts can be increased productivity of natural resources, increase in efficiency and production, reduction of costs, identification of new flows of financial resources, demand for new products, potential for improvement in market liquidity through greater transparency and market prices, acceleration of technological innovation, lower damage to assets through increased investment in natural capital management and resilient infrastructure.

Source: (Banco do Brasil S.A., 2016), (Banco do Brasil S.A., s/d) and (Task Force on Climate-related Financial Disclosures, 2016)

To deal with risks associated with the degradation of natural capital, tools were developed for the financial sector, with two different focuses: i) analysis of the financial institution's own processes vis-à-vis natural capital risks (e.g.: Natural Capital Self-Assessment Tool); and ii) natural capital risk analysis of their clients (e.g.: Water Risk Filter). The tools are applicable to any sector of the economy or specific elements of natural capital (e.g.: Natural Capital Self-Assessment Tool) or they may be specific, such as for water (e.g.: Aqua Gauge Tool) or for soft commodities (e.g.: Soft Commodity Forest-risk Assessment Tool). Appendix A lists and describes some of those tools.

In the case of Brazil, being a hugely diverse country with the second largest forest cover in the world, occupying 516 million hectares (Mha)²⁴ or 60% of the national territory, deforestation represents a significant risk to the productive and financial sectors, but also offers important opportunities associated with natural capital.

In the Atlantic Forest biome, which since the colonization has undergone successive waves of deforestation caused by the extraction of 'pau-brasil' wood and the economic cycles of e.g. sugar cane, coffee, and gold, and where 72% of the Brazilian population currently resides, only 12.5% of forest remains in relation to what originally existed.²⁵ As for the Brazilian Amazon, approximately 15% (or 760 thousand km²) was deforested between 1976 and 2014, the equivalent to the territory of Chile or twice the territory of Japan. Between 2001 and 2012, the annual rate of deforestation dropped by 40% (from 37.8 thousand km² to 22.9 thousand km²) in Brazil as a whole and by 70% in the Brazilian Amazon²⁶. However, according to INPE data, the rate has increased again: from 2014 to 2015 there was a 24% increase in deforestation of the Amazon,²⁷ and from 2015 to 2016 a 29% increase.²⁸ The Cerrado biome is considered to be the new deforestation hotspot,²⁹ originally occupying 25% of the Brazilian territory, and which by 2011 was deforested by close to 48%.³⁰ As such, an economic activity in Brazil which has an intense connection with the exploitation of natural resources needs to be aware of the risks of deforestation in its supply chain.

Recognizing that the challenge of combatting illegal deforestation is still significant in Brazil, a commitment was made to bring deforestation down to zero in the Amazon by 2030 under the Paris Agreement. Decree no. 7,390 of 2010, which established the National Policy on Climate Change, set a target for 2020 consisting of an 85% reduction of annual deforestation rates in the Legal Amazon and 40% reduction for the Cerrado biome in relation to the verified average from 1996 to 2005. It should be noted that both the aforementioned commitments refer to the end of illegal deforestation. Brazil has not committed to "zero net deforestation" or "zero deforestation".

²⁴ (Serviço Florestal Brasileiro, 2013)

²⁵ (SOS Mata Atlântica, 2017)

²⁶ (Reddington, et al., 2015)

²⁷ (CCST/INPE, 2016)

²⁸ (Chiaretti, 2016)

²⁹ (Gibbs, 2015)

³⁰ (MMA e IBAMA, 2015)

The recognition of deforestation as a significant risk stimulated the productive sector and financial institutions to develop socio-environmental policies, participate and commit to global initiatives focused on risk management associated to natural capital and, more specifically, to deforestation. Voluntary initiatives have also emerged to contribute to the management of the risk of deforestation in sectors with a strong connection to financial capital. The next chapter presents some of the main initiatives focused on agricultural commodities.

Management of deforestation risk in chains linked to agricultural commodities

From the business point of view, the existence of deforestation throughout the supply chain may lead to: i) difficulty in accessing more demanding markets; ii) reputational problems; iii) restriction of access to natural resources due to more restrictive regulations, such as a reduction of water use grants or deforestation authorizations; and indirectly, iv) intensification of extreme events or other climate alterations with potential related economic losses (e.g.: a drought leading to crop failure).

There are stricter environmental requirements for certain products, especially in international markets. The European Union, for example, established the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan in 2003, which establishes measures to prevent imports of illegal Pulp and increase demand for forest products with responsible/sustainable³¹ management. The Netherlands imposed a 50% target for certified wood products on its market, and, given that 92% of pulp products used in the Netherlands are imported, the restriction is mainly on the exporting countries. As a result, in 2011 about 65% of pulp products available on the Dutch market were certified by the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) sustainability standards, with a growth of certified tropical forest products from 15% in 2008 to 39% in 2011.³²

Companies in the commodity production chain already recognize the reputational risk of being linked to deforestation as well as opportunities for increasing their sustainability initiatives and gaining a comparative advantage. About half of the companies which have published in CDP Forest³³ identified substantive reputational risks – such as activist campaigns – arising from deforestation associated with value chains of wood and pulp, livestock, or soy.³⁴

³¹ (EU FLEGT Facility, c2014)

³² (Ministry of Economic Affairs of the Kingdom of the Netherlands, 2014)

³³ The Carbon Disclosure Project (CDP) is a global environmental information reporting platform for companies, cities, states and regions that aims to make this information available for investor and buyer decision making. CDP Forest is the platform dedicated to deforestation, which collects information on the agricultural commodities responsible for much of the deforestation: soy, livestock, wood and palm oil. CDP Forest operates on behalf of 365 member investors, with \$22 trillion in assets, which seek to understand how companies are managing their exposures to deforestation risks.

³⁴ (CDP, 2015)

Initiatives and tools for deforestation risk management in agricultural and forestry chains: sustainability standards, commitments and other voluntary initiatives

Certification and sustainability standards are tools which enable consumers and other stakeholders to identify good social and environmental practices in the process of producing certain goods, including the various aspects relating to natural capital and ecosystem services³⁵. Compliance with these standards is generally verified and audited by an independent third party.

Among the potential benefits of sustainability certification are the access and / or maintenance of certain markets, optimization of the use of inputs, greater resilience to climate change, improvement of corporate management and the possibility of obtaining a price differential in the product through the good practices adopted³⁶. The certifications can add a price premium of around US\$3.33 per ton in the case of Palm Oil certified by the Roundtable on Sustainable Palm Oil (RSPO) standard; US\$1.80 per cubic meter of FSC certified wood; And about \$3 per ton of soybeans certified by the Roundtable on Responsible Soy (RTRS).³⁷

Commitments to control deforestation are market commitments signed by sectorial entities and their associates, civil society organizations and government bodies, to eliminate deforestation (zero deforestation) in certain production chains.

Examples of these commitments in Brazil are the so-called “Soy Moratorium” and the “Public Commitment of Livestock Operations”, which contributed to reducing deforestation - about 70% between 2005 and 2014 - in the Brazilian Amazon, the focus region of these agreements. Such initiatives are relevant because, as attention is focused on deforestation from livestock and soybean production, lessons learned in the Amazon become relevant as a benchmark in the issue.³⁸

For the sectors under analysis, thirteen initiatives for the reduction of deforestation risk are listed in Table 2 and described in Appendix B.

³⁵ (Meybeck, 2013)

³⁶ (Muradian, 2005); (ecosSISTEMAS., 2013)

³⁷ (McCarthy, 2016)

³⁸ (McCarthy, 2016)

Table 2 – Sustainability certification standards and zero deforestation commitments for the livestock, soybean, pulp and palm oil sectors

Institution	Initiative	Commodity and value chain	Approach	Geographic coverage
ProTerra Foundation, 2006	Proterra Standard, Social Responsibility and Environmental Sustainability, Version 3.0, 2014	Agricultural sector	Certification Scheme	Global
Sustainable Agriculture Network (SAN), 1997	Sustainable Agriculture Standard, 2010	Agricultural sector	Certification Scheme	Global
Roundtable on Responsible Soy (RTRS), 2006	RTRS Standard for Responsible Soy Production, Version 2.0, 2013	Soy Production	Certification Scheme	Global
International Sustainability and Carbon certification (ISCC), 2010	ISCC Plus – Sustainability Requirements for the Production of Biomass, 2016,	Agricultural sector	Certification Scheme	Global
Soy Work Group (GTS), 2006	Soy Moratorium, updated in 2016	Soy	Commitment	Brazilian Amazon
Sustainable Agriculture Network (SAN), 1997	Standard for Sustainable Cattle Production Systems, 2010	Livestock	Certification Scheme	Global
Brazilian Roundtable for Sustainable Livestock (GTPS), 2007	GTPS Guide of Sustainable Livestock Indicators, final version for approval, 2016	Livestock	Indicators	Brazil

Institution	Initiative	Commodity and value chain	Approach	Geographic coverage
Multi-stakeholder Initiative (companies in the production chain and Greenpeace)	Public Commitment of Livestock Operations, 2009	Livestock	Commitment	Brazilian Amazon
Forest Stewardship Council (FSC), 1993	Principles and Criteria for Forest Stewardship, Version 4, 2002	Forest Sector	Certification Scheme	Global
Forest Stewardship Council (FSC), 1993	Harmonised Certification Bodies' Forest Stewardship Plantation Standard for the Federative Republic of Brazil V.1.1, 2014	Forest Sector	Certification Scheme	Brazil
Programme for the Endorsement of Forest Certification (PEFC), 1999	PEFC Sustainable Forest Management Requirements, PEFC ST 1003:2010	Forest Sector	Certification Scheme	Global, with national schemes
Brazilian Forest Certification Program (CERFLOR), 2002	NBR 14789 – Principles, criteria, and indicators for forest plantation, 2012	Forest Sector	Certification Scheme	Brazil, recognized by the PEFC
Roundtable on Sustainable Palm Oil (RSPO), 2005	RSPO Principles and Criteria for Sustainable Palm Oil Production, 2013	Palm Oil Production	Certification scheme	Global

Source: Elaborated by authors.

In addition to the certification schemes and commitments to reduce deforestation listed above, it is worth mentioning the Global Roundtable for Sustainable Beef (GRSB), established in 2012, which puts forth principles and criteria for the production of sustainable beef (Principles and Criteria for Sustainable Beef, 2014) which although not subject to certification, represent a management tool for livestock activities.

Although certification schemes are particularly effective for some commodities such as wood and palm oil, these standards as a whole cover only a small percentage of global agricultural commodity production. Some barriers to large-scale adoption of these instruments are the low demand for certified products from buyer markets, difficulty in adopting traceability systems for the certified product along the production chain, lack of coordination between the different production links, high transaction costs for small farmers, and the multiplicity of schemes.³⁹

In addition to sustainability certification standards and zero deforestation agreements, the **Consumer Goods Forum (CGF)** initiative seeks to draw attention to the risk of deforestation in agricultural chains.

Founded in 2009, the CGF is an association of over 400 companies distributed in 70 countries, with a combined participant turnover of EUR 2.5 trillion. In 2010, CGF companies **committed to zero net deforestation in their supply chain by 2020**. CGF signatories include 3M, INBEV, Cargill, Colgate Palmolive, Danone, Monsanto, Nestlé, Pepsico, P&G, Syngenta, Coca-Cola, Unilever, Amazon, Carrefour, Casino, Nike, and Wal-Mart, among others.

Another relevant initiative is the partnership between Ceres and PRI, announced during COP22, to combat deforestation driven by the growing production of beef, soybeans and pulp, with an initial focus on Latin America. Through a new group of investors, both organizations will support global institutional investment by pressing food and pulp companies to eliminate deforestation and address other related issues – such as forced labour and property rights disputes – from their supply chains. In the next two years, the group plans to map and develop a set of indicators to assess the purchase policies of companies in the beef, soy, and pulp sectors, and their impact on deforestation. Based on this mapping and the indicators developed, a benchmark of 50 to 60 companies will be conducted, and based on the results, the engagement of low-scoring companies - including through shareholder resolutions - will be undertaken to pressure them to adopt responsible purchasing policies. In addition, the group's engagement in public policy advocacy at the national and international levels is planned (Ceres, 2016).

