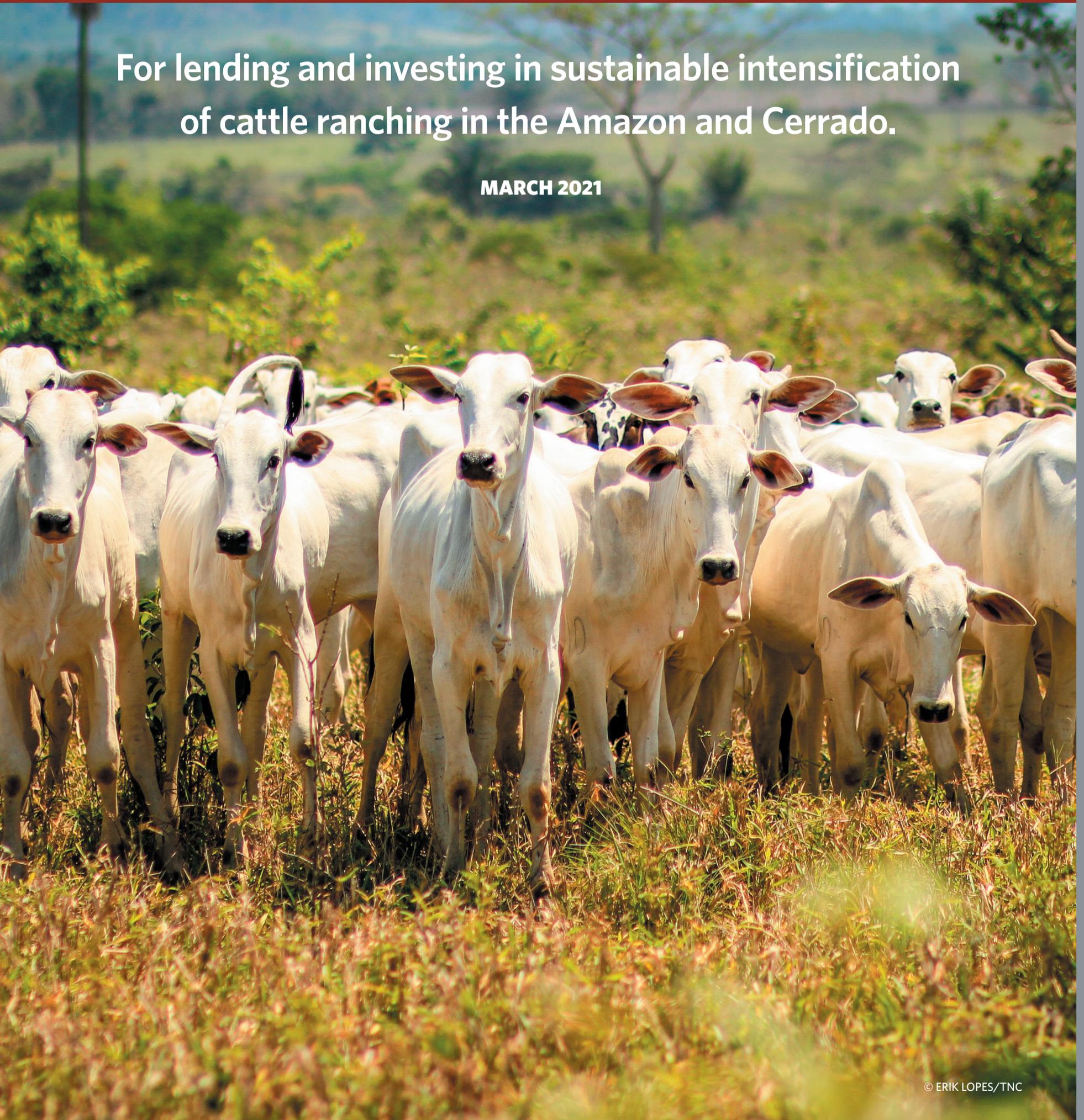


ENVIRONMENTAL FRAMEWORK

For lending and investing in sustainable intensification
of cattle ranching in the Amazon and Cerrado.

MARCH 2021



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Full Report

The Nature
Conservancy 



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1. Executive Summary

Brazil is the largest exporter of beef in the world, representing 28% of global exports in 2019¹, and ranks as the second largest producer of beef after the US. Brazil also has the largest commercial cattle herd in the world with 215 million heads², of which 69% are raised in the Amazon and Cerrado biomes of Brazil. However, Brazil's global market leadership in this sector has come at the cost of losing large areas of natural habitat that have been converted for livestock production.

Cattle ranching is the largest driver of deforestation and conversion of natural habitat in Brazil, causing an estimated 93% of deforestation in the Amazon and 70% in the Cerrado³. The recent increase in fires and deforestation in the Amazon (34.4% increase of deforested area from August 2018 to July 2019 and 9.5% increase for the same period between 2019 and 2020⁴) are caused largely by expansion of cattle ranching. Almost 19%⁵ of the Brazilian Amazon has been cleared, nearing what scientists consider a potential "tipping point" of 20-25% clearance⁶ when the Amazon could rapidly transition to a non-forest ecosystem. The Cerrado is now half converted⁷.

The ongoing clearing of natural vegetation in these biomes has devastating implications for carbon emissions, water availability, biodiversity and the people who live and work in these areas. Moreover, demand for Brazilian beef is expected to grow approximately 35% over the next two decades⁸, with exports to China being the fastest growing segment of the market, placing increasing pressure on conversion of natural habitat in these biomes⁹.

Fortunately, there are clear pathways to meet the growing global demand for beef, while avoiding future conversion of natural habitat. Cattle production in the Amazon and Cerrado is currently very low productivity, and with already-demonstrated practices cattle yields can be increased by three to five times the current level while maintaining a largely grass-fed, pasture-based system, including systems that integrate cattle, crops and forestry¹⁰. Even moderate productivity increases can not only enable Brazil to meet future demand without further habitat conversion, but also allow for a reduction in the cattle footprint, thereby freeing up pastureland for production of soy and other agricultural products.

The cattle intensification process described above requires upfront capital but has an attractive return on investment – estimated to be greater than 10% over an eight-to ten-year period¹¹.

Even moderate productivity increases can enable Brazil to meet future demand without further habitat conversion

1 CEPEA (2019)

2 IBGE 2019

3 If we consider what was mapped as native by MapBiomias (<https://plataforma.brasil.mapbiomas.org/>) in the year 2008 and as pastures in the year 2019.

4 Prodes/Inpe (2020)

5 INPE/Prodes

6 Lovejoy & Nobre (2018)

7 MMA (2015)

8 Mulder (2019), OECD-FAO (2018)

9 ABIEC (2020)

10 Latawiec et al. (2014)

11 TNC (2016)

However, most ranchers lack access to credit to make the initial investments (exacerbated by the lack of land tenure in some key parts of the Amazon) while also needing technical assistance to implement an intensified system. Furthermore, some rancher segments are not driven by ROI considerations and can be slow to change behavior even if the economic case is strong.

Expanding rancher access to long-term credit is a critical component needed to close the yield gap described above, but it needs to target farmer segments that are receptive to change, be bundled with the required technical assistance, and manage key risks in a way that makes financial sense for the lender while also offering attractive terms to the rancher. There are some existing models for doing this – for example, recent loans made

by Bradesco with &Green¹², Rabobank with the Agri3 Fund¹³, and the innovative business model pioneered by PECSA¹⁴ to deliver finance and technical assistance to farmers. The Government of Brazil’s low-carbon agriculture (ABC) program also offers examples for financing cattle intensification.

As the pressure for deforestation-free supply chains grows, both internationally and in Brazil, increasing the capital committed to DCF financial mechanisms can generate benefits for stakeholders across the beef value chain

In spite of these promising examples, lending and investment for cattle intensification is far below the USD \$35-41 billion¹⁵ that will be required through 2030 to satisfy future market demand without further habitat conversion. However, the momentum is growing for expanding lending and investment in the cattle sector. The largest slaughterhouses (as well as major retailers and restaurant chains), have recently committed to Deforestation and Conversion-Free (“DCF”) sourcing beyond their immediate direct suppliers, and the beef supply chain is actively seeking solutions including ranch financing structures to grow production without deforestation. The increasingly important China market requires animals that are no more than 30 months old, which can only be achieved in an intensified system. Growing concerns about deforestation and climate change from investors

and the general public are causing companies, financial institutions and government to more proactively address emissions from the cattle sector. For example, Santander, Itaú and Bradesco banks announced a partnership which includes creating more financing solutions for sustainable cattle production. Concessional capital groups – which will be critical to managing risk and allowing longer loan terms – are increasing their interest in cattle intensification, including the Agri3 Fund, the &Green Fund, FMO, and IDB.

As the pressure for deforestation-free supply chains grows, both internationally and in Brazil, increasing the capital committed to DCF financial mechanisms can generate benefits for stakeholders across the beef value chain. Lenders and investors can gain reputational benefits and new business opportunities from better serving cattle ranchers. Slaughterhouses can benefit from a growing supply of DCF cattle to achieve their commitments, meet the needs of the growing China market and secure access to markets with stricter environmental requirements, including domestic retailers with corporate ties to Europe. Cattle ranchers can gain access to improved lending terms to expand their businesses’ size and profitability, while maintaining sales to slaughterhouses that are increasingly seeking DCF cattle.

¹² <https://www.andgreen.fund/portfolio/>

¹³ <https://rabobankbrasil.medium.com/rabobank-anuncia-novas-operas-c3a7c3b5es-com-o-fundo-agri3-para-agricultura-sustent-c3a1vel-no-brasil-e-chi-na-7ddd4b299334>

¹⁴ <https://pecsa.com.br/en/>

¹⁵ Sitawi (2020)



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The Nature Conservancy's Environmental Framework was created to guide lenders and investors in successfully expanding their environmental finance programs or adapting existing products to a DCF approach. It contains a consistent set of requirements and monitoring approaches that is effective in ensuring DCF production while also practical for producers and investors to implement.

The Environmental Framework is intended to support more rapid scaling of DCF mechanisms by lenders and investors seeking to promote sustainable cattle ranching intensification in the Amazon and the Cerrado, while also benefiting ranchers with practical, streamlined compliance requirements. The Nature Conservancy developed the framework through extensive engagement of nearly 60 knowledgeable individuals from more than 25 institutions representing key stakeholders throughout the beef value chain, including slaughterhouses, banks, producers, development finance institutions, academia and NGOs.