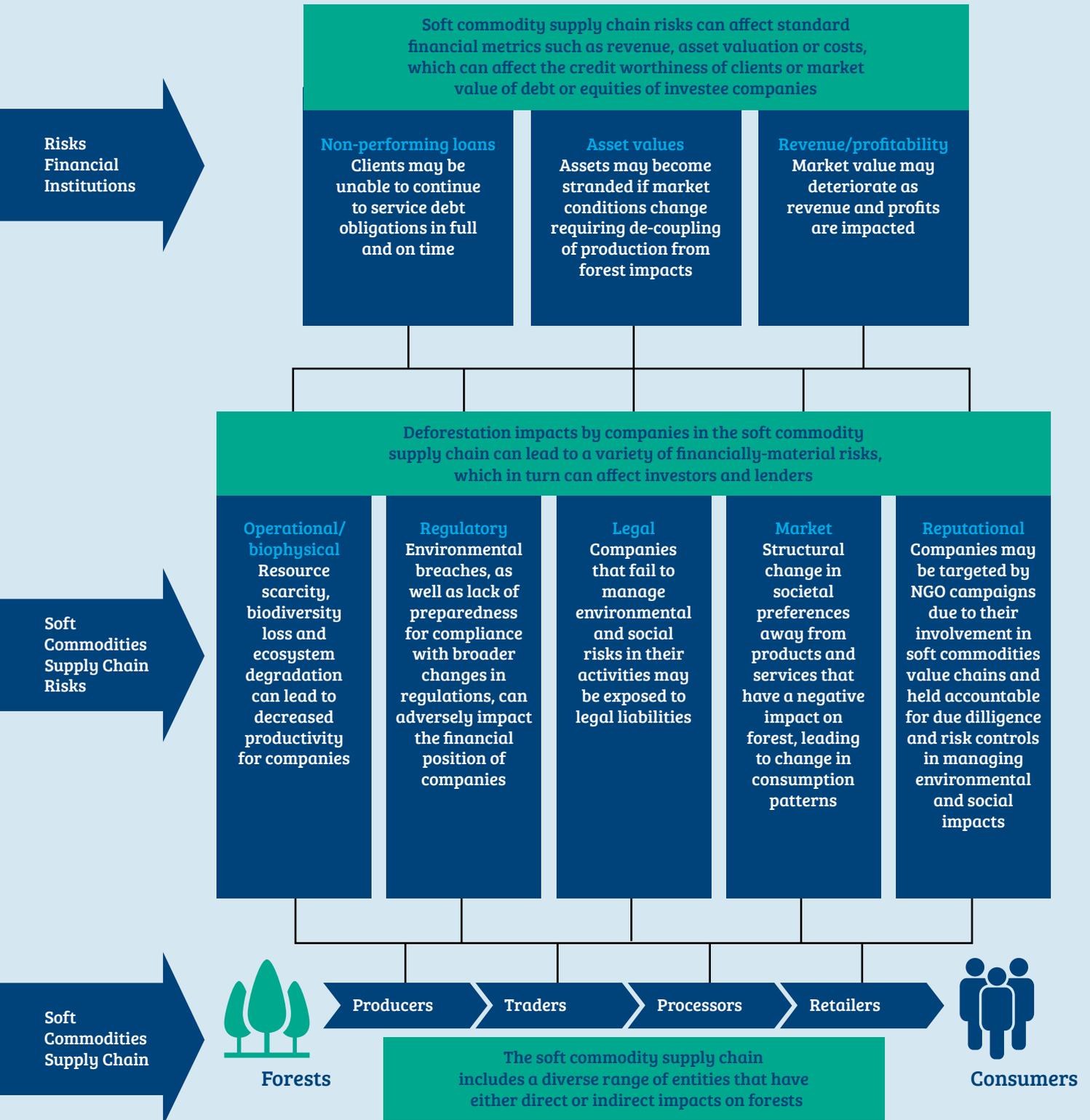
The financial sector and the deforestation risk

The exposure of clients to deforestation poses a risk for financial institutions and as such, banks have also developed policies to address this risk.

Figure 1 shows the natural capital risks related to deforestation for the agricultural and livestock commodity production chain and for the financial sector. Ecosystems provide goods (e.g. water and wood) for activities of the productive sector, including its entire supply chain, which interact with financial institutions. As such, risks posed to companies such as reputational damage due to impact on natural capital, or regulatory restrictions of access to natural capital may have consequences for financial institutions.

³⁹ (Bregman, et al., 2015)

Figure 1 – Natural Capital risks relating to deforestation



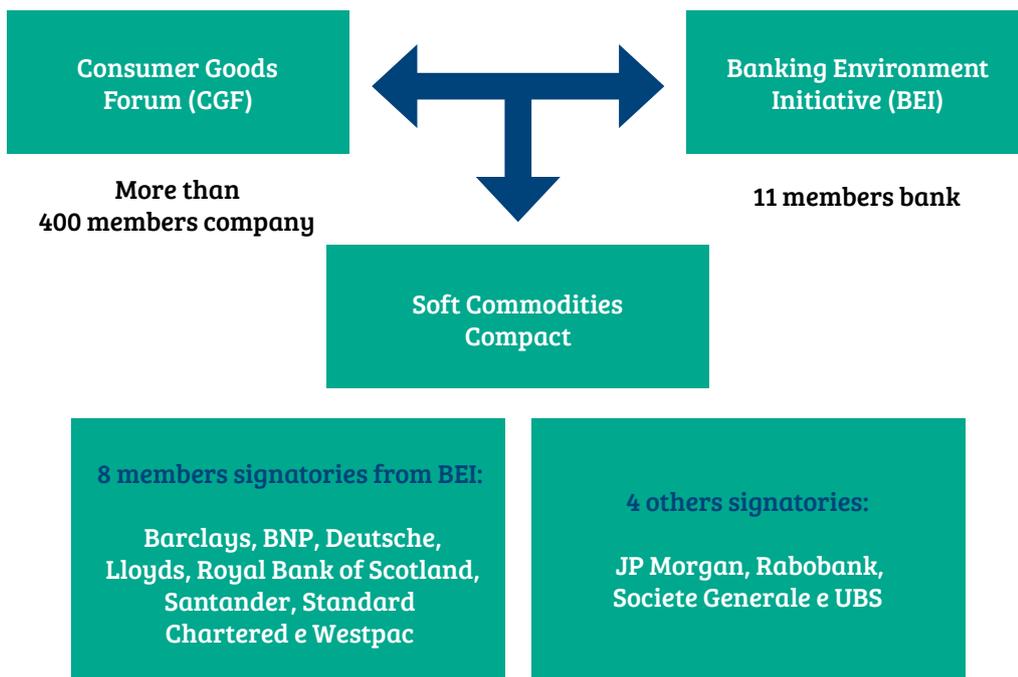
Source: (UNEP-FI, 2015).

The Banking Environment Initiative (BEI) was formed in 2010 to address the risk of deforestation and to lead the banking industry in directing capital towards socially and environmentally sustainable development.

The BEI is an initiative specific to the financial sector with 11 member banks: Barclays, BNP Paribas, BNY Mellon, Deutsche Bank, Goldman Sachs, Lloyds Banking Group, Northern Trust, Royal Bank of Scotland, Santander, Standard Chartered Bank, and Westpac.

In conjunction with the Consumer Goods Forum (CGF), the EIB has established a pact - the Soft Commodities Compact - to mobilize the banking sector to transform agricultural commodity supply chains. To help reach the CGF target, the **Compact aims to stimulate the banking sector in order to align banking practices with the CGF’s resolution of achieving zero net deforestation by 2020**. The figure below illustrates the relationship between the Consumer Goods Forum, Banking Environment Initiative and the Soft Commodities Compact:

Figure 2 – Consumer Goods Forum, Banking Environment Initiative and Soft Commodities Compact



Source: Elaborated by authors.

The signatory banks of the Soft Commodities Compact made two commitments:

✓ **To work together with CGF value chains to identify ways of financing the growth of palm oil, wood products, soybean, and beef markets, in accordance with the zero net deforestation requirements as defined by the CGF itself.⁴⁰**

✓ **To review the offer of banking services in light of the purchasing policies of CGF company members and align those services, where possible, so as to enforce more demanding market standards. The objective is to prioritize the establishment of internal mechanisms so that by 2020 all investment banking and corporate clients who include in their operations the “significant” production or processing of palm oil, pulp, or soy related products in markets with a “high risk of tropical deforestation” can verify, by means internationally accepted by the CGF, that those operations are consistent with zero net deforestation. The means of verification are, currently, the voluntary standards of sustainability certification in place for each commodity: Roundtable on Sustainable Palm Oil (RSPO), Forest Stewardship Council (FSC) or a national certification scheme linked to the Programme for the Endorsement of Forest Certification (PEFC), and Roundtable on Responsible Soy (RTRS).**

The Compact recognizes the need to expand commitments in the future to include other commodities, such as beef, as well as engaging other participants such as commodity traders in the international market.

Taking into account that the Compact’s commitments involve a review of the offer of banking services, this chapter presents an analysis of sectorial policies (soy, livestock, pulp & paper, and palm oil) of 12 member financial institutions of the Banking Environment Initiative (BEI) and/or signatories of the Soft Commodities Compact. In total, 23 socio-environmental policies dealing with soy, livestock, pulp & paper, and palm oil were analysed. Appendix C describes the methods and results of this analysis, as well as the definitions of the criteria listed below.

Livestock farming appears in 27% of the socio-environmental policies analysed, while other sectors of interest in this study appear in more than 60%. The pulp sector and the palm oil sector may be included in agricultural policies but more often have their own specific policies.

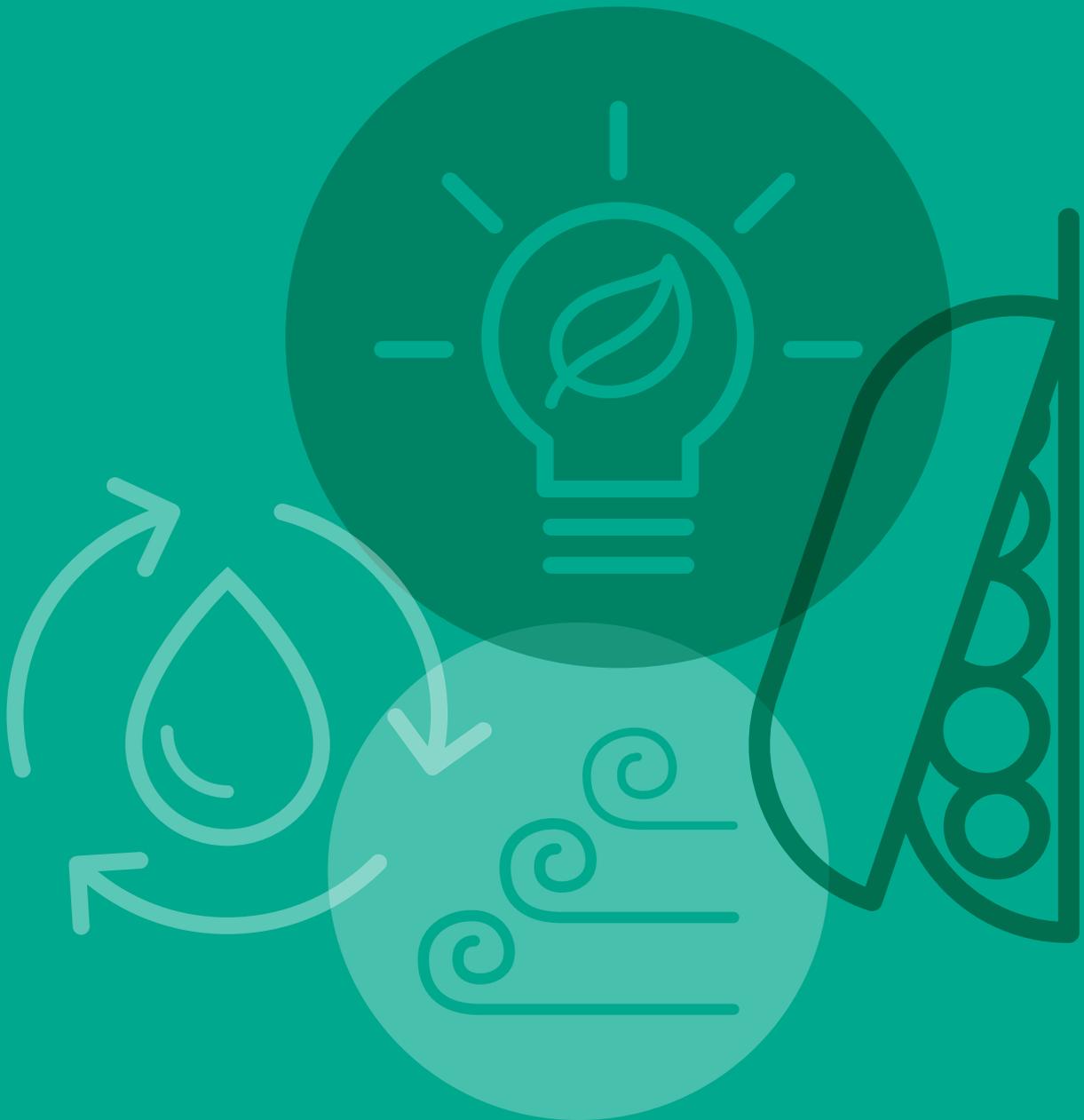
⁴⁰ (BEI, 2015)

Based on the mapping of socio-environmental policy requirements, criteria cited in 10 or more policies have been listed below:

- ✓ **Restriction of activities in areas of High Conservation Value (HCV), from May 2009 for soy (RTRS) and from October 2001 for palm oil (RTPO);**
- ✓ **Restriction of activities in areas classified as World Heritage sites (UNESCO). There are exceptions when “agreed with UNESCO and local government”;**
- ✓ **Restriction of activities in marshland areas listed in the Ramsar Convention. Some banks exempt activities which “do not significantly impact” this criterion;**
- ✓ **Restriction of activities in areas of primary forest and/or protected areas* referencing areas protected nationally and internationally. In Brazil these are considered as Conservation Units, Areas of Permanent Preservation, and Legal Reserves;**
- ✓ **Restriction on harvesting and trade in species listed in the Convention on International Trade in Endangered Species. This criterion appears in 13 policies and in 7 financial institutions, always as a prohibited activity;**
- ✓ **Recommendation and/or request for participation in sustainability initiatives and/or certifications. The certifications for the forest and pulp sectors, FSC and PEFC, are cited in 11 policies. Following them is the RSPO certification, cited in 10 policies, and the RTRS, mentioned in only 5 policies. The GRSB appears twice. In this criterion, levels of demand vary widely. Some banks require participation in initiatives such as GRSB which, as noted above, are not eligible for certification, but at the same time require FSC or PEFC certification seals. Others require a plan of action for the certification of all their activities, in some cases establishing 2020 as a deadline. As per the Soft Commodities Compact, it is common for there to be specific requirements made for “companies operating in markets with high risk of deforestation of tropical forest”, Brazil being invariably included in this category. The requirement for certification usually falls on producers and processors which operate in those regions, reinforcing the attention given by financial institutions to the risk of deforestation.**
- ✓ **Non-use of fires to clear areas appears both generally and in relation to marshland areas for commercial plantations, sometimes referring to the Zero Burning Policy by ASEAN**. In Brazil, the Law of Environmental Crimes no. 9065/98 classifies burning without an environmental agency license as arson.**

* Areas of primary forest are characterized as being of maximum local expression, with great biological diversity, with minimal effects from anthropic actions, to the point of not significantly affecting its original characteristics of structure and species (CONAMA, 1994). Protected areas: protected areas are land or sea areas specially dedicated to the protection and maintenance of biological diversity, and their associated natural and cultural resources, managed through legal instruments or other effective means (MMA, s/d).

** ASEAN - Association of South East Asian Nations.



3. Field research: how interviewed companies are managing the risk of deforestation

The field research aimed to identify the practices of the companies interviewed in relation to the control of deforestation risk in the palm oil, soybean, livestock, and pulp & paper value chains. Thirteen companies agreed to participate in the study: ADM, Amaggi, Cargill, Carrefour, Casino, Fibria, Grupo O Boticário, JBS, Klabin, Marfrig, McDonald's, Natura and Suzano Papel e Celulose. The companies were selected based on contacts and their previous relationship with GVces and/or banks participating in the Working Group created by FEBRABAN to follow the development of this study.

The interviews were guided by the questionnaire featured in Annex D, divided into four sectors (soy, livestock, forest products, and palm oil) and subsectors for livestock (cattle, beef, and livestock products) and forestry (pulp and paper). A company was considered as active in the value chain of a certain commodity if it sold more than R\$1 million in products of the sectors of interest in 2015.

Table 3 – Companies interviewed by sector of operation

	Operates in the value chain of sectors			
	Soy	Pulp and paper	Livestock	Palm oil
ADM	X			
Amaggi	X	X		
Arcos Dourados			X	
Cargill	X			X
Carrefour		X	X	
Fibria		X		
Grupo Boticário		X	X	X
GPA/ Casino		X	X	
JBS	X	X	X	
Klabin		X		
Marfrig			X	
Natura		X		X
Suzano		X		
TOTAL	4	9	6	3

Source: Elaborated by authors based on interviews.

Some of the interviewed companies are classified as belonging to sectors whose commodities are not part of their core business, but were considered operational in the chain due to consuming large volumes of those commodities. As such, pulp and paper feature the greatest number of interviewed companies involved in the chain, followed by livestock, which includes live cattle, beef, and products derived from cattle (tallow and leather).

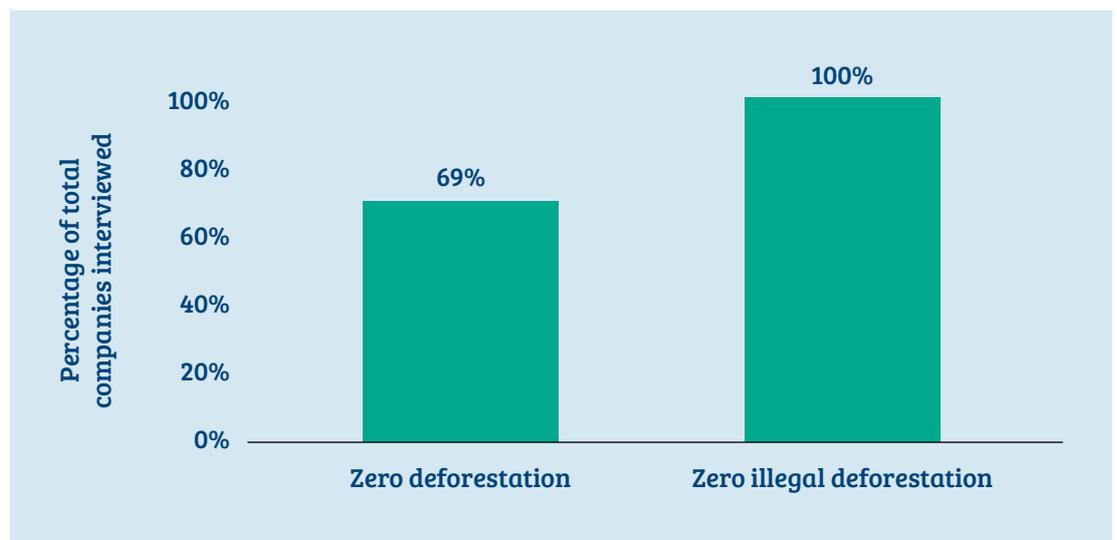
Four of the companies interviewed are participants in the soybean chain, among them soybean meal consumers and large global market traders. Palm oil features as an input in the activities of three of the companies interviewed in this sector, however none of them effectively are producers of this commodity.

Three of the companies interviewed are members of the Consumer Goods Forum (CGF), all of them foreign companies: Cargill, Carrefour, and GPA/Casino.

Summary of interviews

The companies interviewed mentioned commitments to **zero deforestation** and **zero illegal deforestation**. **Zero net deforestation** was not identified as a commitment of the interviewed companies as some of them claimed it was a challenge to assess this commitment when taking into account the difficulties in monitoring and measuring effective compensation of deforested areas for carbon stock, biodiversity, and provision of ecosystem services. Figure 3 shows the responses of the companies interviewed regarding the adoption of deforestation criteria in the value chains of interest to this study.

Figure 3 – Commitments to control deforestation in the value chains of the companies interviewed



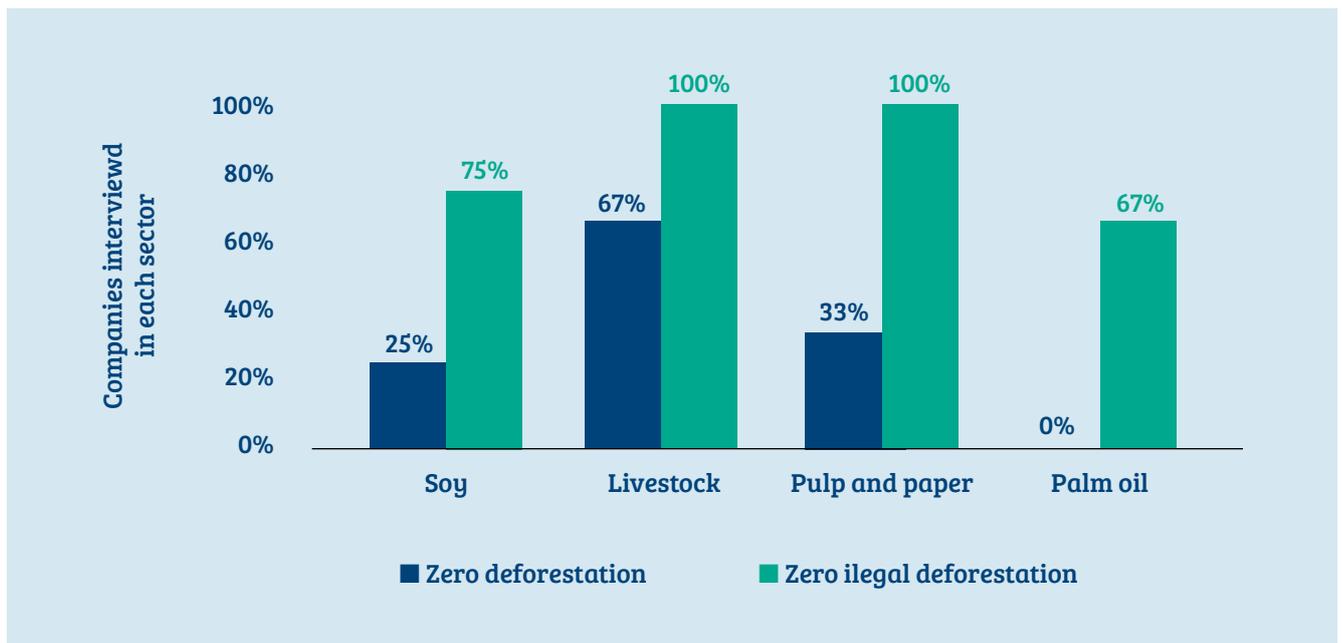
Source: Elaborated by authors based on interviews.

Figure 3 shows that the productive sector interviewed takes into account the risk of deforestation in its value chain, given that 100% of the companies taking part in the study reported considering illegal logging a criterion for commercial agricultural commodities. In addition, 69% adopt criteria related to zero deforestation, not acquiring products from recently deforested areas.⁴¹ In general, such commitments are linked to agricultural commodities related to the core business of the company, as seen in the specifics of the sectors below.

Also, according to interview responses, commitment to deforestation may vary within the same company for different: i) commercialized products (e.g. paper and soy); ii) biomes (e.g. Amazonia); and iii) links in the chain (own operations vs. supplier operations). These differences can be explained through a number of factors, including the focus of the different sectorial initiatives in which the company participates (e.g. Soy Moratorium, CGF, RTRS) and the complexity of monitoring.

In the following sections, the interviews will be analysed by sector. Figure 4 shows the deforestation commitments taken on by the companies interviewed by sector.

Figure 4 – Commitment to control of deforestation of interviewed companies by sector⁴²



Source: Elaborated by authors based on interviews.

⁴¹ Each company has a reference date, such as Forest Code – 2008; Public Commitment on Livestock - 2009 or Soy Moratorium - 2006.

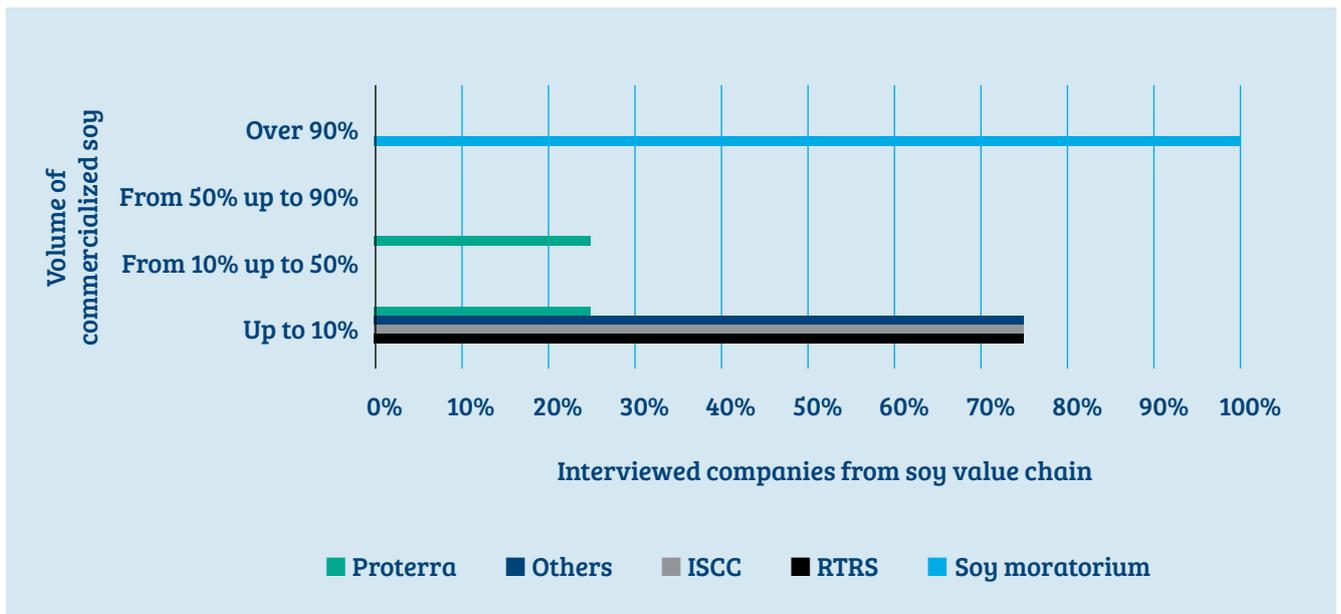
⁴² Percentages were calculated on the number of companies operating in each sector, with the exception of the 'total' bar, in which the universe of interviewed companies was considered.

Soy

Of the companies interviewed, 25% declared they are committed to zero deforestation and 75% to zero illegal deforestation (Figure 4). The 25% that do not verify for illegal deforestation for this commodity do not have soy as their core business.

Adherence of interviewed companies to the zero deforestation commitment is directly related to the Soy Moratorium,⁴³ and as such is restricted to the Amazon biome. All the interviewed companies involved in this chain have over 90% of soy marketed in accordance with the Soy Moratorium (Figure 5). Some companies choose to avoid risk and not buy soy originating from this biome. The commercialization of soy from other regions of the country is monitored by 75% of companies only insofar as deforestation is illegal according to the IBAMA list of embargoed areas, although Gibbs (2015) and the interviewed companies themselves indicate that there are weaknesses in this approach to monitoring.

Figure 5 – Volume⁴⁴ of traded soy in accordance with initiatives for the sector



Source: Elaborated by authors based on interviews.

In addition to the Moratorium, Figure 5 presents other initiatives used by the interviewed companies to inhibit deforestation in the soy chain, including certifications of the Roundtable on Responsible Soy (RTRS), ProTerra, International Sustainability and Carbon Certification (ISCC), or even internal policy and own models of conformity assessment.

⁴³ The Soy Moratorium establishes the non-acquisition of soybeans from deforested areas in the Amazon region after July 24, 2006, thus requiring zero deforestation in this biome. Monitoring in the biome is done by satellite provided to the signatories by the Brazilian Association of Vegetable Oils Industries (ABIÓVE) in partnership with the National Institute of Space Research (INPE) and Agrosatélite (ABIÓVE; INPE; Agrosatélite, 2014).

⁴⁴ Physical volume of soy marketed in 2015 according to the initiatives mentioned for the sector.

Although most of the companies surveyed claimed to adopt certification standards, the volumes of certified soy still represent a small percentage of overall production: 75% of surveyed companies have less than 10% of soy certified by the RTRS (considering the different applicable traceability models) and ISCC; and 25% of them have up to 50% of traded soy certified by ProTerra (Figure 5).