The Environmental Framework defines cattle sustainable intensification for purposes of this document as a process that has been demonstrated to produce a significant yield increase; employs a primarily grass-fed, pasture-based system with any animal confinement limited to the last 15% of the animals' lifespan; is located on existing pastureland or other already cleared areas; and follows one or more recognized practices for sustainable pasture intensification, which are further described in the full report. Practices which are not recognized as part of this Environmental Framework include, for example, business as usual expansion of ranches with no significant yield increase, conversion of natural habitat to create new grazing areas, and feedlots which involve long periods of animal confinement.

Core Requirements

The Environmental Framework requires lenders and investors to incorporate the following core environmental requirements in their financial instruments:

- **Legal compliance:** A rancher must comply with the applicable laws and regulations on all properties it owns and operates, not just the farm being financed. These include valid legal property documentation (title, lease, or proof of possession), compliance with the Forest Code, specific labor and environmental regulations, and the criteria for legal compliance defined by the Federal Prosecutor as part of the Terms of Adjusted Conduct (TAC) agreements. The Framework offers a checklist of relevant documents and online registries to assess legal compliance.

- **Conversion-free reference date:**
 - The framework sets January 2018 as the reference date from which there can be no additional deforestation or conversion on the financed farm. The reference date represents a practical balance - ensuring that recent deforestation is not rewarded with better financing terms, while avoiding a more restrictive date that would limit the adoption by lenders and ranchers.

 - Ranchers in the Amazon with legal deforestation between October 2009 and January 2018 must also demonstrate fulfillment of market re-entry requirements under the Public Beef Commitment, regardless of who they sell their cattle to. This requirement may be fulfilled during the loan term and loan proceeds could potentially be used to finance the re-entry requirements. TNC analysis using Mapbiomas indicates that this requirement would only apply to a small share of the area in the priority municipalities of the Amazon for sustainable intensification¹⁶.

 - To address deforestation risk among a borrower or investee's suppliers, the Framework prohibits conversion on farms that directly supply the financed property with unfinished cattle as of the start date of the loan or investment agreement. Given that DCF financial mechanisms generally target ranchers that sell directly to slaughterhouses, this provision means that the core requirements address the first two levels of suppliers to slaughterhouses which represent approximately 84% of deforestation¹⁷, and will reach a step further down the supply chain compared to current mainstream monitoring practices. As technology and data availability advance, applying the reference date to indirect suppliers of the borrowers/investees will be considered in future versions of the Framework.

¹⁶ TNC analysis using Mapbiomas indicates that 16% of the pastureland in the priority areas of the Amazon for intensification was converted between 2009 and 2018. This includes legal and illegal deforestation, and we expect the share that is from legal deforestation is substantially lower than 16%.

¹⁷ Rausch & Munger (2020)

Additional Elements

The Environmental Framework sets out seven additional elements that lenders and investors can choose to incorporate into their DCF financial mechanisms to enhance conservation impact but are not considered essential to achieve the most critical environmental results. This customization beyond the core requirements allows lenders and investors to manage their portfolios to meet even greater institutional ambitions for positive environmental impact or apply a more conservative approach to minimizing exposure to environmental risks.

The additional elements may be integrated as mandatory requirements of a lending or investment program or can be strongly encouraged through preferential access to the program for ranchers who will follow them, or through producer incentives such as lower interest rates or other more favorable financing terms. The additional elements include:

1. **Cross-farm Applicability:** Applying the conversion-free reference date requirement to all properties owned or operated by the borrower/investee, not just the property being financed, is highly encouraged. While this requirement is difficult for many ranchers to accept and is therefore not included in the core requirements, it is the most important of the additional elements for enhancing environmental impact and should be incorporated into DCF mechanisms whenever possible.
2. **Spatial Prioritization:** DCF financial mechanisms can encourage investment and loan deployment in areas of the Amazon and the Cerrado where sustainable intensification is most feasible. The Framework includes a TNC list of municipalities with “high potential for sustainable intensification” and a tool to help users access the prioritized list, based on key economic, logistical, soil, climate, and production criteria.
3. **Good Agricultural Practices:** DCF financial mechanisms are encouraged to require and monitor the adoption of recognized management practices that improve environmental and social outcomes while reducing risk to the lender. Examples of good practices are contained in standards such as GTPS-MPPS and EMBRAPA.
4. **Lower GHG/kg of production:** Projected net GHG emissions from implementing sustainable intensification ranching practices must be equal or lower to pre-intensification emissions projections (BAU emissions) that would have occurred without accessing a DCF financial mechanism. This calculation¹⁸ must take into account, among other factors, the balance of methane processes, pasture management and potential soil carbon sequestration.
5. **Land Conflict:** In addition to the legal requirements governing land conflict (i.e. valid legal property documentation), and that no property overlaps with Conservation Units or Indigenous or Quilombola Lands), DCF financial mechanisms may screen for land conflict controversies, which can be monitored through the Pastoral Land Commission (CPT) database, ongoing legal procedures and media reports.
6. **IFC Performance Standards (PS):** Many IFC PS components are already embedded in the Environmental Framework. Mandating full compliance with the IFC standards is at the discretion of the institutions designing the finance mechanism.
7. **Good supplier sourcing practices:** To achieve greater environmental impact through its suppliers, DCF financial mechanisms can require the borrower/investee to apply the GTFI (Indirect Suppliers Working Group) guidance on Good Monitoring Practices¹⁹. This industry agreement includes a simple set of supplier criteria that currently includes a reference date for zero conversion of August 2019 for suppliers to ranchers that sell directly to slaughterhouses.

¹⁸ See Carbon Calculator for TNC’s best estimates for on-farm emissions calculations

¹⁹ <https://gtfi.org.br/boas-praticas/>

Monitoring and Performance

The Framework offers guidance on monitoring the environmental requirements to assist lenders and investors in understanding capacity needs and adapting internal procedures to ensure producer compliance. The guidance outlines five steps (active origination, eligibility assessment, preparation for monitoring, annual monitoring and ongoing oversight) and includes suggested documentation and information needed for meeting each environmental requirement.

The Framework also provides specific metrics and practical measurement methodologies that lenders and investors can use to evaluate their portfolio's performance. These metrics include observable outcomes such as hectares of intensified pastureland, as well as metrics for off-farm impacts such as avoided deforestation.

The Environmental Framework includes two new public tools to assist in designing high-impact lending and investment programs and measuring results:

- The TNC Dashboard is a dynamic mapping tool that allows the user to review intensification potential, identify their own high-impact geographic priorities for lending and investing, and estimate a farm's potential for adopting integrated crop-livestock systems.
- The TNC Cattle Ranching Carbon Calculator estimates the GHG balance within the financed property from intensification, and the avoided habitat conversion and avoided carbon dioxide emissions from any surplus legal reserve on the financed property.



A Final Note

The Brazilian beef industry is one of the main pillars of Brazil's agribusiness sector, making up 8.5% of the country's GDP in 2019. Brazil is well-positioned to take advantage of global growth in the beef market, particularly in China, and indeed Brazil's beef exports grew by almost 17% from 2018 to 2019. The industry's role in the ongoing deforestation and conversion of natural habitat in the Amazon and Cerrado not only threatens the survival of these critical biomes but puts at risk Brazil's opportunity to benefit from the growing global market.

Sustainable intensification of cattle ranching in Brazil is a tremendous opportunity to grow production, meet the needs of key markets including in China, improve the income of ranchers, free up land for the production of soy and other agricultural products, conserve native vegetation and restore pasture lands and soils, and ultimately contribute to the global effort to control greenhouse gas emissions. A substantial expansion in lending and investment to Brazilian ranchers will be needed to realize this transition, and this Environmental Framework offers a practical guide to help financial institutions design and implement the innovative financial products necessary to achieve this. This cattle paper complements our Environmental Framework for Lending and Investing in Soy in the Cerrado. Together, these two frameworks provide a reference guide for financing agricultural production that is both environmentally and economically sustainable.



2. Context and purpose of the Environmental Framework

From as far south as the Pampas, up through the savannas of the Cerrado and to the northernmost region of the Amazon forest, cattle ranching and beef production in Brazil has long been a cornerstone in the development of the country's economy, culture, and landscape. The Brazilian beef sector is experiencing strong domestic demand and increasing international demand. The Nature Conservancy's Environmental Framework for Lending and Investing in Sustainable Intensification of Cattle Ranching in the Amazon and Cerrado seeks to capitalize on these growth opportunities while supporting stakeholder efforts to ensure that production is Deforestation and Conversion Free (DCF).

The Nature Conservancy developed this Environmental Framework through extensive engagement of nearly 60 knowledgeable individuals from more than 25 institutions. These individuals represent key stakeholders throughout the cattle ranching value chain, including banks, meatpackers, producer association, development finance institutions, academia, and NGOs. The Framework outlines a clear approach to sustainable intensification of cattle ranching and addresses the most critical environmental goals and challenges of the cattle ranching industry.

For the purposes of the Framework, sustainable intensification is defined as a process that has been demonstrated to produce a significant yield increase; employs a primarily grass-fed, pasture-based system with any animal confinement limited to the last 15% of the animals' lifespan; is located on existing pastureland or other already cleared areas; and follows one or more recognized practices for sustainable pasture intensification. Financing of sustainable cattle ranching consistent with the Framework's approach fosters improved productivity on existing pasturelands while reducing ecosystem degradation and promoting climate change mitigation.

The economic importance of cattle ranching

Brazil is the world's largest exporter of beef, representing more than 17% of global exports in 2019²⁰. It also has the largest commercial cattle herd and is the second largest beef producer in the world, representing around 17% of global production²¹. In 2019, the livestock sector, which includes the whole livestock chain, from domestic sales, exports, inputs, and related services to investments in genetics, animal health and nutrition, represented 8.5% of the Brazilian GDP, or USD \$157.4B in Gross Production Value²². Beef cattle ranching, specifically, represented around 20% of this figure, or USD \$29.1 billion.