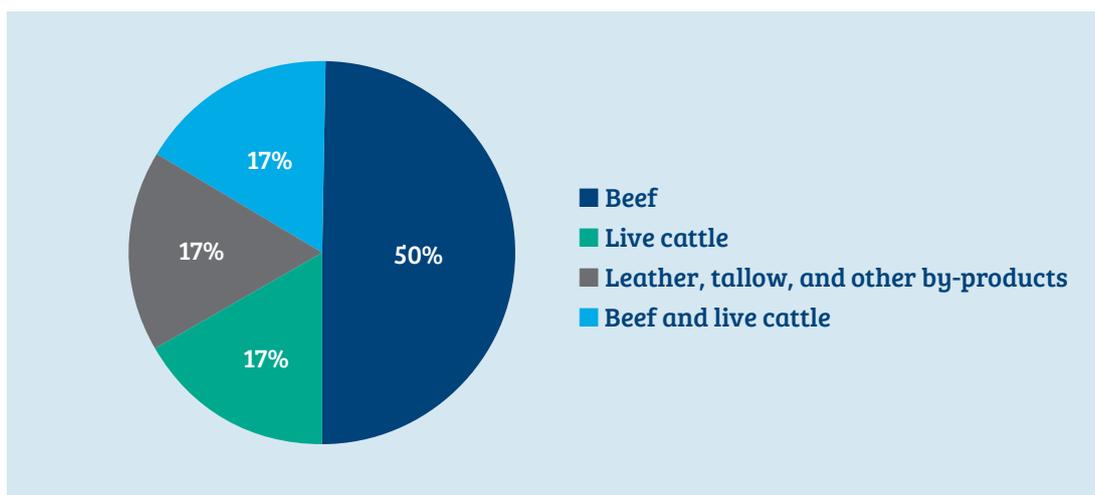
The interviewed companies argue that client demand for certified soy is still low and that the available RTRS certified volume in the world is small – only 2.9 million tons have been certified⁴⁵ contrasted with more than 313 million tons of soy produced globally in 2016,⁴⁶ which is to say, less than 1% of this volume. For example, China, which consumed approximately 75% of Brazilian exports in 2015,⁴⁷ does not require sustainability certification and does not seem willing to pay the price difference for this attribute, thus not stimulating the development of this market in Brazil. In addition, the ISCC, a certification standard created in Germany, had reduced demand when Europe reduced the percentage of biofuel use, which must be certified.

Lastly, the Soy Moratorium differs from certification initiatives such as the RTRS as the latter covers all biomes and not only the Amazon, as well as involving other socio-environmental criteria.⁴⁸

Livestock farming

As shown in Figure 6, for this sector interviewed companies were divided based on commercialization of: (i) standing cattle (live animal), (ii) beef, and (iii) leather, tallow, and other by-products.

Figure 6 – Operation of interviewed companies in the livestock chain according to subsectors



Source: Elaborated by authors based on interviews.

⁴⁵ <http://www.responsiblesoy.org/mercado/volumenes-y-productores-certificados/?lang=en>

⁴⁶ <http://www.globalsoybeanproduction.com/>

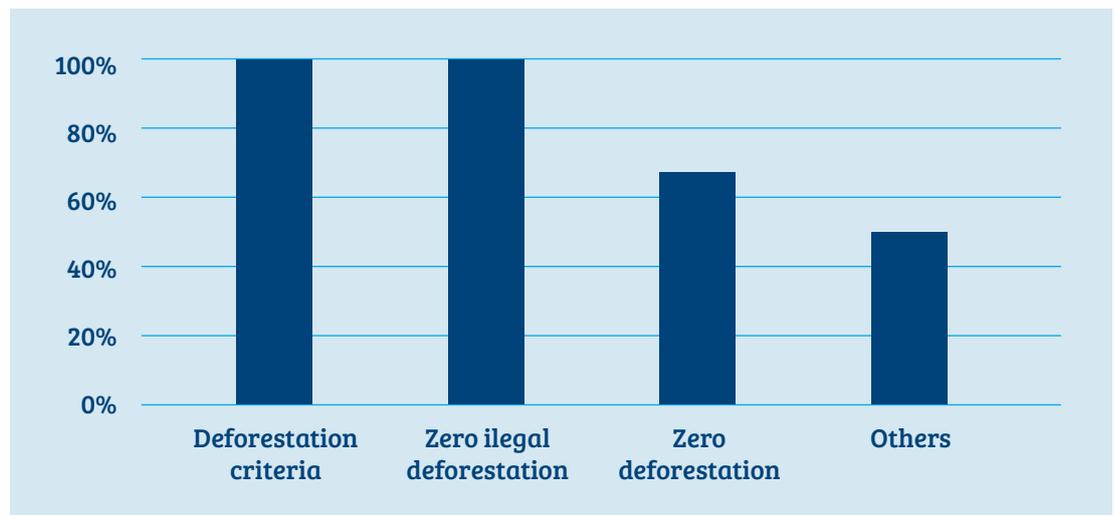
⁴⁷ (ABIQVE, 2016)

⁴⁸ RTRS has restrictions on the expansion of cultivation in areas of native forest (zero deforestation) in any biome with high conservation value.

Figure 4 shows that 67% of interviewed companies operational in this sector are committed to zero deforestation, the most rigid commitment in terms of deforestation control. In livestock farming, this practice is linked to the Public Commitment of Livestock Operations,⁴⁹ and therefore restricted to the Amazon biome. These areas are monitored via the Amazon Deforestation Monitoring Project via satellite (PRODES) and through a partnership between INPE and Greenpeace. As is the case with soy, given the risks of deforestation in the Amazon, some companies mentioned that they opted not to buy beef from this biome.

All the interviewed companies adopted some criterion related to deforestation and make requirements of their suppliers regarding illegal deforestation (Figure 7), the latter generally based on the IBAMA list of embargoed areas. The other cited biomes were Cerrado, Atlantic Forest, and Pampas, the latter under the Alianza del Pastizal initiative, applicable to the southern Brazilian pampas.

Figure 7 – Percentage of companies interviewed in the livestock chain that adopt deforestation criteria

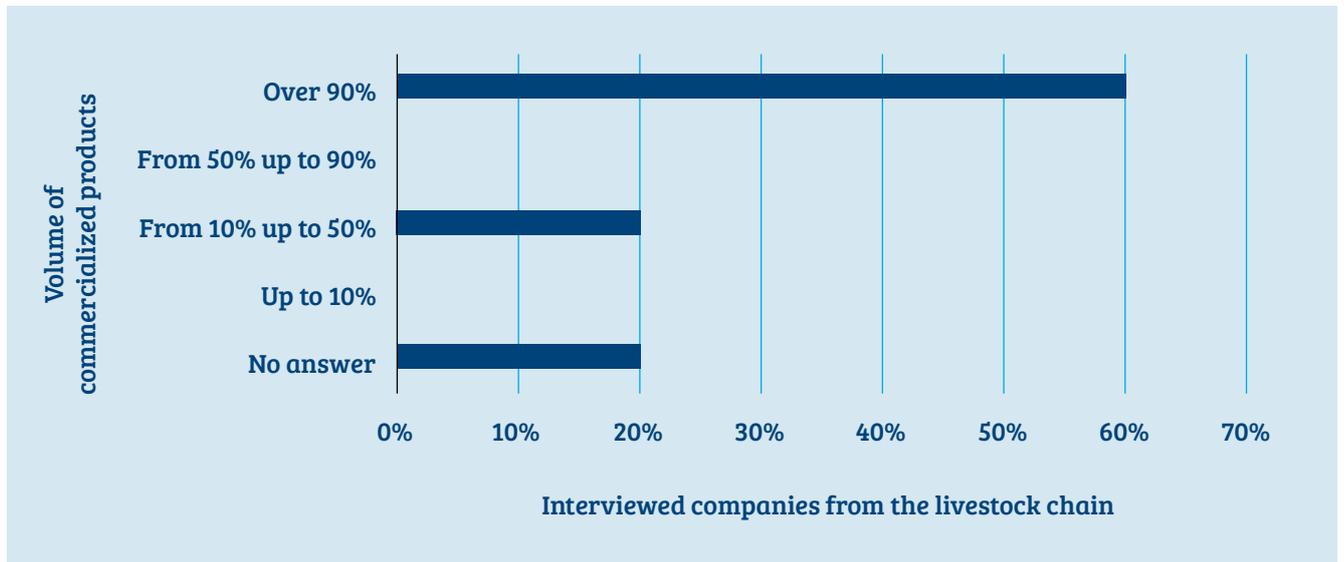


Source: Elaborated by authors based on interviews.

This is the only sector that doesn't have a sustainability certification commonly used by companies, basing itself instead on the Public Commitment of Livestock Operations, with 60% of interviewed companies involved in this chain having over 90% of the volume of traded livestock products in accordance with this agreement (Figure 8).

⁴⁹ Popularly known as the Beef Moratorium.

Figure 8 – Volume of traded livestock products in accordance with deforestation criteria



Source: Elaborated by authors based on interviews.

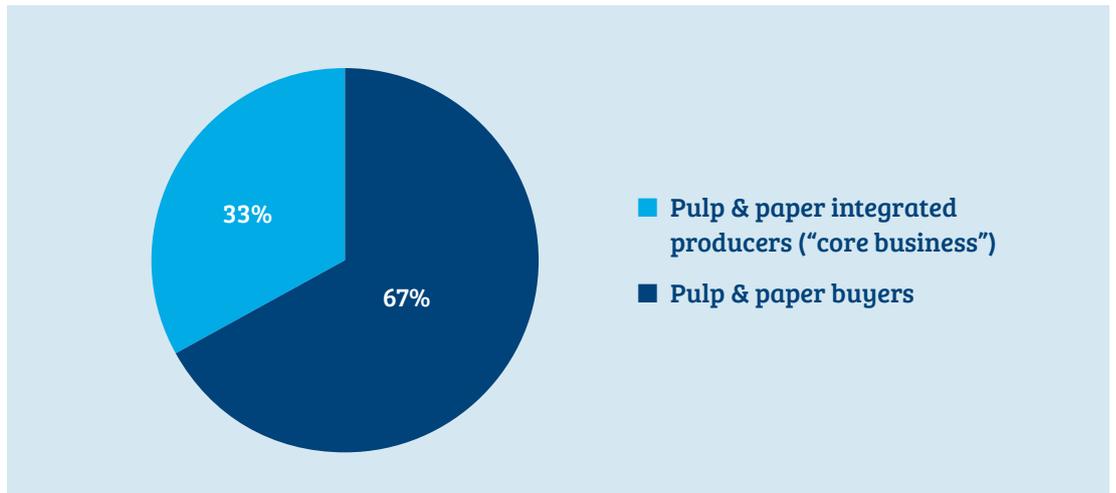
Regarding the by-products of livestock, all the companies stated they had deforestation criteria for their suppliers located in the Amazon. Half of the interviewed companies that traded the beef sub-product required the zero deforestation criteria from their suppliers and 75% verify zero illegal deforestation. Lastly, in respect to cattle derivatives, over 90% of the physical volume acquired is verified according to zero illegal deforestation criteria.

In the interviews it was mentioned that the livestock industry is a large volume industry, currently more focused on improving the quality of its products, with less focus on sustainability criteria. It was also mentioned that the creation of a market of livestock products adhering to socio-environmental criteria (e.g. certification) is not promoted in Brazil, as one of the main buyer markets, Asia, does not yet demand products with positive socio-environmental attributes. It was also highlighted by interviewees that it is a sector which works primarily with the spot market, in a competitive environment with short term contracts, which may hinder the adoption and monitoring of socio-environmental criteria.

Pulp and paper

In the case of the pulp and paper sector, 100% of the interviewed companies involved in this value chain had procurement policy which took into account zero illegal deforestation criteria (Figure 4). In this sector, 33% of interviewed companies have pulp and/or paper as their core business while the rest are consumers of these commodities.

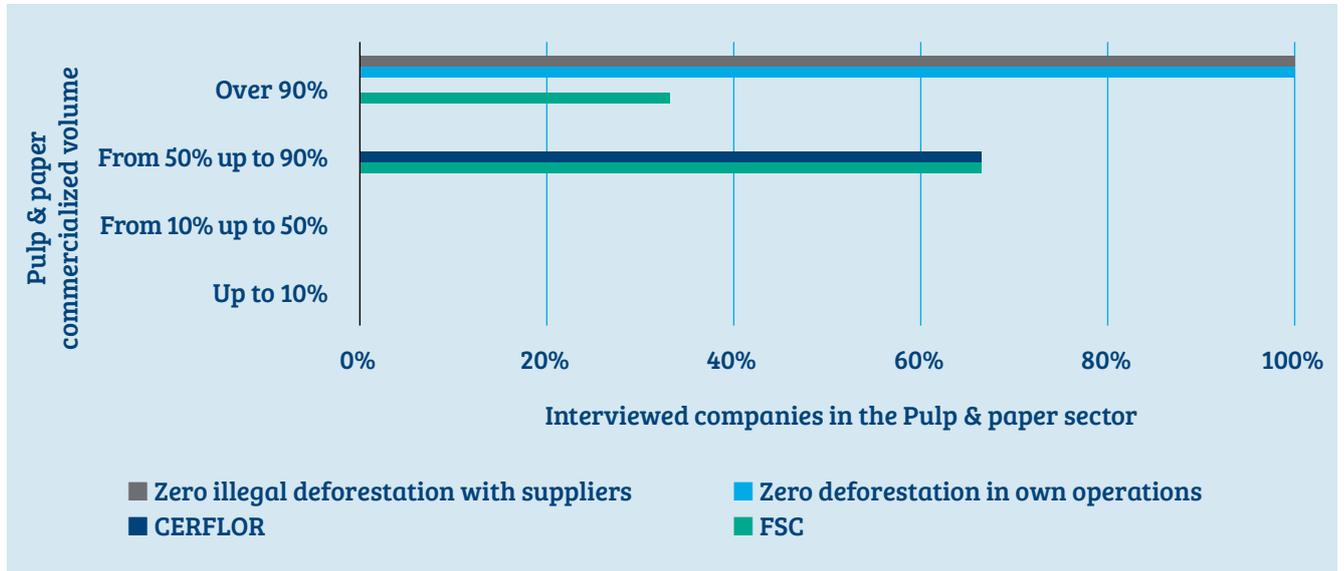
Figure 9 – Operation of interviewed companies in the pulp and paper sector



Source: Elaborated by authors based on interviews.

The forest sector is historically the most demanding in terms of deforestation and, for this reason, as shown in Figure 10, all the interviewed companies whose core business is the production of pulp and/or paper have commitments to zero deforestation in their own operations for all regions, unlike the soy and livestock sectors, which restrict these commitments to the Amazon biome. Of those interviewed, all are certified (FSC and/or CERFLOR) for over 50% of their products. In terms of products from suppliers, over 90% of the volume is verified for zero illegal deforestation via georeferencing tools. Furthermore, these companies mention the gradual increase in zero deforestation requirements of their suppliers, through certification for example.

Figure 10 – Volume of pulp and paper traded by producers (core business) under deforestation criteria

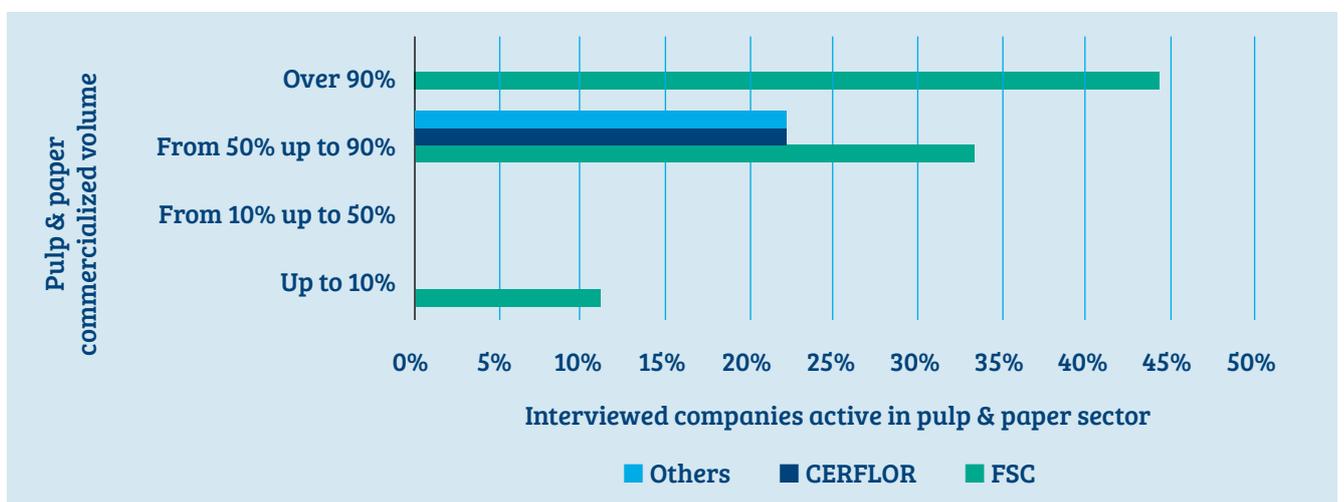


Source: Elaborated by authors based on interviews.

It should be noted that this is the sector in which the practice of certification is most widespread, not only with companies producing pulp or paper but also with companies buying these commodities.

Figure 11 shows that 44% of interviewed companies have over 90% of their pulp and paper certified by the FSC, and 33% of interviewed companies have between 50% and 90% of their volume of these commodities certified by the FSC. Also, close to 22% of the interviewed companies have between 50% and 90% of their traded volume certified by CERFLOR and other criteria.

Figure 11 – Volume of pulp and paper traded by all companies operating in the chain which meet socio-environmental criteria



Source: Elaborated by authors based on interviews.

Palm oil

The interviewed companies operating in the palm oil sector do so as consumers (and not producers), coming from diverse sectors of the economy. Of these companies, 67% check their suppliers for illegal deforestation.

Although 67% of the companies interviewed purchase products certified by the Roundtable on Sustainable Palm Oil (RSPO), which requires zero deforestation,⁵⁰ the volume of certified palm oil does not represent the total volume purchased, and all respondents stated that they do not adopt zero deforestation criteria for the purchase of palm oil (Figure 4).

Only three companies reported their practices for palm oil and, of those, only two consider RSPO certification: for one of them, the physical traded volume with RSPO certification is between 10% and 50% of the total volume traded; with the other, the physical traded volume with RSPO certification totals over 90% of overall traded palm oil.

Analysis and recommendations for financial institutions

From the interviews it was possible to identify some tendencies and gaps in the management of deforestation risk in the agriculture and livestock chains under study. It should be highlighted that given the number of companies interviewed it is not possible to make generalized conclusions. As such, the following analysis and recommendations must be considered in view of this limitation.

Criteria for controlling the risk of deforestation: The Amazon is the focus of the most restrictive commitments

All the companies interviewed adopt some criterion for the control of deforestation, with a predominance of monitoring of illegal deforestation. In some regions, such as in the Amazon, preference is given to the concept of zero deforestation, given the difficulty in monitoring zero net deforestation or even illegal deforestation.

Due to pressure from external markets and non-governmental organizations, the Amazon has been the focus of the more restrictive commitments taken on by the companies interviewed, reflected in the adherence to the Soy Moratorium and the Public Commitment of Livestock Operations.

⁵⁰ The RSPO requires, as of November 2005, that palm not be cultivated in deforested native forest areas, thus requiring zero deforestation.

It is understood that occurrences of deforestation in other biomes can represent risks for companies and financing institutions. Gibbs et al (2015) have identified the eastern Cerrado as the new agricultural hotspot, covering regions in the states of Maranhão, Piauí, Tocantins, and Bahia, where according to the authors, 40% of the total of soy expansion in the period 2007-2013 took place, in areas of native vegetation. The authors conclude that half of the Cerrado biome has been converted into agricultural production in recent decades, as it has less legal protection than the Amazon.

In October 2016, an expansion of the Soy Moratorium was proposed to include the Cerrado. As of 2017, the Ministry for the Environment (MMA) will make deforestation data for the Cerrado available annually, and the real-time deforestation detection system will be live.⁵¹ The Atlantic Forest is also an internationally recognized hotspot,⁵² however this biome is currently legally protected due to the Atlantic Forest Law No. 11.428/2006. Therefore, from the risk point of view, it is important to highlight the international shift of attention to other Brazilian biomes, mainly the Cerrado and Pampas.

Monitoring and traceability: critical elements for the advancement of risk management and control of deforestation

In some sectors, the use of georeferencing is mentioned, for the verification of the legality of areas in relation to deforestation, especially in Amazon. It is necessary, in this context, to expand this type of monitoring to other biomes where the IBAMA list of embargoed areas is the main instrument of verification. This instrument, however, may have limitations: Gibbs et. al (2015) point out that in over 50% of properties there are inconsistencies between the list of embargoed areas and the Environmental Rural Registry system (SICAR). As SICAR is still being implemented, these inconsistencies should be re-evaluated after the completion and validation of SICAR data.

Deforestation of the Amazon biome is identified via remote sensing techniques by the PRODES/INPE. Subsequently, also via remote sensing, areas of soy within deforested areas are surveyed and deforestation is assessed through the use of medium to low resolution images which are made freely available by the INPE. The use of medium to low resolution satellite images suffices to identify deforestation in the Amazon where the forest is very dense, as the contrast between the exposed soil and the native forest, with correct treatment of the image, is easily visible, identified, and quantified.⁵³

In the Cerrado however, those images would not be enough to identify and quantify deforestation reliably as areas of the Cerrado are similar to open areas when observed in low res images. A possible solution would be to use high resolution satellite images, or drones, which would significantly increase associated costs.⁵⁴

⁵¹ More information: <http://www.mma.gov.br/florestas/controle-e-preven%C3%A7%C3%A3o-do-desmatamento>

⁵² Biome with a high preservation priority due to its biodiversity and high threat level.

⁵³ (Agrosig Brasil, 2016)

⁵⁴ (Agrosig Brasil, 2016)

It is important to engage operators linked to the discussion of deforestation reduction – such as the federal and state governments, NGOs operating in the environmental sector, round table managers and moratoria – to improve satellite monitoring methods, measurement, reporting, and verification (MRV) of deforestation and benchmarking of the implementation of commitments made by the production chain. Some sectors, such as livestock and pulp, have begun to invest in the adoption of traceability protocols.

It should be emphasized that monitoring is a way of detecting the problem, not solving it. As such, it is important that monitoring be considered a first step in obtaining data, to later be transformed into information which will support decision making considering the risk of deforestation.

Preference for commitments to control deforestation to the detriment of certification initiatives

For the soy and livestock value chains, control of the deforestation risk by interviewed companies mainly takes place in the Amazon, due to the demands of society and import markets. Companies therefore prefer to make commitments to zero deforestation, such as the Soy Moratorium and the Public Commitment of Livestock Operations. The preference of companies from these sectors for moratoria, to the detriment of certifications, is mainly related to: i) schemes that are more appropriate to the Brazilian reality and the characteristics of the commodities being analysed; ii) relatively cheaper and less bureaucratic commitments to be assessed; iii) commitments restricted to a geographical area (Amazon); iv) commitments with less socio-environmental criteria and more focused on deforestation.

The livestock sector does not currently have recognized and used sustainability certifications, although schemes and pilots exist, as described in Table 2.

Certification standards represent a niche market for the soy and livestock sectors, as the characteristics of the production chains and the market impede their progress on a large scale. For the forest products sector this instrument is far more widespread as the market requires certification and the characteristics of the sector facilitate control throughout the production chain.

Opportunity: risk management can contribute to generating a comparative advantage

The importance given to the control of deforestation in the Amazon could be seen as an opportunity for a comparative advantage. Regarding the decision made by some companies to not purchase products from the Amazon to avoid risks linked to deforestation, the McDonald's chain, for example, decided to invest in the development of rural landowners in the Amazon for sustainable production, as a way of curbing illegal deforestation in the region and adding value to their product. The Novo Campo Program, which is the name given to this initiative, is described in Appendix E. Thus adequate management of the risk of deforestation in the chain can also be interpreted as an opportunity for supply chain management and the generation of a comparative advantage, which can result in reputational and market gains.

Recommendations for financial institutions: additions to the analysis of deforestation risk in agricultural chains

Financial institutions are concerned with the risk of deforestation in agricultural and livestock production chains, according to the analysis presented in section 1.2. Appendix C also maps how financial institutions see their connection to natural capital, and reflect their concern about deforestation risks by means of criteria such as restricting activity in areas of High Conservation Value, areas classified as World Heritage sites, wetland regions, the restriction of trade of endangered species, use of fire, among others.

The Soft Commodities Compact and some of the socio-environmental policy of the financial institutions analysed do consider sustainability certification standards and participation in round tables. However, interview results indicate a preference on behalf of agricultural and livestock companies for agreements and pacts such as the Soy Moratorium and the Public Commitment of Livestock Operations (soy and livestock). Only producers in the pulp and paper chains expressed a preference for certification. In this sense, there is a gap between what is established by the Compact, and the socio-environmental policy of the financial institutions analysed, and the preference of interviewed companies. This gap may pose additional risk elements for financial institutions, and although additional analysis is needed to confirm this hypothesis, there are some recommendations which may improve the analysis of deforestation risk for financial institutions.

In this sense, it is recommendable that the risk of deforestation be considered by financial institutions in credit analysis for operations with sectors with intense natural capital use. For the sectors analysed in the study, it is understood that the identification and analysis of the following items may contribute to guiding and improving the management of deforestation risk:

✓ **Analysis of information from the Environmental Rural Registry (CAR) and adherence to the Environmental Regularization Program (PRA);**

✓ **Verification of environmental permits in the case of activities subject to licensing; verification of CPF/CNPJ on the IBAMA list of embargoes for deforestation;**

✓ **Adherence of the company to the Soy Moratorium or the Public Commitment of Livestock Operations;**

✓ **Existence of monitoring by georeferencing and analysis of the form of verification and the scope of the monitoring;**

✓ **Volume and percentage of product traded with a sustainability certification.**

Assuming that the individual internalization of the need for monitoring of companies operating in the agricultural and livestock chains by financial institutions is not viable due to the complexity and the high associated costs, the possibility of developing a platform with a unified database containing georeferenced information and analysis on deforestation for relevant sectors in bank portfolios should be assessed.

Existing (or under development) initiatives that are moving in this direction can be considered in order to avoid the duplication of efforts and broaden access to this type of information, relevant to different types of organizations.

The creation and use of a database with spatial information, to be shared between financial institutions is therefore recommended, with the aim of (i) reducing deforestation risk in lending; and (ii) sharing best practices of deforestation risk analysis in different regions of Brazil.

It is also recommended that the strategic agenda of the sector include the participation of the financial sector in discussions of commitments and voluntary initiatives for the management of deforestation risk, thus helping these instruments respond to the demands of financial institutions and not be disconnected from Brazil's reality. This is because, for soybeans and livestock, the low volume of production adhering to socio-environmental criteria that are easily verifiable by financial institutions may result in higher risk and higher transaction costs for granting credit.



4. Conclusions

Brazil, thanks to its soil and climate conditions, availability of land and production technology developed by companies, is one of the few countries capable of supplying the world with agricultural and livestock commodities and bio-products which are sustainable in their value chain.