In 2021, Brazil's beef exports are expected to hit a record high for the third consecutive year, driven by growth in demand from China as well as demand recovery in traditional markets²³. Global demand for animal protein is expected to increase by 35% between 2017 and 2037²⁴, and Brazil could supply nearly half of this increased demand²⁵. Demand for meat in China alone is expected to grow by around 16% between 2018 and 2027, so the country is expected to continue increasing its share of Brazilian beef exports consumption²⁶.

20 ABIEC (2020)
21 USDA (2021)
22 ABIEC (2020)
23 USDA (2020)
24 Mulder (2019)
25 Bain and TNC (2020)
26 World Economic Forum (2019)

Land use change, environmental challenges, and the sustainable intensification opportunity of cattle ranching

Around 90% of cattle ranching in Brazil relies on low-cost, extensive production systems characterized by minimal use of technology and low investment in soil, pasture, and animal management²⁷. There is a definitive correlation between high concentrations of cattle and high deforestation risk in the Amazon and Cerrado biomes, indicating that ranching continues to be a major driver of deforestation in Brazil. Over the last few decades, the increasing global demand for food, and more specifically, beef, has driven an increase in livestock production across the Cerrado and Amazon regions. Brazil has become a leader in the international market for food and agricultural commodities; but these gains came at a loss of large areas that have been cleared, both legally and illegally, for extensive livestock production models.

Pastureland expansion was responsible for 93% of deforestation in the Brazilian Amazon and 70% in the Cerrado in 2018²⁸, resulting in approximately 1.1 million hectares of deforested or converted natural vegetation. Deforestation from agricultural activities, especially cattle ranching, plays a major role in climate change and localized alterations in microclimate. Productivity, which is already low, will likely suffer negative impacts from unfavorable weather conditions, including increased average temperatures, changes in the amount and frequency of rainfall, and extreme weather, such as longer dry seasons and more severe droughts²⁹. Soil erosion is also a potential impact, which could be increased by as much as 20% with the expansion of agriculture into areas of natural habitat in the Cerrado and Amazon biomes³⁰.

The Amazon is the largest tropical forest in the world and houses at least 10% of the world's known biodiversity, including endemic and endangered flora and fauna. Moreover, it influences the global carbon cycle and hemi-

spheric hydrological systems, essential for regional and global economic activity and livelihood.

The Cerrado is the most diverse tropical savanna in the world and the second largest biome in South America. Covering nearly one quarter of Brazil's surface area, it is home to nearly a third of the country's biodiversity³¹. Despite its predominantly shrub-like vegetation, its vast root systems store great quantities of carbon and water and are often compared to a massive underground forest. In addition, the region encompasses the headwaters of eight watersheds and three large Brazilian aquifers, which are essential to economic activities of numerous rural communities and several of the country's major metropolitan regions³². Notwithstanding its ecological importance, a mere 8.2% of the Cerrado is currently protected under legally declared conservation units. Only about 50% of its natural cover remains intact³³, compared with 84% of the Amazon biome³⁴. This distinct contrast is explained in part by the Legal Reserves requirement of the Forest Code (Law 12.651/2012) which requires landowners to set aside Legal Reserves of 80% for properties located in the Amazon biome, compared to 35% for properties located in the transition area between the Cerrado and Amazon, considered the Legal Amazon³⁵, and 20% for properties in the rest of the Cerrado.

Since the 1970s, increases in the Brazilian cattle herd have been heavily concentrated in Brazil's northern and midwestern regions, towards the Amazon and parts of the Cerrado. As of 2019, around 25% of Brazil's total pastureland and 30% of the national cattle herd is located in the Amazon, whereas the Cerrado represents 33% of Brazil's total pastureland and 35% of the national cattle herd (Table 1). Both biomes also present extensive opportunities for increasing production sustainably; over 36 million hectares of pastureland in the Amazon, and another 53 million hectares in the Cerrado are suitable for sustainable intensification.

Table 1: **Cattle ranching activity in Brazil, Amazon and Cerrado (2019).** ³⁶

	BRAZIL	AMAZON	CERRADO
PASTURELAND (HECTARE)	182,448,069	47,720,919	59,873,051
HERD SIZE (ANIMAL UNITS)	156,636,000	46,496,400	53,202,600
ANIMAL UNIT PER HECTARE	0.86	0.97	0.89
INTENSIFICATION POTENTIAL		2.32	2.25

27 Anualpec (2017)

28 If we consider what was mapped as native by MapBiomias (<https://plataforma.brasil.mapbiomas.org/>) in the year 2008 and as pastures in the year 2019.

29 Oliveira et al (2013)

30 EMBRAPA (2012)

31 Klink & Machado (2005)

32 Imaflora (2019).

33 MMA (2015)

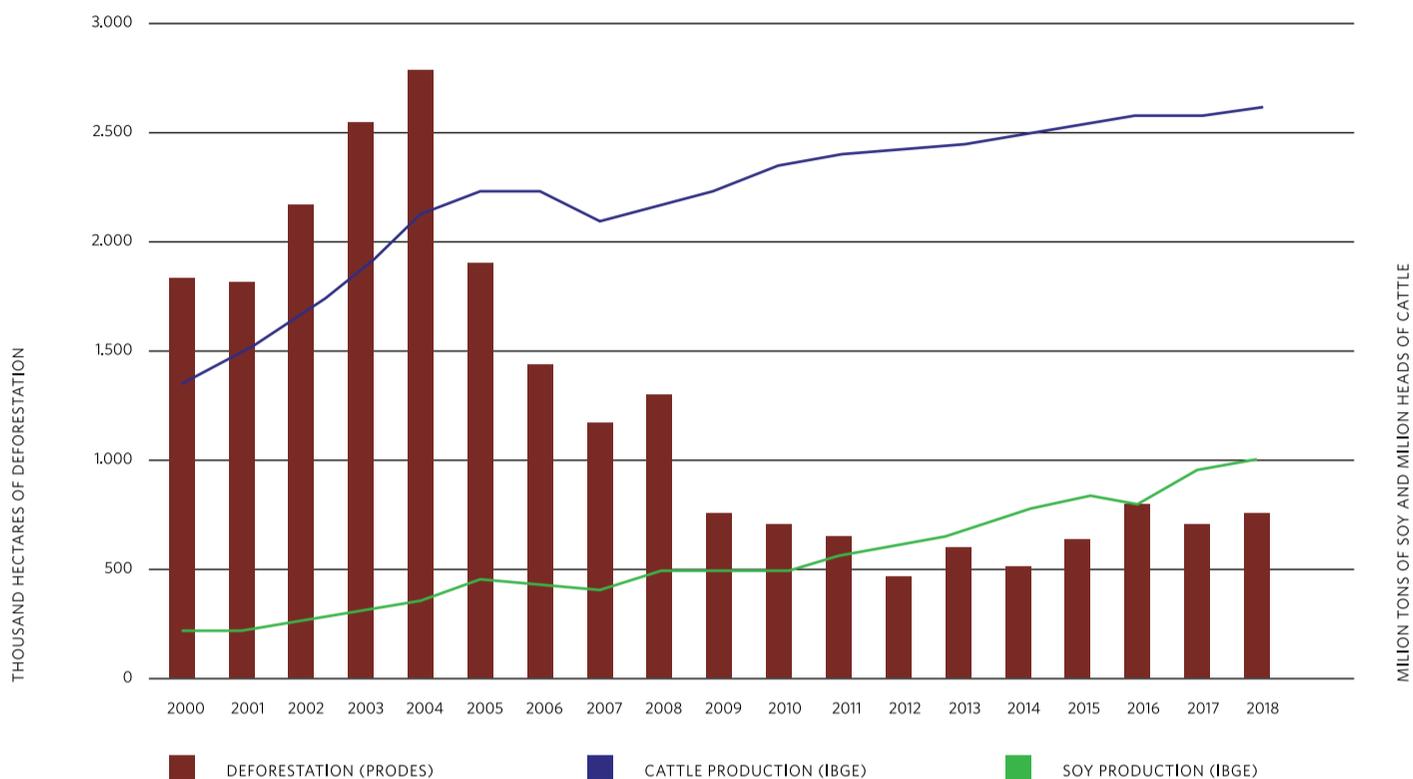
34 Mapbiomas (2020)

35 The Legal Amazon is composed by the states of Acre, Amapá, Amazonas, Mato Grosso, Pará, Rondônia, Roraima and Tocantins and part of the state of Maranhão.

36 LAPIG (2019)

Brazil increased its beef productivity by 128% from 1990 to 2019³⁷, mainly through the adoption of technological advances in sustainable practices and intensification as well as improved genetics³⁸. Improved remote sensing and command and control of illegal deforestation in the Amazon region in the mid 2000's also fueled a need for productivity increases. Figure 1 depicts the win-win situation of increased beef productivity while reducing deforestation.

Figure 1: **Deforestation, Soy and Cattle Production in the Amazon Biome.**³⁹



Despite these recent improvements, Brazilian productivity is lower than that of the United States and some European countries⁴⁰. This is mainly due to the fact that some 90% of the country's extensive livestock production system is characterized by lower technology adoption and little investment in soil, pastureland, and animal management. Compared to other producer countries with extensive systems, the 2019 Brazilian average of 0.86 AU/ha.^{41,42} falls behind Uruguay (1.23 AU/ha.), but is ahead of Argentina (0.76 AU/ha), Paraguay (0.52 AU/ha.) and Mexico (0.15 AU/ha.)⁴³. Although stocking rates in the Amazon (0.97 AU/ha.) and Cerrado (0.89 AU/ha) already surpass the national average, they remain well below their intensification potential of 2.32 and 2.52 AU/ha.⁴⁴, respectively.

Under the business as usual cattle ranching production dynamics, the expected increase in Brazilian beef demand will be met broadly through an expansion of pastureland⁴⁵. Continuous improvement in productivity and efficiency, especially in the Cerrado and Amazon, is essential for Brazil to continue to increase its production without the need to open new area for pastures.

Cattle productivity is compromised by an endless cycle of degradation-causing unsustainable ranching practices, as demonstrated in the figure below⁴⁶. Degradation, caused by inadequate pasture and herd management such as inadequate periodic fertilization, mismanaged grazing practices, and pest problems, limits carrying capacity and reduces the productivity potential of the property⁴⁷.

37 ABIEC (2020)

38 CBI (2020)

39 IBGE and PRODES

40 Bain & TNC (2020)

41 Reference unit to aggregate livestock from various species and age based on is the quantity of forage consumed. Commonly refers to 15 arrobas (@) or 450 kg of animal live weight.

42 LAPIG (2019)

43 Data from USDA, Asociación Rural del Paraguay and Gobierno de Mexico, converted to Animal Units/hectare considering 1 head of cattle = 1 Animal Unit = 450 kg (Embrapa).

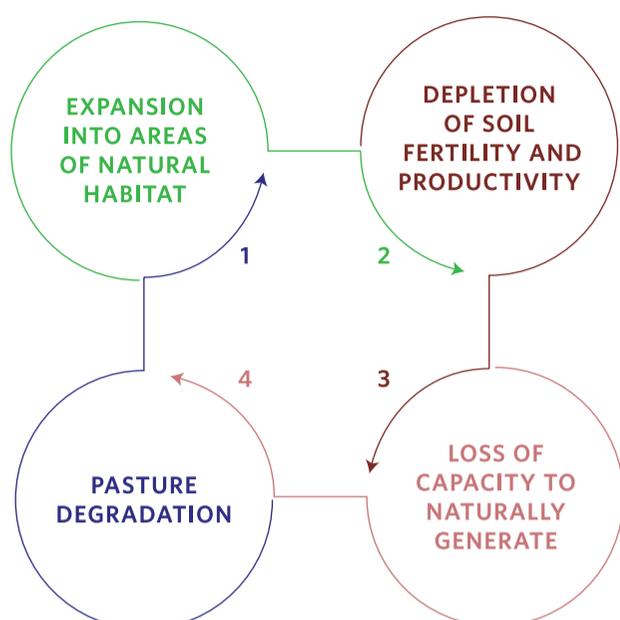
44 LAPIG - Atlas Digital das Pastagens Brasileiras (2018)

45 TNC & Bain (2020)

46 EMBRAPA (2014)

47 Dias-Filho (2014)

Figure 2: **Degradation-causing unsustainable ranching practices.**



Incorporating certain management processes, including integrated crop livestock systems, rotational grazing schedules, regular soil fertility analysis, combined with pastureland maintenance practices, can significantly reduce pasture degradation, while allowing for increased cattle stocking rates. Without continuous preventive efforts to combat degradation, a pasture can become useless for grazing after only three or four years of use. Without long-term financing options, recovering pasture productivity can be cost prohibitive, ranging from \$100 to \$1,000 per hectare depending on the level of degradation. This in turn makes expansion into areas of natural habitat a more attractive business decision. Productivity is also affected, as average meat production in a degraded pasture is approximately 30 kg/ha/year, while in a recovered and sustainably managed pasture production can reach 180 kg/ha/year, considering an extensive production model⁴⁸.

The following key issues play a relevant part in explaining Brazil's low beef productivity:

Low technology levels: This is characterized by inadequate pasture management, such as overgrazing and lack of maintenance fertilization, which leads to widespread pastureland degradation and deficient animal management (health, nutrition, and breeding), resulting in low animal performance.

Land speculation: Cattle ranching is a common means of demonstrating economic use to secure initial land ownership of unclaimed public lands in Brazil. Land that is not actively being used can be expropriated by the government for land reform and community settlements. Extensive cattle ranching is among the simplest and cheapest forms of “demonstrating economic use” to establish occupancy rights. Where the cropland frontier is advancing in the Cerrado, properties acquired this way are later sold at a significant profit over the minimal investment required for initiating cattle operations, generally within four to five years, and often for soy production. Laws that reward such land acquisitions with ownership exacerbate land speculation practices. More recently this has resulted in a federally declared freeze on all processes to demarcate new indigenous lands⁴⁹ and a general weakening of public agencies responsible for environmental monitoring⁵⁰.

Access to finance: Inadequate access to the kind of long-term credit needed to finance upfront costs of intensification has resulted in a significant deficit in capital earmarked to improve productivity in cattle ranching on existing pastureland. Because access to capital is crucial if Brazilian ranchers are to meet the projected demand for beef through Deforestation and Conversion-Free production until 2030, estimated at more than USD \$35B⁵¹, this represents both a challenge and an opportunity for investors and lenders seeking to sustainably expand the sector.

Others: These factors also discourage investments in increased productivity and incentivize unsustainable land-use practices that lead to degradation: (i) lack of access to adequate and comprehensive training services and technical assistance dedicated to improving cattle ranching productivity; (ii) absence of clear land tenure for many ranchers; and (iii) cultural barriers in gaining acceptance of alternative production methods that challenge traditional cattle ranching practices. The expected increase in beef production to meet growing demand could lead to further deforestation within the Amazon and Cerrado biomes given the predominant ranching dynamic of low productivity, inadequate pasture and soil management, and expansion into natural habitat. Key to breaking out of this cycle will be applying sustainable, more intensive production models that incorporate active pasture management, support a transition to commercially viable DCF models and, where appropriate, implement integrated production systems (crop-livestock-forest). Technical

48 Macedo (2013)

49 Brito (2019)

50 Vale et al. (2021)

51 SITAWI estimated in 2020 the gap between DCF credit lines currently available and the capital required to effectively have enough DCF soy and beef production to meet the estimated soy and beef demand growth until 2030; therefore calculating the additional cost linked to the predicted production increase in four scenarios (business as usual, NDC, DCF-A for soy and beef productivity increase with no expansion, and DCF-B for beef productivity increase and soy expansion over pastureland); and identifying current and predicting future availability of DCF resources.

assistance and long-term financing to support ranchers are essential in this process.

Financing and cattle ranching expansion dynamics

Cattle ranching intensification demands an initial investment and additional operational costs for better pasture management. But restoration of pastureland, fencing, soil enhancers, advanced machinery, and labor investments (such as training) may catalyze an increase in productivity, potential cost reduction per animal slaughtered⁵², and reduction in the need for additional area. By improving levels of productivity, intensified ranches can achieve a win-win scenario, increasing profit margins while improving on environmental impacts.

Existing cattle ranching intensification initiatives have achieved average productivity increases of between 30 and 490%, with initial investments averaging USD \$410/ha \$2,180/ha and an average pay-back time of 2.5 to 8.5 years⁵³. Financial performance linked to intensification projects varies across geographic regions and property sizes, with larger properties performing better due to economies of scale linked to the implementation of technology and integrated systems.

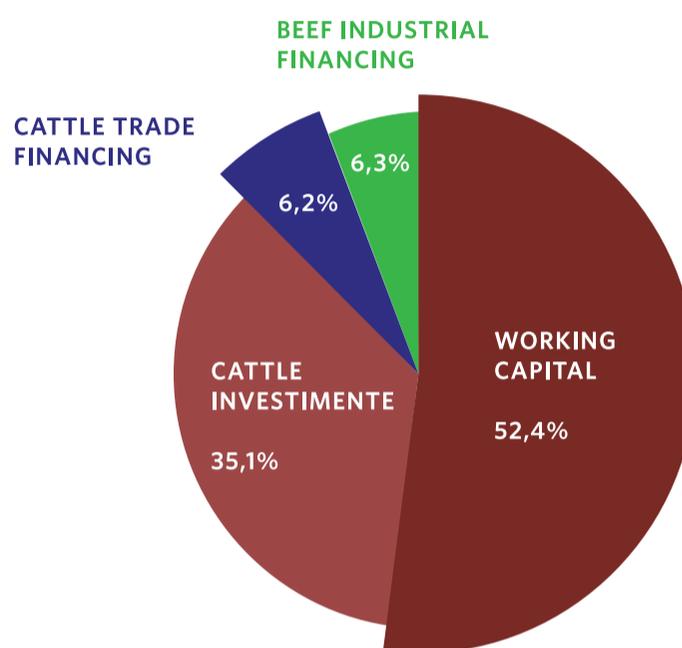
Market and regulatory incentives are currently insufficient to entice farmers away from the perceived benefits of deforestation⁵⁴. Deforestation regulations have limited impact in promoting cattle intensification in regions with low land prices and abundant natural habitat which can be cleared legally and where monitoring and law enforcement is more challenging⁵⁵.

Self-financing and financial institutions are traditionally the main sources of funding for Brazilian beef production, representing around 40% and 60% of beef investment financing respectively for the Amazon region. The share of each source in the financing mix among ranchers varies according to the size of the cattle ranch, with ranchers' access to financial institutions being proportional to their size⁵⁶.

Livestock financing by financial institutions is comprised of a mix of public and private resources, of which around 73% are governmental programs and credit lines and 27% are cooperatives and private loans and

investments⁵⁷. Most resources from financial institutions are focused on short-term financing. Among financial institutions, the main players involved in rural credit directed at cattle financing are public banks, with 60% of the financial volume, private banks, with a 20% share, and cooperatives and development institutions, also around 20%⁵⁸.

Figure 3: **Rural credit for livestock by lending purpose.**⁵⁹



The outlook for agricultural financing in Brazil is that there will be a growth in private funding for agribusiness due to improved macroeconomic indicators, government reforms, and sectoral regulatory changes⁶⁰. Moreover, there is a potential to increase the role of financial markets to diversify the pool of green financing products. The International Capital Market Association's (ICMA) Green Bond Principles consider environmentally sustainable management of living natural resources and land use as eligible use of proceeds for green bond issuance. Examples include environmentally sustainable animal husbandry, environmentally sustainable agriculture, and preservation or restoration of natural landscapes, among others.

Financial mechanisms focused on cattle ranching sustainable intensification should minimize their exposure to a rebound effect called Jevons Paradox, referring to an event in which an improvement in resource efficiency increases the profitability of the activity, resulting in the activity's expansion and an overall increase in the use of the resource.

52 Whelan et al (2017)

53 Ermgassen et al (2018)

54 Grupo de Trabalho (GT) pelo Desmatamento Zero (2017)

55 Garrett et al. (2018)

56 IPAM (2019)

57 IPAM (2019)

58 BCB (July 2019 - June 2020)

59 BCB (July 2019 - June 2020)

60 CBI (2020)



The positive effects of cattle ranching intensification, such as an increase in profitability due to higher productivity, may cause an undesired increase in conversion of natural habitat due to producers entering the market or expanding their own operations. The increase in competition may boost land values, escalating land speculation. Additionally, an increase in beef supply may create a downward pressure on prices, increasing its demand⁶¹. Strong local governance (also referred to in Brazil as command and control mechanisms), as well as dynamic market incentives such as offering capital at attractive terms for DCF intensification, are important complementary fronts to mitigate the risk of Jevon's Paradox. Authorities can deploy a broad variety of local governance mechanisms, such as regional land use planning, spatial constraints for land made available for agricultural expansion, clear land tenure and effective regulatory enforcement mechanisms,⁶² among others, to increase the environmental and social benefits of the enhanced cattle productivity.