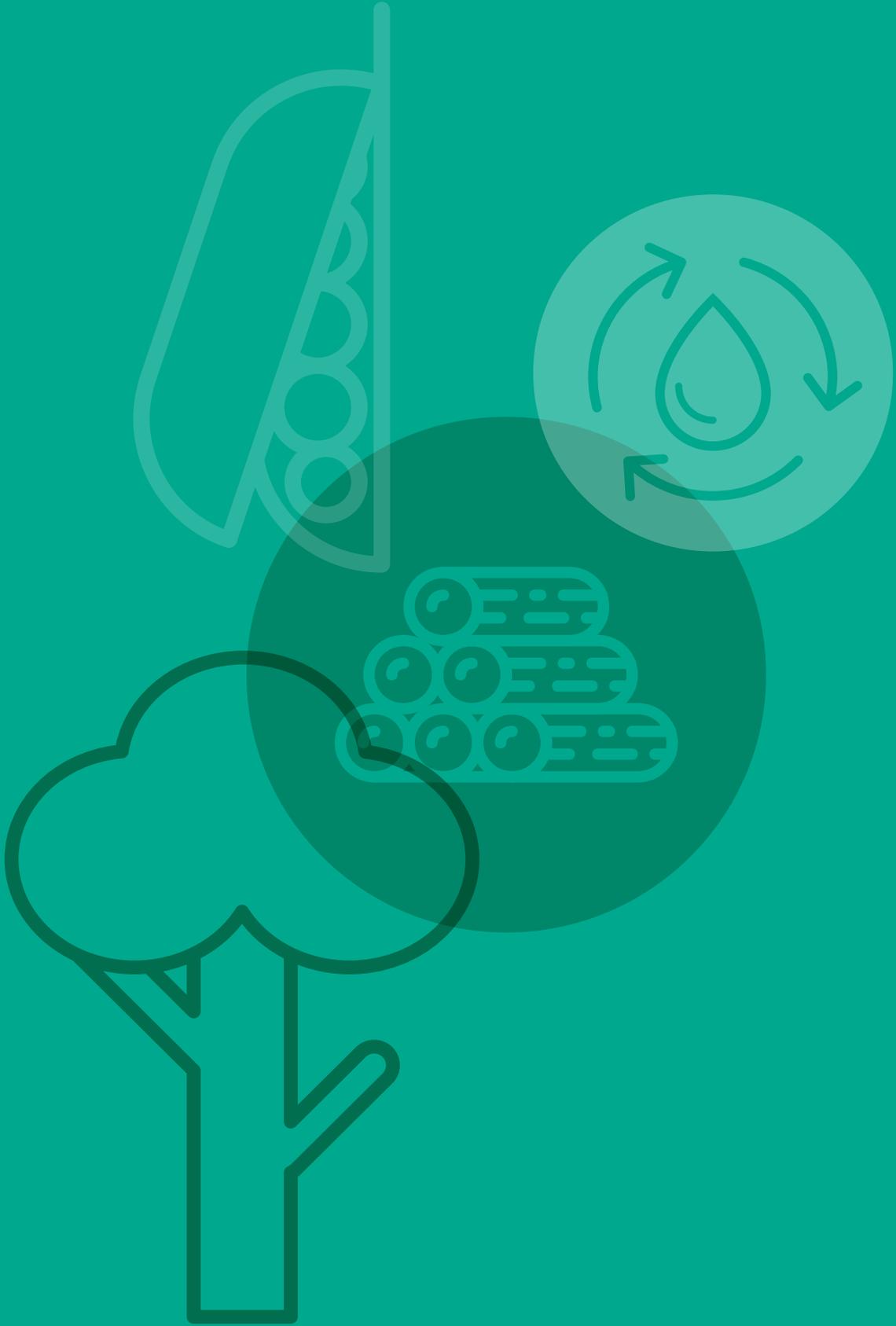
Since agriculture and livestock make intensive use of natural capital, deforestation stands out as a substantial risk which requires managing. Thus, as a financier of Brazilian agribusiness, it is necessary that the National Financial System continue to deepen the diagnosis of the socio-environmental risks and opportunities related to this sector.

Financial institutions play an important role in advancing commitments to eradicate deforestation in the country. On the one hand, financial institutions influence the management practices of their clients so as to minimize their exposure to risks associated to natural capital. On the other hand, there is also the opportunity for new business, with the emergence of new markets related to the use and conservation of natural capital.

It is recommended that financial institutions define, within FEBRABAN, minimum standards for the control of deforestation risks in operations with sectors that have a relevant impact on natural capital, not just the agricultural and livestock sector.

However, considering the complexity of the subject and the need for integrated coordination between various operators to advance the control of deforestation in Brazil, it is important to stress that the participation of the financial sector in this agenda should be complemented with the action of other relevant actors, such as government, the productive sector, and civil society organizations.

The recommended next steps would be to deepen and expand the present study to obtain a greater representation of companies in the analysed sectors; to identify the demands and requirements to the relevant producers of the chains in question in international markets in relation to practices of combatting deforestation; to analyse the feasibility of the criteria adopted by international initiatives; to monitor the development and implementation of voluntary initiatives for the reduction of deforestation in agricultural and livestock chains, in order to prevent decisions, particularly in the international arena, being disconnected from the reality of Brazil.



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Appendix A – Description of instruments to support natural capital management

Table 4 lists some instruments for the support of natural capital management for the financial sector and for the productive sector. The instruments are divided by target audience and are described below.

Table 4 – Instruments to support risk management associated with natural capital for financial institutions and productive sector

Instrument	Type of instrument	Target audience	Objective	Issue(s) addressed
Natural Capital Self Assessment Tool, 2016, VBDO	Tool	Financial institutions	To guide how natural capital is being considered in investment decisions.	Use of land, water, emissions, overexploitation of resources, waste, biodiversity and environmental management.
Corporate Bonds Water Credit Risk Tool, 2015, UNEP e NCD	Tool	Financial institutions	To incorporate water risk into credit risk analysis of corporate bonds.	Water
The 2050 Criteria: Guide to Responsible Investment in Agricultural, Forest, and Seafood Commodities, 2012, WWF	Framework	Financial institutions	To identify responsible companies and projects in the sectors of agriculture, forests, and fisheries.	E.g. Biodiversity, climate change and air quality, soil degradation, water, toxicity, and nutrient loading.
Soft Commodity Forest-risk Assessment Tool, 2015, UNEP e NCD	Tool	Financial institutions	To measure and reduce the impact agricultural clients have on deforestation	Agricultural sector
Water Risk Filter, 2012, WWF e KFW DEG	Tool	Financial institutions and Productive sector	To assess water risks for operations, suppliers or projects and for investors to identify risks of return on investment.	Water

Instrument	Type of instrument	Target audience	Objective	Issue(s) addressed
Aqua Gauge Tool, 2011, Ceres/WBCSD/Irbaris/IRRC Institute	Framework	Financial institutions and Productive sector	To assist in the evaluation, improvement and communication of the business management of risks related to water.	Water
Aqueduct Water Risk Atlas, 2013, WRI	Tool	Varied, but can be used by financial institutions	To assist in understanding the risks and opportunities related to water that are emerging around the world.	Water

Source: Elaborated by authors.

Financial sector

- Natural Capital Self Assessment Tool:** Developed by the Dutch Association of Investors for Sustainable Development (VBDO) in 2016, it provides guidance for financial institutions to understand how natural capital can be taken into account in their investment decisions. The tool addresses nine “issues of natural capital”, which are: use of land, water consumption/scarcity, greenhouse gas emissions, air pollution, water and soil pollution, overexploitation of natural resources, production and processing of waste, biodiversity/endangered species, and environmental management.⁵⁵ The tool analyses three aspects: inclusion of natural capital in policy commitments, implementation of responsible investment strategies for different asset classes, and transparency towards clients and society in general. When responding to each of these categories, the institution receives a score summary showing the development stage of the institution being analyzed and makes recommendations.
- Corporate Bonds Water Credit Risk Tool:** From 2015, it is the result of a partnership between the United Nations Environment Programme (UNEP) and Natural Capital Declaration (NCD), and aims to incorporate water risk into credit analysis of corporate bonds. The tool incorporates, into a traditional financial model, data on water stress from the Aqueduct Tool, developed by the World Resources Institute (WRI). The model uses the water shadow price as a proxy for exposure to potential water costs due to water stress situations. By combining data on the amount of water used with cost data based on water supply and demand conditions, financial analysts can quantify corporate water risk and assess the potential impact of water stress on a company’s credit ratios.⁵⁶

⁵⁵ VBDO, 2016.

⁵⁶ NCD, 2015a.

- **The 2050 Criteria: Guide to Responsible Investment in Agricultural, Forest, and Seafood Commodities:** Launched by the WWF in 2012, it consists of a guide for identifying responsible companies and projects in the agriculture, forest, and seafood sectors. Of the ten segments addressed, soy, livestock, pulp, and palm oil are included. The document outlines a framework indicating the main social and environmental risks these segments present to investors, as well as performance criteria to manage these risks.⁵⁷ Of the ten categories of impact analysed by the framework, the following should be highlighted within the context of natural capital: loss and conversion of biodiversity, climate change and air quality, soil erosion/degradation, use of water, pesticides, and toxicity, and nutrient loading and eutrophication.
- **Soft Commodity Forest-risk Assessment Tool (SCFA):** Launched in 2015 by a partnership between UNEP and NCD, it consists of a set of simple guidelines which financial institutions can make use of to measure and reduce the impact their agriculture clients have on deforestation. In a general sense, the tool aims to assess the policy and processes of financial institutions to manage their exposure to deforestation and forest degradation risk associated to three agriculture commodities: palm oil, soy, and beef.⁵⁸ The assessment is divided into three blocks: “Policy Scope”, “Policy Strength”, and “Implementation, Monitoring and Reporting”. Each of these blocks features indicators with different weights, which can be altered by the user, according to its degree of importance. At the end, after responding to each of the indicators, three graphs are generated comparing the responses of the financial institution with those of other institutions already in the NCD database. The financial institution’s final grade is categorized as: “Tier 1 – Leading the way”; “Tier 2 – On track”; and “Tier 3 – Needs improvement”. In this tool, risk analysis takes place in a top-down way, through the evaluation of policy and processes of financial institutions, without focussing on specific information at company level.

⁵⁷ WWF, 2012.

⁵⁸ NCD, 2015c.

Various sectors

- **Water Risk Filter:** Launched in 2012 by the World Wide Fund for Nature (WWF) in partnership with the German Investment and Development Corporation of the German bank KfW (KfW DEG). The purpose of this tool is to assist companies in assessing the risks related to water in their operations, suppliers, or projects, and also for investors or creditors to assess potentially significant risks for their clients, and by extension for their return on investment.⁵⁹ Physical, regulatory, and operational risks are considered at two levels: the hydrographic basin, and the company under analysis. Each of these risks has several indicators, which receive different scores according to data from the literature and specific information on the company under analysis. Based on the results, the analysis is connected to the next steps to be taken, such as for example, risk mitigation and reporting to the Carbon Disclosure Program (CDP).
- **Aqua Gauge Tool:** Is a framework developed in 2011 by Ceres, in partnership with the World Business Council for Sustainable Development (WBCSD), Irbaris, and the IRRIC Institute. Its aim is to assist in the assessment, improvement, and communication of business management of water risks and also to assist investors in understanding about business management of water risks and opportunities. The assessment can be made in a short format, called Quick Gauge, or in full format, called Full Aqua Gauge. The Quick Gauge is aimed at investors as a first step to identifying, within a portfolio, clients more exposed to water risks, either by sector or geographical location. Companies can assess their level of maturity in relation to the issue, as the framework indicates relevant management activities for companies who present water risks in their direct operations, and their product and/or supply chains. For the optimization of the tool's data and response collection, the content of Aqua Gauge is aligned to the CDP Water Survey and indicators of the Global Reporting Initiative (GRI).
- **Aqueduct Water Risk Atlas:** Developed by the WRI in 2013. It is a global water risk mapping tool by hydrographic basin aimed at companies, investors, government, and other users, with the objective of helping to understand risks and opportunities related to water.⁶⁰ Upon accessing the tool, heat maps demonstrating the degree of risk related to water can be viewed, with three risk categories being addressed: water quantity, water quality, and regulatory and reputational. Data can be filtered by location and by nine sectors: agriculture, food and beverages, chemicals, electricity, semiconductor, oil and gas, mining, building materials, and textiles.

⁵⁹ WWF, 2012.

⁶⁰ WRI, 2013.

Appendix B – Description of sustainability certification initiatives and other voluntary commitments for sectors of interest

Livestock sector

- **The Public Commitment of Livestock Operations** (also known as the cattle moratorium) was instituted in 2009 when four significant players in Brazil in the production and commercialization of beef and leather – JBS, Bertin, Minerva, and Marfrig – agreed to not contribute to new deforestation after 09 October 2009, and also adopt other minimum criteria for livestock operations on an industrial scale in the Brazilian Amazon biome, which include criteria against the invasion of indigenous lands and protected areas, against forced labour, the appropriation of land and conflicts, and for the traceability of supply chains.⁶¹ Today, JBS, Marfrig, and Minerva carry out annual audits in accordance with the “Minimum Criteria for Operations with Cattle and Cattle Products on an Industrial Scale in the Amazon Biome” and simultaneously publish the reports in September, coordinated by Greenpeace. Just as the Soy Moratorium, the agreement was driven by a Greenpeace report, entitled “A farra do boi na Amazônia” (‘The Cattle Bonanza in the Amazon’), which traced a link between the livestock industry and deforestation of the Amazon. The Public Commitment of Livestock Operations demonstrates, therefore, how pressure from civil society can drive change through different points of the supply chain, and also how relatively few players, however highly representative in the industry, can have a significant impact on reducing deforestation.
- **Global Roundtable for Sustainable Beef (GRSB):** From 2012. It is a global and multi-stakeholder initiative, developed with the aim of advancing the continued improvement of the global beef value chain. The five main principles of the GRSB consist of natural resources, communities, animal welfare, food, and efficiency and innovation. Each principle is expressed in criteria which do not, however, feature indicators, metrics, and practices, as these are considered very specific to each context. Noteworthy within the principle of natural resources are the criteria which address liquid GHG emissions, protection of native forests, efficient management of water resources, maintenance and enrichment of biological diversity and management of land use in areas of high conservation value.⁶²

⁶¹ (Forest 500, 2015b)

⁶² GRSB, 2014.

- **Sustainable Livestock Indicator Guide (GIPS):** Under development by the Brazilian Roundtable for Sustainable Livestock (GTPS), whose 2nd draft is in public consultation (April 2016). The guide aims to provide guidance on what sustainable livestock is and to encourage all links in the cattle farming value chain to improve their practices in the pursuit of sustainability, through the building of a self-assessment tool for continuous improvement with five levels of performance.⁶³ The GTPS does not establish a certification or minimum level of performance and therefore compliance with GTPS indicators does not carry any seal or statement by the user that evaluates its own performance or of the members of its value chain.
- **Standard for Sustainable Cattle Production Systems:** Launched in 2010, adds criteria for the certification of cattle breeding farms. The standard can be applied in Latin America, Africa, Asia, and Oceania, and its objective is to help cattle breeders to implement best environmental, social, and animal welfare practices, and to allow them to voluntarily apply for certification. The standard is only applicable to farms where the livestock has access to pasture, and follows principles of integrated management systems, sustainable management of pasture, animal welfare, and carbon footprint reduction.⁶⁴ These criteria must be fulfilled alongside environmental, social, and labour criteria of the Sustainable Agriculture Standard.

Soy sector

- **The Soy Moratorium** is an industry-led initiative by the ABIOVE (Brazilian Association of Vegetable Oil Industries) and the ANEC (National Association of Cereal Exporters), which together represent over 90% of the Brazilian soy trade. Twelve members of the ABIOVE and 35 members of the ANEC made a commitment to not market or finance soy from Amazonian lands⁶⁵ deforested after May 2008 and which are within indigenous lands or on the slave labour list.⁶⁶ The commitment was made in response to a period of high deforestation rates in the Amazon between 2003 and 2004, and the report “Comendo a Amazônia” (“Eating the Amazon”), published in 2006 by Greenpeace, which traced a link between deforestation in the Amazon region and soy used by major brands. This case demonstrates how reputational risk can lead to significant behaviour change in supply chain operations.⁶⁷ The moratorium was annually renewed from 2008 to 2016, when it was renewed indefinitely. Beginning in 2016, under the leadership of IPAM (Amazon Environmental Research Institute), members of the Soy Workgroup (GTS) have committed to creating a new mechanism based on the New Forest Code, with criteria which replace the Moratorium and which are transparent, with tools for monitoring and verification.⁶⁸

⁶³ GTPS, 2014.

⁶⁴ Rainforest Alliance, 2010.

⁶⁵ (Forest 500, 2015a)

⁶⁶ (IPAM, 2016)

⁶⁷ (IPAM, 2016)

⁶⁸ (IPAM, 2016)

- **Roundtable on Responsible Soy (RTRS):** created in 2006, it developed the RTRS Standard for Responsible Soy Production in 2010, which is an international mechanism through which various operators – such as soy producers and traders, financial institutions, other food industry companies, and non-governmental organizations (NGOs) – work together for the purpose of sustainable soy production and use. The document is divided into four topics: environmental, socioeconomic, governance, and food security. In the environmental category, the following issues, among others, are addressed: land use change, biodiversity and ecosystem services, water availability and quality, and GHG emissions and air quality.⁶⁹ The RTRS provides a Trading Platform where the physical production of soy or equivalent credits can be commercialized. The acquisition of physical material guarantees that the physical soy used has been produced and treated in accordance with the requirements of the RTRS Standard throughout the chain. The purchase of credits, in turn, grants credits to producers for their production of certified soy. Credit buyers can publicly declare their support for responsible production through their commitment to purchasing RTRS Credits, including making use of the RTRS Credit Logo on their packaging. Soy sold as credit may not subsequently be marketed as certified. Negotiation of credits can be done via “Direct Trade”, where it is known who is being traded with, or via “Blind Trading”, where it is independent of the producer, and the first to accept the offer on the platform makes the sale. The Platform, therefore, allows for easy and quick negotiations and guarantees transparency and traceability.⁷⁰

- **ProTerra:** A non-profit organization whose goal is to advance and promote sustainability at all levels of the food production system and to help economic operators implement and demonstrate sustainability efficiently. The ProTerra certification scheme uses the Social Responsibility and Environmental Sustainability Standard, originating from the Basel Criteria and which is now applicable to all agricultural products and their derivatives, produced, processed, and consumed around the world. The standard has ten principles that address challenges along the value chain of large-scale production of agricultural commodities, such as protection of the Amazon and other areas of HCV, protection of community rights and best agricultural practices (soil fertility, water management, reduction of fertilizer, and pesticide use).

- **International Sustainability and Carbon Certification (ISCC):** Uses the ISCC Plus Sustainability Requirements for the Production of Biomass, currently in version 3.0 of 2016. The ISCC Plus is applicable to the food, animal feed, chemical applications, and biofuel sectors. The requirements are made up of six principles, of which principles 1, 2, and 6 are highlighted for the present study. The first principle establishes that biomass should not be produced in areas with a high biodiversity index or high carbon content, and that areas of high conservation value should be protected. Principle 2 states that biomass should be produced in an environmentally responsible manner, which includes protection of soil, water, air, and the application of good agricultural practices. Principle 6 deals with the implementation of good management practices.

⁶⁹ FAO, 2011.

⁷⁰ WWF, 2016.

Forest sector

- **Forest Stewardship Council (FSC):** Founded in 1993, the FSC develops principles and criteria for certification and supports the development of national and regional forest management standards, as well as accrediting certification organizations. There are three types of certification: i) Forest Management; ii) Value Chain; iii) Controlled Pulp. The certification has ten principles and criteria, updated in 2015, that govern responsible forest management, such as for example forest benefits, environmental impact and values, and maintenance of high conservation value forests. In Brazil, national standards are focused on Native Forests, Forest Plantations and Small Producers and Communities.
- **Programme for the Endorsement of Forest Certification (PEFC):** is an umbrella organization which supports national forest certification systems. National certification systems that have developed standards in accordance with PEFC requirements can apply to have global recognition and market access through PEFC International. To be endorsed, such systems must meet stringent PEFC benchmarks. This bottom-up approach provides a high degree of independence for national processes, allowing the development of norms adapted to the political, economic, social, environmental, and cultural realities of their respective countries while still in accordance with strict international references. As such, the PEFC allows national “sovereign” systems that join forces to collaborate for sustainable forest management and products produced from sustainable forest management in the global market. As the largest forest certification system in the world, this remains the certification system of choice for small private and non-industrial forests.

Palm oil sector

- **Roundtable on Sustainable Palm Oil (RSPO):** is a multi-stakeholder initiative created in 2005, pilot-tested for two years and launched in 2007 with the vision of turning palm oil markets more sustainable. The RSPO system of certification consists of three elements: i) the standard – which defines the requirements that must be met and establishes the principles and criteria; ii) accreditation; and iii) the process requirements. The RSPO has 8 principles which rely on several indicators, related to: evaluation of areas of high conservation value; presence of protected areas that may be affected by activity; impact assessment (soil, water resources, air quality, greenhouse gases, biodiversity, and ecosystems); and evaluation, monitoring, and reporting of emissions from changes in carbon stocks within operations. The principles and criteria established by the RSPO are contained in a generic document and should be adapted for use by each country through National Interpretations. This procedure was adopted because the RSPO recognizes that countries differ in their laws for the same criterion and also have cultural differences. Brazil does not have a National Interpretation of the RSPO.

Appendix C – Mapping of socio-environmental policies by sectors of interest to this study by BEI and/or SCC signatory banks

Listed below are the financial institutions which are signatories to the BEI and/or the SCC which include explicitly⁷¹ in their socio-environmental policy at least one of the sectors of interest, totalling 12 financial institutions (Table 5). BNY Mellon, Lloyds Banking Group, and Northern Trust were excluded from the list as their environmental or sustainability policies are general and not explicit in the sectors of interest (in grey, Table 5).

Table 5 – Financial institutions present in the BEI and signatories of the Soft Commodities Compact and their policy by sector of interest

Financial Institutions	Sectorial Policy				
	Environment	Soy	Wood	Livestock	Palm Oil
Barclays		X	X	X	X
BNP Paribas		X	X	X	X
BNY Mellon	X				
Deutsche Bank	X	X	X	X	X
Goldman Sachs	X	X	X		X
JP Morgan Chase			X		X
Lloyds Banking Group	X				
Northern Trust	X				
Rabobank	X	X	X	X	X
Royal Bank of Scotland (RBS)		X	X	X	X
Santander	X	X	X		X
Societe Generale	X	X	X		X
Standard Chartered Bank		X	X	X	X
UBS	X	X	X		X
Westpac		X	X		X
TOTAL	9	9	10	4	10

Source: Elaborated by authors based on policy and socio-environmental position papers available online.

⁷¹ Any mention of sectors of interest, or even agriculture, agribusiness, and/or agricultural commodities.

Secondly, financial institutions were identified according to the initiatives in which they participate and the commitments assumed regarding natural capital risks and specifically, deforestation. Table 6 lists the participation of these banks in international commitments and initiatives, as well as specific discussion forums of sectors of interest. There is no list of financial institutions that are signatories to the Soy Moratorium and Public Commitment of Livestock Operations, and as such the participation of the banks in these initiatives was not analysed.

Table 6 – Participation of analysed financial institutions in sectorial and international initiatives and commitments

Financial Institutions	Initiatives and commitments made internationally						Member of sectorial initiatives				
	BEI	Soft Commodity Compact	Equator Principles	UN Global Compact	NCD	UNEP FI	FSC*	GRSB	GTPS	RTRS	RSPO
Barclays	X	X	X			X					
BNP Paribas	X	X	X			X					X
BNY Mellon	X										
Deutsche Bank	X	X	X	X		X					
Goldman Sachs	X										
JP Morgan Chase		X	X			X					
Lloyds Banking Group	X	X	X	X		X					
Northern Trust	X					X					
Rabobank		X	X	X	X	X		X	X	X	X
Royal Bank of Scotland (RBS)	X	X	X	X		X					
Santander	X	X	X	X		X			X	X	
Societe Generale		X	X	X		X					
Standard Chartered Bank	X	X	X	X	X	X					X
UBS		X		X		X					X
Westpac	X	X	X	X		X					

* The list of members of FSC International was included.

Source: Elaborated by authors based on bank and initiative websites.

BEI = Banking Environmental Initiative;
 NCD = Natural Capital Declaration;
 GRSB = Roundtable on Sustainable Beef;

GTPS = Brazilian Roundtable on Sustainable Livestock;
 RTRS = Roundtable on Responsible Soy;
 RSPO = Roundtable on Sustainable Palm Oil.

Also, the policies of financial institutions for each of the sectors of interest or cross-cutting themes potentially related to the risk of deforestation, such as biodiversity policy or for biofuels, were highlighted.

Six of the financial institutions analysed address one or more sectors of interest in their general socio-environmental or sustainability policy, which are accounted for in this analysis. A further six financial institutions have independent sectorial socio-environmental policy and, in this case, all those related to the sectors under study were considered. Thus, 23 socio-environmental policies dealing with soy, livestock, pulp, and palm oil, from 12 financial institutions were identified (Table 7).

A total of 70 criteria were recognized, which were classified into 11 categories: i) legality; ii) restriction of activity in specific areas; iii) forest management; iv) soil; v) water; vi) governance; vii) participation in initiatives and/or certification requirements; viii) value chain; ix) management, policy, and business commitments; x) social criteria; and xi) others. Given the scope of the study, criteria related to the risk of deforestation appearing in ten or more policies were analysed.

It was possible to recognize degrees of requirement regarding each criterion within policy. As an indication, in Table C, criteria marked "mandatory", "forbidden activity", "no relation to", "service restriction" are in dark blue; softer criteria, such as "activities which do not significantly impact", "recommended", "considered expected", "evaluation criteria", "will only establish a business under certain criteria", "analysis of client capacity to deal with...", and "have a policy dealing with the issue" are in light blue. In the uncoloured marked squares, the degree of requirement was not identified.

Table 7 – Most common policy criteria of financial institutions under analysis

Related Socio-environmental Policy	Activity in HCV areas	Activity in World Heritage areas (UNESCO)	Activity in marshland areas listed in the Ramsar Convention	Activity in primary forest or protected areas	Non-harvesting and marketing of CITES listed species	Non-use of fire for area clearance	FSC or PEFC	RSPO
Barclays: Environmental and Social Risk Briefing - Agriculture and Fisheries. March 2015								
Barclays: Environmental and Social Risk Briefing - Forestry and Logging. March 2015	X			X			X	
BNP Paribas: Agriculture Sector Policy. s/d	X	X	X		X			
BNP Paribas: Corporate Social Responsibility - Sector Policy: Palm oil. s/d	X	X	X			X		X
BNP Paribas: Corporate Social Responsibility - Sector Policy: Wood pulp. s/d	X	X	X				X	
Deutsche Bank: Environmental and Social Policy Framework. May 2016	X	X	X	X		X	X	X
Goldman Sachs: Environmental Policy Framework. 2015	X	X				X	X	X
JP Morgan Chase & Co: Environmental and Social Policy Framework. December, 2013	X	X	X	X		X	X	X

Related Socio-environmental Policy	Activity in HCV areas	Activity in World Heritage areas (UNESCO)	Activity in marshland areas listed in the Ramsar Convention	Activity in primary forest or protected areas	Non-harvesting and marketing of CITES listed species	Non-use of fire for area clearance	FSC or PEFC	RSPO
Rabobank - Sustainability Policy Framework, Soy Chapter. November 2015	X			X	X	X		
Rabobank - Sustainability Policy Framework, Livestock Farming Chapter. November 2015					X			
Rabobank - Sustainability Policy Framework, Forestry Chapter. November 2015				X	X	X	X	
Rabobank - Sustainability Policy Framework, Palm Oil Chapter. November 2015	X			X	X			X
Royal Bank of Scotland (RBS): Environmental, Social and Ethical Risk Policy Summary for Forestry, Fisheries and Agribusiness Sectors. October 2014	X	X	X		X	X	X	X
Santander: General Sustainability Policy. December 2015	X	X	X		X			
Societe Generale: Agriculture, Fisheries and Food Policy. September 2014					X			

Related Socio-environmental Policy	Activity in HCV areas	Activity in World Heritage areas (UNESCO)	Activity in marshland areas listed in the Ramsar Convention	Activity in primary forest or protected areas	Non-harvesting and marketing of CITES listed species	Non-use of fire for area clearance	FSC or PEFC	RSPO
Societe Generale: Cross-sector Biodiversity Policy. September 2014		X	X		X			
Societe Generale: Florestry and forests products. September 2014	X			X	X		X	
Societe Generale: Palm Oil Policy. September 2014	X			X	X			X
Standard Chartered Bank: Position Statement - Agribusiness. 2013		X	X	X	X			
Standard Chartered Bank: Standard Chartered Bank Position Statement - Forestry. 2013	X	X	X	X		X	X	
Standard Chartered Bank: Standard Chartered Bank Position Statement - Palm oil. 2013	X	X	X	X		X		X
UBS - Environmental and Social Risk Policy Framework. March 2016	X	X	X		X	X	X	X
Westpac: Our position - Financing Agribusiness. November 2014	X						X	X

Source: Elaborated by authors based on socio-environmental policy of available banks.