Forest conservation restrictions are critical for promoting land sparing through cattle intensification in the short run, but conservation through intensification in the long term also requires financial and technical support linked to deforestation and conversion-free policies. The Environmental Framework considers this for its recommendations on how investors/lenders can promote legal compliance, with additional elements to further improve the environmental performance of investees/borrowers.

Table 2 and Table 3, which reflect our interviews with implementing organizations, demonstrate that there is a convergence among current initiatives and financial mechanisms with respect to the need for legal compliance, a definition for sustainable intensification in cattle ranching, and a reference date for zero-conversion.

In parallel, some financial mechanisms require compliance with additional elements, such as commitments to limit greenhouse gas emissions, adopt sustainable agricultural practices, increase spatial conservation prioritization in areas of greatest suitability for cattle ranching intensification, comply with IFC Performance Standards, and expand the scope of environmental requirements to all properties owned or operated by a producer. These additional elements will be discussed in further detail in the next section.

A key goal of this Environmental Framework is to harmonize the environmental requirements used in various types of financial products to make it easier for lenders and investors to develop new products or to adapt existing products to foster DCF cattle ranching intensification. This approach also benefits ranchers, as it streamlines the process for compliance with DCF requirements, especially when evaluating and/or accessing more than one source of credit.

61 GTPS (2015)
62 Strassburg et al. (2014)

Table 2: **Analysis of environmental requirements addressed with current prominent sustainable livestock initiatives.**

ALIGNMENT WITH THE EF INITIATIVES	LEGAL COMPLIANCE				DEFINED REFERENCE DATE OF ZERO CONVERSION	GOOD SUPPLIER SOURCING PRACTICES	NO INCREASE IN NET GHG EMISSIONS/KG	REQUIRES GOOD AGRICULTURAL PRACTICES	SPATIAL PRIORITIZATION (BEYOND RESTRICTION TO A BIOME OR STATE)	LAND CONFLICTS	REQUIREMENTS APPLICABLE TO ALL PROPERTIES OWNED/OPERATED BY THE BORROWER/INVESTEE	IFC PERFORMANCE STANDARDS	REQUIREMENTS NOT INCLUDED IN THE ENVIRONMENTAL FRAMEWORK
	LAND TITLE OR LEASE	SLAVE LABOR LAWS	FOREST CODE COMPLIANCE	NO IBAMA EMBARGOES									
G4 CATTLE AGREEMENTE	X	X	X	X	X	X DIRECT SUPPLIERS							-
CARBON-FREE BEEF LABEL (CCN)	X	X	X	X			X						MANDATOR IMPLEMENTATION OF ILF OR ICLF SYSTEM
PRODUCE, PRESERVE AND INCLUDE (PCI) STRATEGY	X	X	X	X				X					INCENTIVE TO FAMILY FARMING
GLOBAL ROUNDTABLE FOR SUSTAINABLE BEEF (GRSB)	X	X	X	X			X	X		X		X	-
BRAZILIAN ROUNDTABLE FOR SUSTAINABLE LIVESTOCK (GTPS)	X	X	X	X		X DIRECT AND INDIRECT SUPPLIERS	X	X					COMMUNITIES
MEAT TAC	X	X	X	X		X DIRECT SUPPLIERS							STOCKING LIMIT OF CATTLE SOLD PER AHECTARE



Table 3: Environmental requirements analysis of current existing DCF cattle mechanisms in Brazil.

ENVIRONMENTAL REQUIREMENTS INITIATIVES	VALID LAND TITLES AND LEASES	NO SLAVERY	COMPLIANCE WITH FOREST CODE	NO IBAMA EMBARGOES	DEFINED REFERENCE DATE FOR ZERO CONVERSION	GOOD SUPPLIER SOURCING PRACTICES	NO INCREASE IN NET GHG EMISSIONS/KG	REQUIRES GOOD AGRICULTURAL PRACTICES	SPATIAL PRIORITIZATION (BEYOND RESTRICTION TO A BIOME OR STATE)	LAND CONFLICTS	REQUIREMENTS APPLICABLE TO ALL PROPERTIES OWNED/ OPERATED BY THE BORROWER/ INVESTEE	IFC PERFORMANCE STANDARDS
ABC PROGRAM FEDERAL GOVERNMENT	X	X	X	X								
RONCADOR FARM & GREEN	X	X	X	X	UPON SIGNING							X
SÃO MARCELO FARM/AGROJACAREZINHO IDH	X	X	X	X	X	X			X			
AMAZON SUSTAINABLE CATTLE RANCHING (PECSA) ALTHELIA CLIMATE FUND, ICV	X	X	X	X	X	X	X	X				
SUSTAINABLE AGRICULTURE FINANCE FACILITY (SAFF) REDE ILPF	X	X	X	X		X	X	X	X	X		
RISK SHARING INSTRUMENT CONFIDENTIAL	X	X	X	X	UPON SIGNING			X	X			X
LOW CARBON RANCHING (PIBC) IVC	X	X	X	X	X	X	X	X	X			
PASTO VIVO PROJECT LUXOR GROUP, MERAKI GROUP	X	X	X	X					N/A			

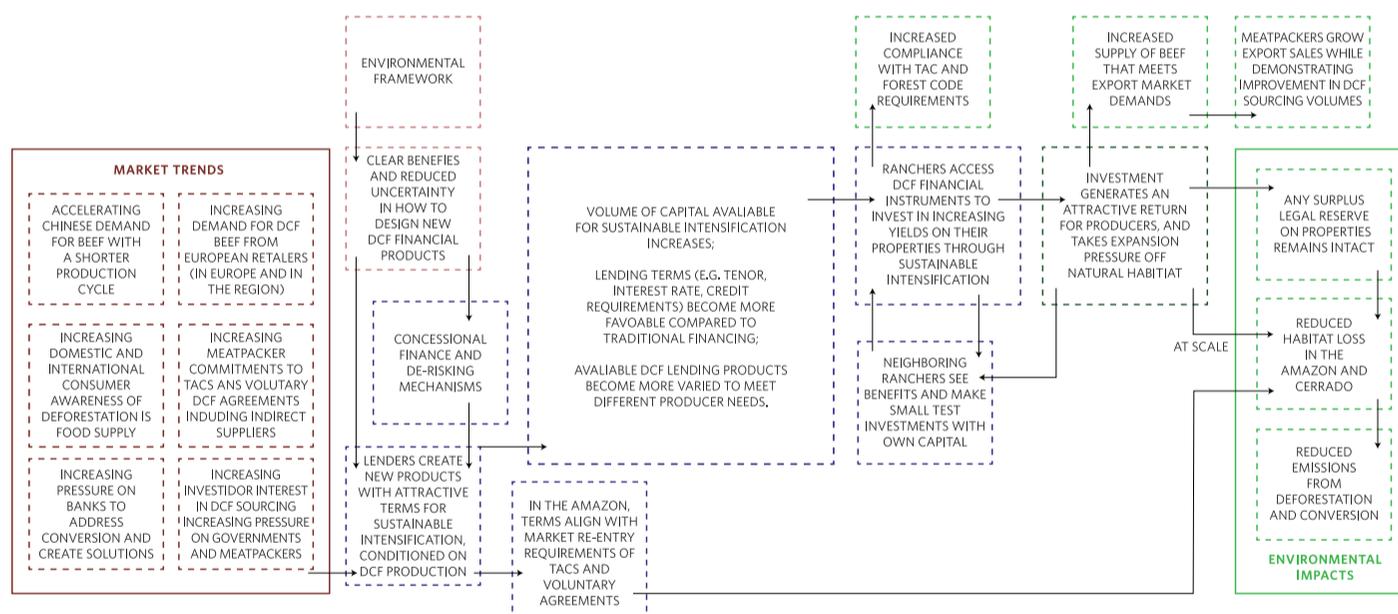


Theory of Change

Finance can play a key role in promoting conservation of the Amazon and Cerrado by offering incentives to promote cattle ranching intensification sustainable systems that reduce common motivations for deforestation while fostering increased traceability along the supply chain. The Environmental Framework fills a knowledge gap in the Brazilian financial sector, by laying out clear benefits and reducing uncertainty in how to design new DCF financial products that are relevant for local production realities. This clarity also helps attract concessional capital and de-risking mechanisms to support DCF lending, which in turn makes offering increased volumes of credit, more favorable terms, and more varied financial products a viable business opportunity for lenders.

It is important to note that offering conditioned capital to cattle ranchers for deforestation- and conversion-free intensification is not a silver bullet for reducing conversion in the Amazon and Cerrado from ranching. Rather, it is an opportunity for the financial sector to address one of several needed enabling conditions in a transition to DCF production, for one of several producer profiles, in regions where cattle ranching is already a dominant economic activity and the logistics infrastructure to make sustainable intensification profitable already exists. The Environmental Framework has been designed to complement other actions that other sectors may potentially take to reduce conversion, to ensure there is guidance available on financing a transition to a sustainably intensified DCF production model in the cattle sector. If deployed broadly, financial mechanisms governed by the principles of the Environmental Framework not only create a new business opportunity for banks, but also serve as a de facto incentive mechanism for legal compliance. This poses a valuable partnership opportunity between banks and local governments in regions characterized by reduced public capacity to monitor for environmental compliance.

Figure 4: Theory of Change



The Amazon and Cerrado biomes offer tremendous potential for scaling up DCF financial loans and investments across large swathes of the landscape. As such, DCF financial products that incorporate the Environmental Framework's recommendations offer benefits to stakeholders throughout cattle ranching value chains of both regions, as outlined in Table 4.

Table 4: **Environmental Framework's benefits for different actors in the Amazon and the Cerrado.**

RANCHERS	MEATPACKERS	INVESTORS AND LENDERS
<p>BETTER CAPITAL CONDITIONS FOR INTENSIFICATION WITH MANAGEABLE ENVIRONMENTAL REQUIREMENTS</p> <p>LONG-TERM ACCESS TO MARKETS REQUIRING PROGRESSIVELY MORE-DEMANDING ENVIRONMENTAL REQUIREMENTS FOR DEFORESTATION-FREE BEEF</p> <p>IMPROVED PRODUCTIVITY AND INCOME WITH REDUCED NEGATIVE ENVIRONMENTAL IMPACTS</p> <p>CONSISTENCY ACROSS FINANCIAL PRODUCTS REDUCES COMPLEXITY IN THE SEARCH FOR FINANCING.</p> <p>INCREASED PROPERTY VALUE ATTRIBUTED TO INVESTMENTS THAT SUCCESSFULLY RECOVER PASTURE PRODUCTIVITY</p>	<p>ACCELERATES IMPLEMENTATION OF DEFORESTATION-FREE COMMITMENTS AND CREATES REPUTATIONAL BENEFITS</p> <p>STRENGTHENS RELATIONSHIPS WITH RANCHERS, INCLUDING THROUGH LONG-TERM CONTRACTS</p> <p>ENHANCES RELATIONSHIP WITH DOWNSTREAM CUSTOMERS WHO ARE INCREASINGLY REQUIRING DCF CATTLE</p> <p>INTENSIFIED SYSTEM ENABLES ABILITY TO SUPPLY THE GROWING CHINA MARKET WITH ANIMALS NO OLDER THAN 30 MONTHS</p> <p>OPPORTUNITY TO GROW EXPORT SALES WHILE DEMONSTRATING IMPROVEMENT IN DCF SOURCING VOLUMES</p>	<p>ACCESS TO NEW FUNDING SOURCES, SUCH AS CONCESSIONAL CAPITAL FROM DE-RISKING FUNDS AND DEVELOPMENTAL FINANCIAL INSTITUTIONS</p> <p>NEW BUSINESS OPPORTUNITIES: LAUNCH NEW DCF FINANCIAL PRODUCTS ACCESS TO NEW MARKETS</p> <p>REPUTATIONAL BENEFITS LINKED TO PROMOTING CONSERVATION IN THE AMAZON AND THE CERRADO</p> <p>CONSISTENT APPROACH TO ENVIRONMENTAL REQUIREMENTS AND MONITORING</p> <p>CREDIBLE ACTION IN THE "GREEN FINANCE" AGENDA</p>

Relationship to the Accountability Framework Initiative

In 2019, the Accountability Framework Initiative⁶³ (AFI) released a set of common global standards and guidelines to establish, implement, and demonstrate progress on ethical commitments made by supply chains in the agricultural and forestry sectors. A response to continued corporate requests for clarity on supply chain expectations and for calibration and alignment of their many corporate zero-deforestation commitments, the AFI is anchored by a set of Fundamental Principles and strengthened by a set of common definitions and terms. The AFI guides companies as they define and execute their zero-conversion commitments using accepted and appropriate terminology and provides detailed guidance for putting these measures into practice.

The Environmental Framework for Lending and Investing in Cattle Ranching Sustainable Intensification in the Amazon and the Cerrado was inspired in part by the AFI's multi-stakeholder consultation process and its subsequent success. In much the same way, the EF seeks to provide clear guidance to lenders and investors as they define the parameters for creating new DCF financial products. Access to this guidance early on provides a design roadmap and clears the way for expedited financial product development that meets appropriate environmental standards. The EF also applies definitions and terminology used in the AFI, namely:

Conversion: The change of a natural ecosystem to another land use (legal or not) or a profound change in a natural ecosystem's species composition, structure, or function.

Deforestation: Loss of natural forest (legal or not) as a result of: i) conversion to agriculture or other non-forest land use; ii) conversion to tree plantations; or iii) severe and sustained degradation.

In addition to fostering deforestation- and conversion-free production, the Environmental Framework also supports AFI's call for a legal global supply chain, pertaining to both land and human rights, as well as a low-carbon one. It does this by mandating legal compliance across all properties as a core requirement for financing and providing an avoided-emissions calculator to support decision making based on modeled quantifiable effects of DCF finance mechanisms. The Environmental Framework for financing DCF cattle ranching in the Amazon and the Cerrado is comparable to and compatible with the AFI's detailed regional Operational Guidance, but targets lenders and investors specifically as they develop new products or adapt existing ones that foster cattle ranching sustainable intensification in the Amazon and the Cerrado.

63 <https://accountability-framework.org/>

3. Environmental Requirements

The Environmental Framework defines cattle sustainable intensification for purposes of this document as a process that has been demonstrated to produce a significant yield increase; employs a primarily grass-fed, pasture-based system with any animal confinement limited to the last 15% of the animals' lifespan; is located on existing pastureland or other already cleared areas; and follows one or more recognized practices for sustainable pasture intensification.

To achieve sustainable intensification, practices and processes are focused on pasture and herd management and funding can be for implementation of one or a combination of these practices and processes. A non-exhaustive list of the most common practices was compiled using as references the Guia de Boas Práticas Agrícolas - EMBRAPA, a guide to best practices in agriculture, and the Guia de Indicadores da Pecuária Sustentável (GIPS - GTPS), a guide of sustainability indicators for livestock. Following are the practices that are most often cited as elements of sustainable intensification:

- Pasture recovery and management
- Adoption of integrated systems (ICLF, ILF, ICL)
- Herd and calf management, including animal welfare aspects
- Adequate animal nutrition, from the breeding phase through termination
- Adoption of a no-tillage system

Practices which are not recognized as part of this Environmental Framework include, for example, business as usual expansion of ranches with no significant yield increase, conversion of natural habitat to create new grazing areas, and feedlots which involve long periods of animal confinement.

The Environmental Framework includes two levels of recommendations for designing financial mechanisms to support expansion of DCF cattle ranching intensification in the Amazon and the Cerrado:

Core Environmental Requirements that must be adhered to for a financial mechanism to make credible claims that it is environmentally sound and fosters DCF cattle ranching intensification; and

Additional Elements whose incorporation, while optional, secure further conservation benefits. These offer lenders and investors specific add-on options to manage their portfolios to meet even greater institutional ambitions for positive environmental impact and to apply a more conservative approach to minimizing exposure to environmental risks.

The environmental requirements laid out between the Core Environmental Requirements and Additional Elements do not constitute an exhaustive list of potentially applicable requirements.

Core environmental requirements

The two core requirements, legal compliance and a conversion-free reference date, are described below. Annex A provides a list of recommended documents that can be used to verify and monitor these requirements.

Legal compliance

Legal compliance on all properties owned or operated by a borrower/investee is a core requirement for eligibility for DCF financing. Legal compliance includes both standard laws and legal regulations as well as the criteria defined by the Federal Prosecutor as part of the Terms of Adjusted Conduct (TAC) agreements and operationalized through the Beef on Track Monitoring Protocol⁶⁴. Legal compliance includes but is not limited to:

Possession of a valid land title (title, lease, or proof of possession): Land grabbing and land tenure ambiguities are not uncommon in the Amazon and the Cerrado and may take years of court proceedings to reach a final outcome. Requiring legal documentation not only provides initial evidence that a borrower has a legal right to occupy and operate on the land, but also it may be needed for a borrower to provide collateral for a loan.

Consolidated labor laws: Forced labor is still significant in Brazil, mainly in rural areas. The Ministry of Labor periodically publishes a “Labor Dirty List” (*Cadastro de Empregadores - “Lista Suja”*) of businesses that use forced labor in their production or value chains. Lenders and investors should consult both this list and other pertinent employer registries to evaluate compliance with labor laws.

Water-use rights: For ranchers with groundwater use systems, compliance with proper permits and authorizations is necessary. These permits are granted by the National Water Agency (*Agência Nacional de Águas - ANA*) in cases where a watershed extends across state boundaries, and/or from the respective state water resource authorities when the watershed is contained within a single state.

Forest Code: Brazil’s Forest Code defines minimum areas for natural habitat preservation on all rural properties, according to their biome and conservation value. Provisions of the Forest Code are designed to maintain ecological balance, climate conditions, and soil stability for long-term productivity. While all provisions of the Forest Code are applicable, specific elements are referenced further below

No illegal deforestation: In addition to maintaining Permanent Preservation Areas, Legal Reserves, and other legally restricted areas intact, all vegetation clearance on a property occurring after July 2008

must have been previously authorized through official government-issued permits.

Rural Environmental Registry (Cadastro Ambiental Rural - CAR): Ranchers should present the best available CAR data for their properties, as not all states have verified all the CAR registrations; self-declared registrations are only acceptable where verified CAR is still not available. Lenders and investors should take particular care in verifying the date of the CAR registration and any alterations. While some CAR corrections are legitimate, updating the property lines on self-declared CAR registrations to omit areas of the property from supplier monitoring initiatives has become a known loophole that some ranchers use to hide recent deforestation. Falsifying a CAR is fraud, and property line alterations on self-declared CARs should be treated as non-compliance under the Environmental Framework, unless additional information is provided to justify and legitimize the alteration. This flag is not applicable for verified CARs.

IBAMA embargoes: The Brazilian Institute for the Environment and Renewable Natural Resources (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis - IBAMA*) publishes a list of embargoed areas and companies or producers associated with such areas, as well as companies that have been embargoed or are facing environmental proceedings due to illegal deforestation and other legal violations. Entities that subsequently finance, transport, or commercialize products originating from these embargoed areas or companies may be held co-responsible for any illegal activities, resulting in fines and sanctions. Properties owned and operated by the farmer should generally not be subject to IBAMA embargoes, however some amount of flexibility may be merited in cases of infractions on relatively small parcels (i.e. for machinery maneuvering) in which the borrower can demonstrate that they are in the process of being resolved.

Overlap with Conservation Units and/or ICMBio embargoes: Private properties by definition should not overlap with public lands under an official declaration of protection, but in a vast landscape with limited land titling, property boundary verification and enforcement capacity, both encroachment beyond a property border into adjacent Conservation Units and overlapping property and Conservation Unit borders, whether intentional or not, is not uncommon. These occurrences may result in lengthy legal disputes

⁶⁴ https://www.beefontrack.org/public/media/arquivos/1597414501-fluxograma_protocolo_de_monitoramento.pdf

and costly fines. Lenders and investors must confirm that the target property does not encroach on Conservation Units. The Chico Mendes Institute for Biodiversity Conservation (*Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio*) periodically publishes a list of embargoed properties and individuals who have caused degradation to nearby legally protected Conservation Units (*Unidades de Conservação - UC's*). In cases where the target property is within 10 km of a protected area, financial institutions and investors should verify that the property or producer has not been embargoed by ICMBio. However, it is important to note that absence from the embargo list does not mean the property is in compliance; when a property is in close proximity to a Conservation Unit, lenders and investors should be especially diligent in verifying no inadvertent overlaps by closely examining spatial imagery of the property and its surrounding areas (CAR, Mapbiomas, Agroidéal, Google maps).