HCV = High Conservation Value;

CITES = Convention on International Trade In Endangered Species of Wild Fauna and Flora;

PEFC = Programme for Endorsement of Forest Certification;

RSPO = Roundtable on Sustainable Palm Oil

- **High Conservation Value – HCV⁷²:** these are biological, ecological, social, or cultural values that are considered exceptional and significant at national, regional, or global level. There are six types: 1) biological diversity; 2) intact landscapes and forest ecosystems; 3) rare, threatened, or endangered ecosystems; 4) basic ecosystem services in critical condition; 5) key sites and resources that meet the basic needs of local communities or indigenous peoples; and 6) sites, resources, habitats, and landscapes of cultural importance. In Brazil, examples of HCV areas are the Atlantic and Amazonian Forests.
- **Ramsar Convention⁷³:** The Ramsar Convention, or Convention on Wetlands of International Importance, of 1971, is an intergovernmental treaty which establishes frameworks for national actions and for the cooperation between countries with a view to promoting the conservation and sustainable use of wetlands. Brazil signed the convention in 1993 and ratified it in 1996 and today has 13 listed sites, among them the Ilha do Bananal (TO), the Pantanal Matogrossense (MT), and the Abrolhos National Park (BA). The full list is available at: <https://rsis.ramsar.org/>
- **International Convention on Trade in Endangered Species (CITES):⁷⁴** regulates the export, import, and re-export of animals and plants, their parts and derivatives, through a system of licenses and certificates which are issued if the requirements of the Convention applied to the species set out in the Annexes are met. The Convention is of great relevance for the preservation of endangered species under threat from trade, currently with 180 signatory countries.
- **World Heritage (UNESCO):⁷⁵** The World Cultural and Natural Heritage Convention adopted by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 1972 seeks to encourage the preservation of cultural and natural assets considered significant to humankind. Cultural heritage consists of “monuments, groups of buildings or sites that have an exceptional universal value from a historical, aesthetic, archaeological, scientific, ethnological, or anthropological point of view”. Natural heritage is “exceptional physical, biological and geological formations, habitats of endangered animal and plant species, and areas that have exceptional and universal scientific, conservational, or aesthetic value.” Brazil has 19 World Heritage titles, including a protected area complex in the Pantanal, a conservation complex in the Central Amazon, and reserves in the Atlantic Forest.
- **ASEAN Policy on Zero Burning:** was established in 1999 by the ASEAN (Association of South East Asian Nations) environment ministers who agreed to promote its application by owners and dealers of plantations in the region. The Policy can be accessed at: http://haze.asean.org/?wpfb_dl=163

⁷² (ProForest, 2003) (HCV Resource Network, c2016a)

⁷³ (MMA, c2016)

⁷⁴ (IBAMA, s/d)

⁷⁵ (IPHAN, c2014a). (IPHAN, c2014b)

Appendix D – Questionnaires used for empirical research

SOY

For purchase in Brazil and sale in Brazil and abroad, in the year to date (2015):

1. In the year 2015 to date, has the company bought or sold more than R\$10 million in soy (in beans, meal, or oil)?

- Yes
- No

2. If yes, please indicate the socio-environmental aspects of the soy purchased and the percentage of the total purchased in 2015:

2.1. RTRS (if yes, please indicate percentages below) – Identity Preserved, Segregated, or Mass Balance models:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.2. RTRS (If yes, please indicate percentages below) - Credit purchase model:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.3. Proterra (If yes, please indicate percentages below):

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.4. ISCC (If yes, please indicate percentages below):

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

**2.5. Other socio-environmental criteria not listed above (please specify: _____)
(If yes, indicate percentages below):**

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.6. For the above criteria, please indicate whether they were purchased or sold under the Preserved Identity, Segregation, or Mass Balance models, and the corresponding percentages: _____

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.7. For the above criteria, please indicate whether they were purchased or sold under the credit purchase model, and the corresponding percentages: _____

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.8. Commitment to the purchase of soy in accordance with the Soy Moratorium (If yes, indicate percentages below):

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.9. Does the company have its own model for assessing criteria related to deforestation for its soy suppliers?

- Yes
- No

If yes, what is the adopted criterion?

- Zero Deforestation
- Zero Illegal Deforestation
- Other Criteria: _____

Percentage of total purchased within the scope of assessment:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

Main aspects of assessment: _____

3. For suppliers of finished products which have soy in their composition, does the company require from the manufacturers of the finished product (which will be sold and labelled with the company brand) some of the previously mentioned criteria adopted for the purchase of the product in natura?

Yes

No

If Yes, please state which criteria are required: _____

PULP

1. In the year 2015 to date, has the company bought or sold more than R\$1 million in pulp?

Yes

No

2. If yes, please indicate the socio-environmental aspects of the pulp purchased and/or sold, and the percentage in 2015:

2.1. FSC (If yes, indicate percentages below):

Up to 10% of physical volume purchased in 2015

Between 10% and 50% of physical volume purchased in 2015

Between 50% and 90% of physical volume purchased in 2015

More than 90% of physical volume purchased in 2015

**2.2. Other socio-environmental criteria not listed above (please specify: _____)
(If yes, indicate percentages below):**

Up to 10% of physical volume purchased in 2015

Between 10% and 50% of physical volume purchased in 2015

Between 50% and 90% of physical volume purchased in 2015

More than 90% of physical volume purchased in 2015

2.3. Does the company have its own model for assessing criteria related to deforestation for its pulp suppliers?

Yes

No

If Yes, what is the adopted criterion?

Zero Deforestation

Zero Illegal Deforestation

Other Criteria: _____

Percentage of purchased total within the scope of assessment:

Up to 10% of physical volume purchased in 2015

Between 10% and 50% of physical volume purchased in 2015

Between 50% and 90% of physical volume purchased in 2015

More than 90% of physical volume purchased in 2015

3. For suppliers of finished products which have pulp in their composition, does the company require from the manufacturers of the finished product (which will be sold and labelled with the company brand) some of the previously mentioned criteria adopted for the purchase of products previously cited?

Yes

No

If yes, please state what criteria are required: _____

PAPER

For purchase in Brazil, and sale in Brazil and abroad, in the year 2015 to date, in Brazil:

1. In the year 2015 to date, has the company purchased and/or sold more than R\$10 million in paper?

Yes

No

2. If yes, please indicate the socio-environmental aspects of the paper purchased and/or sold, and the percentage of the total purchased in 2015:

2.1. FSC (If yes, indicate percentages below):

Up to 10% of physical volume purchased in 2015

Between 10% and 50% of physical volume purchased in 2015

Between 50% and 90% of physical volume purchased in 2015

More than 90% of physical volume purchased in 2015

2.2. Other socio-environmental criteria not listed above (please specify: _____) (If yes, indicate percentages below):

Up to 10% of physical volume purchased in 2015

Between 10% and 50% of physical volume purchased in 2015

Between 50% and 90% of physical volume purchased in 2015

More than 90% of physical volume purchased in 2015

2.3. Does the company have its own model for assessing criteria related to deforestation for its paper suppliers?

Yes

No

If yes, what is the adopted criteria?

Zero Deforestation

Zero Illegal Deforestation

Other Criteria: _____

Percentage of purchased total within the scope of assessment:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

Main aspects of the assessment: _____

3. For suppliers of finished products which have paper in their composition, does the company require from the manufacturers of the finished product (which will be sold and labelled with the company brand) some of the previously mentioned criteria adopted for the purchase of products previously cited?

- Yes
- No

If yes, please specify the required criteria: _____

PALM OIL

For purchase in Brazil, and sale in Brazil and abroad, in the year 2015 to date, in Brazil:

1. In the year 2015 to date, has the company purchased and/or sold more than R\$10 million in dendê oil (palm oil)?

- Yes
- No

2. If yes, please indicate the socio-environmental aspects of the dendê oil purchased, and the percentage of the total purchased in 2015:

2.1. RSPO (If yes, indicate percentages below):

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.2. Other socio-environmental criteria not listed above (please specify: _____) (If yes, indicate percentages below):

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% to 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.3. For the above criteria, please indicate if they were bought or sold under the Preserved Identity, Segregation, or Mass Balance models, and their corresponding percentages: _____

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.4. For the above criteria, please indicate if they were bought or sold under the credit purchase model, and the corresponding percentages: _____

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

2.5. Does the company have its own model for assessing criteria related to deforestation for its palm oil suppliers?

- Yes
- No

If yes, what is the adopted criteria?

- Zero Deforestation
- Zero Illegal Deforestation
- Other Criteria: _____

Percentage of the purchased total within the scope of assessment:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

Main aspects of assessment: _____

3. For suppliers of finished products which have paper in their composition, does the company require from the manufacturers of the finished product (which will be sold and labelled with the company brand) some of the previously mentioned criteria adopted for the purchase of products previously cited?

- Yes
- No

If yes, please state what criteria is required: _____

STANDING CATTLE (LIVE ANIMAL)

For purchase in Brazil, and sale in Brazil and abroad, in the year 2015 to date, in Brazil:

1. In the year 2015 to date, has the company spent over R\$1 million on the sale and/or purchase of cattle?

- Yes
- No

2. If yes, does the company require criteria related to deforestation from its cattle suppliers?

- Yes
- No

2.1. If yes, what is the adopted criterion?

- Zero Deforestation
- Zero Illegal Deforestation
- Other Criteria: _____

Percentage of purchased total within the scope of assessment:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

Main aspects of assessment: _____

BEEF

For purchase in Brazil, and sale in Brazil and abroad, in the year 2015 to date, in Brazil:

1. In the year 2015 to date, has the company spent over R\$ 1 million on the purchase and/or sale of beef?

- Yes
- No

2. If yes, does the company require criteria related to deforestation from its beef suppliers?

- Yes
- No

2.1. If yes, what is the adopted criteria?

- Zero Deforestation
- Zero Illegal Deforestation
- Other Criteria: _____

Percentage of purchased total within the scope of assessment:

- Up to 10% of physical volume purchased in 2015
- Between 10% and 50% of physical volume purchased in 2015
- Between 50% and 90% of physical volume purchased in 2015
- More than 90% of physical volume purchased in 2015

Main aspects of assessment: _____

LEATHER, TALLOW AND OTHER BY-PRODUCTS

For purchase in Brazil, and sale in Brazil and abroad, in the year 2015 to date, in Brazil:

1. In the year 2015 to date, has the company spent over R\$ 1 million on the purchase and/or sale of cattle derived products?

Yes

No

2. If yes, does the company require criteria related to deforestation from its cattle derived product suppliers?

Yes

No

2.1. If yes, what is the adopted criteria?

Zero Deforestation

Zero Illegal Deforestation

Other Criteria: _____

Percentage of purchased total within the scope of assessment:

Up to 10% of physical volume purchased in 2015

Between 10% and 50% of physical volume purchased in 2015

Between 50% and 90% of physical volume purchased in 2015

More than 90% of physical volume purchased in 2015

Main aspects of assessment: _____

Appendix E – Novo Campo Programme

With the objective of supporting the goals of the New York Declaration on Forests, reducing its carbon footprint, and responding to complaints from environmental organizations on the issue, the McDonald's chain had, for many years, a policy of not supporting products which may have been obtained through deforestation of the Amazon, and, as such, did not buy beef originating from this biome. However, the company realized that only stopping the purchase of beef from degraded areas was not the solution to the problem of deforestation, since illegal producers, once failing to sell beef to the major companies (JBS, Marfrig, and Minerva, which assumed the Public Commitment of Livestock Operations), went on to sell to smaller companies which were not part of the Commitment. An incentive was therefore necessary for ranchers to gain something additional with legality.

In August 2016, McDonald's announced a purchase agreement for 250 tonnes of beef per year supplied by the Bevilaqua farm, of Alta Floresta (MT), which is part of the Novo Campo program. Despite representing less than 1% of total demand from the fast food chain, the intention is to increase the quantity purchased each year, building the new supply chain step by step. As well as a commitment to zero deforestation, there is also a commitment to encourage the recovery of areas, in order to increase production using less area.

The Novo Campo Programme was launched in 2012 as an initiative of the NGO Centro de Vida Institute (ICV) to help control deforestation in Alta Floresta, the largest livestock centre in the north of Mato Grosso and, until then, one of the leading deforestation municipalities in the state. The pilot project, with 14 landowners, began by helping to recover degraded pastures and permanent preservation areas (APPs) that had been cleared. In 2015, the Pecsá (Amazon Sustainable Livestock) company joined the pilot, which made possible the expansion of the scale of work through fundraising abroad. As such, recovery occurred throughout the farm, rather than just at a portion of the property.

The results of the Project show an increase in average productivity per hectare/year – currently 35 arrobas/ha/year, as well as a reduction in emissions by 20% per hectare of pasture and 60% of emissions per kilo of beef. An agreement was reached with JBS to supply McDonald's with beef produced with the Pecsá model.

The McDonald's case shows that risks related to deforestation, when properly managed, can result in new business opportunities, such as the development of a sustainable supply chain with added value.

Source: (Girardi, 2016)

Appendix F – Organizations consulted during preparation of the project

For the preparation of this study, the following organizations were consulted:

Financial Institutions:

- ✓ Rabobank
- ✓ Santander
- ✓ Itaú Unibanco
- ✓ Banco do Brasil
- ✓ Bradesco
- ✓ Caixa Econômica Federal

Specialists:

- ✓ Soft Commodities Compact
- ✓ WWF
- ✓ Natural Capital Declaration (NCD)

Productive Sector:

- ✓ Unilever
- ✓ Carrefour
- ✓ JBS
- ✓ Marfrig
- ✓ Bunge

FEBRABAN

Brazilian Federation of Banks