Overlap with Indigenous Lands, Quilombola communities other legally declared settlement areas:

As with Conservation Units, private properties should not overlap with demarcated lands that have been designated for vulnerable or traditional populations. Lenders and investors can use Agroidéal's social indicators map to verify if a property is in close proximity of these legally protected areas and determine if a deeper due diligence is needed to ensure no encroachment.

State and municipal regulations: Entities must maintain compliance with proper licenses and permits, such as preliminary, installation, and operating licenses from State Environmental Agencies and Municipal Agencies whose offices are often located in large cities. Regulatory requirements may vary according to location. One such example is the Rural Environmental License (*Licença Ambiental Rural - LAR*) required in the state of Pará for properties over 3,000 hectares.

Registration with the state Agricultural Defense Agency:

This registration is necessary to subsequently issue Animal Transit Permits (*Guia de Transporte Animal - GTA*) documenting cattle movement for sanitary control purposes and tracking cattle from one establishment to another.

Reasonable productivity (less than 3 AU/ha): While this is not a legal requirement per se, understanding the relationship between number of animals being grazed on the available pastureland of a property is a proxy for identifying possible instances of “cattle

laundering” to get around blocking sales of cattle that come from deforested areas on another property. As this requirement is included in the Beef Monitoring Protocol issued in conjunction with the Federal Prosecutor, the rancher should disclose documentation that evidences herd size and current pasture area for all properties, before the lender or investor considers financing for the target property.

Non-compliance: Non-compliant producers should not be immediately deemed ineligible for DCF financial mechanisms. In fact, the Environmental Framework encourages some use of proceeds to support efforts to become Forest Code compliant through a state's Environmental Compliance Program (*Programa de Regularização Ambiental - PRA*). Given the positive environmental impact of moving towards compliance, these requirements must be fulfilled within a specified timeframe agreed to by the farmer and lender/investor prior to the end of the loan or investment term. Additionally, progress milestones should be incorporated into loan agreement language. Appropriate milestones can be derived from a producer's submitted and approved Degraded or Altered Areas Recovery Project (*Projeto de Recuperação de Áreas Degradadas ou Alteradas - PRADA*). Environmental impact will be especially positive if a producer agrees to accelerate its PRADA implementation and if this accelerated plan is incorporated into the loan/investment non-financial covenants.

Legal compliance verification is an important step in guaranteeing that ranchers conserve and/or restore at least the minimum amount of vegetation on their properties as required under Brazilian legislation. It also minimizes exposure of lenders and investors to unforeseen expenses and reputational damages associated with fines and sanctions to which the borrower or investee may be subject in case of non-compliance.

Conversion-free reference date

A clear reference date for conversion is one of the core requirements of the Environmental Framework. The reference date determines the period beyond which no additional deforestation or conversion is allowed on a property that benefits from a DCF financial mechanism. This requirement is central to the idea that financial mechanisms can be deployed to catalyze sustainable intensification in cattle ranching with no further loss of vegetation. The definitions used for deforestation and conversion of natural vegetation should follow the AFI definitions⁶⁵.

To ensure that all ranchers are initially compliant, most initiatives have set their reference date to coincide with the launch of their programs, as indicated in the timeline below.

Several other benchmarked cattle ranching intensification initiatives have identified different reference dates for zero deforestation commitments, as described in Figure 5 and in further detail in Annex C - Summary of Sustainable Cattle Initiatives and Mechanisms.

Figure 5: **Reference date benchmark applicable to the cattle.**



The Environmental Framework establishes a zero-conversion reference date of January 2018 for the target-property of the financial mechanism. The date was determined based on the following considerations:

Timing: Identifying a date prior to the Framework’s release, as opposed to in the near future, eliminates a window of opportunity for landholders to deforest or convert areas before the requirements take effect. However, earlier dates could limit producer demand for financial resources conditioned to DCF requirements. 2018 is recent enough that it avoids rewarding business-as-usual clearing, while not excluding most ranchers and available open lands for eligibility under the Environmental Framework.

Feasibility of Monitoring: While recent technological advances allow for monitoring on any day of the year, January is an ideal reference month to reduce uncertainty about when conversion occurred. The rainy season runs from November to February in the Cerrado and extends through May in the Amazon, in which clearing is more restricted. While applying a January reference date also increases the probability of dense cloud cover in satellite images, it effectively causes monitoring systems to use the most recent clear image of the land available, avoiding disputes about when a parcel was converted.

Alignment with private sector commitments: There are currently more than 20 corporate commitments to zero deforestation beef production around the world, with an additional 35 companies committed to sourcing deforestation-free cattle products such as leather, tallow and dairy, among others⁶⁶. Evidence from international and institutional investors in 2020 also indicates growing global concern with deforestation from farming and ranching activities in Brazil⁶⁷. In 2019, the Principles for Responsible Investment (PRI) launched a statement backed by 230 investors with USD \$16.2T in Assets Under Management demonstrating concern over fires in the Amazon and on climate risks associated with the surge in deforestation. A reference date of 2018 demonstrates continued commitment to achieving this goal as soon as possible, supported by financial mechanisms that foster growth and offer feasible solutions aligned with the supply chain’s original ambition levels. It sends a clear signal that the financial market chooses to enable and accelerate the cattle ranching sustainable intensification, without rewarding clearance attributed to land speculation. A January 2018 reference date, therefore, offers assurance to lenders and investors that any deforestation/conversion in the target property occurred prior to the recent demonstrated increase in investor advocacy for deforestation and conversion free (DCF) production.

65 As available at Accountability Framework website. Link: <https://accountability-framework.org/the-framework/contents/definitions/>

66 <https://www.supply-change.org/commodity/cattle>

67 Global investors demand to meet Brazil diplomats over deforestation

Ranchers in the Amazon with legal deforestation between October 2009 and January 2018 must also demonstrate fulfillment of market re-entry requirements under the Public Beef Commitment, regardless of who they sell their cattle to. This requirement may be fulfilled during the loan term and loan proceeds could potentially be used to finance the re-entry requirements. TNC analysis using Mapbiomas indicates that this requirement would only apply to a small share of the area in the priority municipalities of the Amazon for sustainable intensification⁶⁸.

This is aligned with the timeframe adopted by two relevant initiatives in the biome: the G4 agreement and The Meat Conduct Adjustment Declaration (TAC). The Meat TACs are legally binding agreements from meatpackers to stop purchasing from properties with illegal deforestation, that were first signed with the Public Prosecutor of the State of Pará (MPF-PA) in July 2009 and have since been replicated in other Amazonian States. The G4 is an agreement among what are now the three largest Brazilian meatpackers to set up monitoring systems to manage deforestation risk in their individual supply chains. While both focus on monitoring direct suppliers to the meatpackers, the TACs prohibit illegal deforestation, while the G4 Agreement goes a step further to formalize meatpacker commitments to zero deforestation on properties from which they source directly.

Concurrently, animal origin control allows for investors and lenders of cattle ranching to fully assess and mitigate their portfolios' exposure to cattle-related deforestation risk from the financed ranchers and their direct and indirect suppliers⁶⁹. Current gaps in monitoring can lead to reputational risks associated with deforestation and illegal activity and hinders the zero-conversion and deforestation goal in the cattle value chain⁷⁰. The monitoring of property maps, remote sensing data, and supply chain data provides greater levels of transparency, enabling investors and lenders to identify, track, and measure the effectiveness of the DCF commitments from the ranchers⁷¹.

To address deforestation risk among a borrower or investee's suppliers, the Framework prohibits conversion on farms that directly supply the financed property with unfinished cattle as of the start date of the loan or investment agreement. Given that DCF financial mechanisms generally target ranchers that sell directly to slaughterhouses, this provision means that the core requirements address the first two levels of suppliers to slaughterhouses which represent approximately 84% of deforestation⁷², and will reach a step further down the supply chain compared to current mainstream monitoring practices. As technology and data availability advance, applying the reference date to indirect suppliers of the borrowers/investees will be considered in future versions of the Framework

Figure 6: **Estimated percentage of deforestation attributable to different levels in the cattle value chain.**⁷³



Additional Environmental Elements

In addition to the core requirements listed above, the Environmental Framework sets forth seven additional elements that lenders and investors can choose to incorporate, in any combination, into their DCF financial mechanisms to further enhance conservation impact.

The additional elements, in any combination, may be integrated as mandatory requirements of a lending or investment program, or they can be encouraged through various incentives such as the following:

Preferential access: Candidates who comply with these elements may receive prioritized access to DCF financial mechanisms.

Interest rates and fees: Borrowing costs may be lowered when additional elements are met. This benefit may be offered upfront or through a reward system over the term of the loan, with a discount on interest rates and fees applied according to previously defined conditions.

⁶⁸ TNC analysis using Mapbiomas indicates that 16% of the pastureland in the priority areas of the Amazon for intensification was converted between 2009 and 2018. This includes legal and illegal deforestation, and we expect the share that is from legal deforestation is substantially lower than 16%.

⁶⁹ Chain Reaction Research (2018)

⁷⁰ Gibbs et al (2018)

⁷¹ Chain Reaction Research (2020)

⁷² Rausch & Munger (2020)

⁷³ Rausch & Munger (2020)

Longer terms: Offering an extended loan term can serve as a reward to producers for meeting additional environmental elements, either reflected within the initial terms of negotiation or as achieved during the mechanism's tenure.

Flexible repayment: Grace periods, favorable amortization schedules and other attractive repayment terms can be applied when producers comply with additional elements.

Additionally, other actors may employ benefit programs not associated with direct long-term financing to promote

best practices and raise producers' environmental ambitions. These benefits could include premium prices, product acquisition guarantees, and technical assistance. Anecdotal evidence suggests that even creative incentives such as rewards programs and expenses-paid travel can play an important role in motivating producers to go beyond core environmental requirements.

The following sections present more details on each of the additional elements, including their relevance to DCF financial mechanisms and ways to integrate them into lending and investment programs.



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1. Cross-farm applicability

Applying the conversion-free reference date to all ranches owned and operated by the borrower/investee can significantly enhance the environmental impact of a DCF lending program by covering a broader number of hectares under the requirement and reducing the risk that ranchers will commit to DCF on one property while continuing to convert natural habitat in their other operations.

It will also reduce the risk of "inter-farm cattle laundering" among the multiple properties of the same producer/group⁷⁴. Cattle laundering occurs when cattle raised on non-compliant properties is transferred with no documentation to compliant properties and is commercialized

as if it was raised in adequately compliant properties. As many ranchers own several farms, cattle raised on a non-compliant property can potentially be traded as being from a compliant target-property⁷⁵.

The additional compliance and monitoring efforts that cross-farm applicability entail are expected to be modest as the core legality provisions are required across all farms and the additional effort to monitor for habit conversion should not be substantial. However, none of the existing financial mechanisms focused on DCF cattle ranching requires cross farm applicability. Additionally, stakeholder feedback during the consultation process indicated that mandating cross-farm applicability for the DCF reference date would, at this time, likely severely limit producer in-

74 BARRETO, GIBBS (2015)
75 RAUSCH, GIBBS (2016)

terest in the DCF financial mechanisms, unless they were coupled with significantly better financing conditions. This dynamic may change in the future as DCF financial mechanisms focused on cattle ranching intensification become more mainstream, in line with evolving market demands.

Extending core requirements to other properties owned/operated by the producer/group is the most important of the five additional elements recommended to secure and increase positive environmental impact, and lenders and investors should incorporate this provision with the appropriate farmer incentives wherever possible.

2. Spatial prioritization

Cattle ranching production and expansion dynamics in the Cerrado and the Amazon vary by geography, resulting in different financing needs and environmental impacts by location. In these formative early days of DCF cattle ranching financial mechanisms, lenders and investors can use a spatial prioritization tool to target the DCF financial mechanism to areas where sustainable intensification projects are more feasible. The Environmental Framework recommends targeting properties in production areas of regions that meet these conditions.

During the consultation process, stakeholders indicated that there were downsides to mandating a limitation on areas of eligibility through spatial prioritization when seeking clients and investees. Among them is the exclusion of ranchers with an ideal profile because the target property is not in a municipality that is not highly suitable for cattle intensification. However, most stakeholders shared that adopting voluntary spatial prioritization could be an interesting tool to support the origination and improve the attractiveness of new operations.

Therefore, the Environmental Framework encourages spatial prioritization as an additional environmental element due to its potential to maximize the positive environmental impact of a DCF financial mechanism. Likewise, the terms of the mechanism could offer better financial conditions for loans and investments in those priority areas, to further encourage adoption.

Aiming to promote the use of areas already open for the intensification of cattle production, seeking greater economic and productive feasibility combined with low environmental and social impacts, the Environmental Framework recommends applying the following criteria to identify which areas have greater or lower chances of success with cattle ranching intensification projects.

Figure 7: **Spatial prioritization criteria adopted in the TNC Dashboard.**

ECONOMIC	EDAPHOCLIMATIC	PRODUCTION
DISTANCE TO CROPS DISTANCE TO RURAL ASSISTANCE DISTANCE TO TANNERIES DISTANCE TO SLAUGHTERHOUSES DISTANCE TO SOY CRUSHERS	TERRAIN SLOPE TERRAIN ROUGHNESS WATER DEFICIT ROCK OUTCROPS	CATTLE HERD CATTLE CARRYING CAPACITY DISTANCE TO LIMESTONE DEPOSITS

The criteria used to determine the priority are:

Economic: considers all existing infrastructure that is related to the soy and cattle production process, including distance to crops, rural assistance, tanneries, slaughterhouses, and soy crushers

Edaphoclimatic: based on geographical characteristics of soils and climate favorable to bovine intensification, such as terrain slope and roughness, water deficit, and rock outcrops.

Production: represents current levels of cattle production and potential for productivity increase through intensification based on geographical specificities, including cattle herd, cattle carrying capacity, and distance to limestone deposits.

The work of interpreting datasets and combining the above criteria to make rational decisions in directing resources for DCF cattle ranching intensification is a complex exercise. As part of the Environmental Framework, The Nature Conservancy has launched a dynamic map and visual tool to support lenders and investors in prioritizing where to direct resources that promote DCF intensification of cattle.

The **TNC Dashboard** compiles data from Agroideal⁷⁶ and other relevant environmental and agronomic datasets covering the Amazon and Cerrado. Built through analysis of the above criteria, it allows the user to filter municipalities by criteria, or to check the full profile of any individual municipality. Where data is available at pixel level (27x27km), TNC has set minimum thresholds for a pixel to be considered

⁷⁶ Developed by TNC, Agroideal is a free, online territorial intelligence tool that supports decision-making in purchases and investments in the soy and beef sectors, offering a combination of economic, social and environmental information. www.agroideal.org

relevant in assigning filterable characteristics to an entire municipality. Some of the data considered are levels of pasture degradation (mild, moderate, high, or severe) and to integrated systems crop-livestock/crop-livestock-forest systems, to favor intensification that intersect priority municipalities for soy expansion.

As a result, municipalities have been assigned one of six priority classifications according to their potential suitability for cattle ranching intensification projects, these being maximum, high, average, low, minimum, and no priority. TNC's Environmental Framework suggests directing resources to municipalities with higher priority categories to maximize economic and conservation impacts catalyzed by the DCF financial mechanism. Figure 9 presents the results of this assessment.

The regions with higher priority for intensification are existing production areas where most of the existing cattle herd and higher stocking rates are concentrated. Prioritizing these regions avoids the development of new cattle centers, which would attract more infrastructure and therefore promote deforestation indirectly.

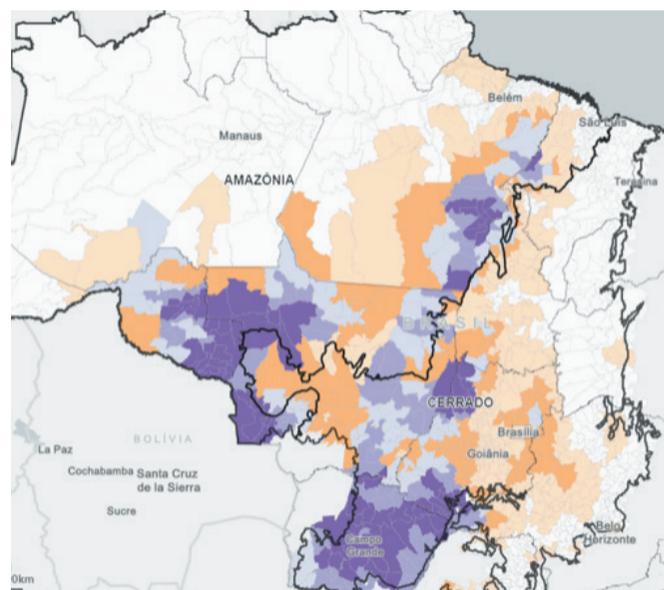
The priority intensification map was created in consultation with a group of specialists in the production sector, including financial institutions, slaughterhouses, NGOs, universities, and research institutes. More than 20 actors participated in the selection of opportunity indicators. The indicators and priority intensification maps were validated by the group of specialists and are part of the Agroideal Beef decision support system.

Additionally, relevant intensification potential exists in regions not shown on the map above which have existing infrastructure and consolidated production, particularly areas with supported natural habitat and low risk for increased deforestation, such as the south and southern regions. However, given that these regions are not covered within the geographical scope of the Environmental Framework, they are not considered in the TNC Dashboard.

3. Good Agricultural Practices

Good Practices in agriculture is a set of principles, norms and technical recommendations related to the production, processing, and transportation of inputs and products that seek to manage the main environmental and social (E&S) risks of each operational phase of agricultural production. TNC has published a briefing regarding Good Agricultural Practices and Water Management that helps ranchers to achieve best practices. Other

Figure 9: Priority municipalities according to suggested criteria.



recommendations are included in the Pocket Guide for the Sustainable Rural Producer.

The consultation process confirmed that the two most recognized Good Agricultural Practices guides referred to in Brazilian cattle ranching are the Good Agricultural Practices for the Beef Cattle Sector (Boas Práticas Agropecuárias - Bovinos de Corte - BPA), developed by the Brazilian Agricultural Research Corporation (Embrapa) and the Guide on Sustainable Cattle Farming Indicators (Guia de Indicadores de Pecuária Sustentável, GIPS), developed by the Working Group on Sustainable Cattle Ranching (Grupo de Trabalho da Pecuária Sustentável, GTPS).

These benchmarks promote management practices to increase productivity - and, indirectly, profitability - and are endorsed by technical experts and players throughout Brazil's cattle ranching value chain. The guides highlight benchmarks for farm management, animal welfare, health and nutrition, food supplementation, pre-slaughter management, animal identification, sanitary control, reproductive management, recovery and intensification of degraded pastureland, and enhanced environmental suitability of farms.

Adopting these Good Agricultural Practices demonstrates a rancher's commitment to protecting both the environment and the well-being of agricultural production workers. This helps ranchers mitigate their exposure to significant environmental and social business risks, such as degradation of biodiversity due to deforestation, disturbance of preserved or protected areas, and natural habitats conversion; the impact of soil erosion and surface and groundwater pollution and greenhouse gas emissions from cattle ranching operations or related land use change; threats to animal welfare, health and

nutrition; and land tenure and land conflicts, violations of indigenous and Quilombola communities' rights, and poor working conditions.

Beyond reducing typical environmental impacts and risks associated with extensive cattle ranching production and strengthening a producer's internal governance practices, Good Agricultural Practices also serve as a useful proxy for gauging compliance with local regulations, especially those that cannot be verified remotely and require site visits, such as employee working conditions.

Good Practices implementation can be verified through two non-exclusive approaches:

- The rancher's compliance with the Good Agricultural Practices guidelines is confirmed through certification by recognized institutions whose environmental requirements are aligned with the financial mechanism's strategy. The adaptation and certification costs under this alternative are typically carried by the producer. Among DCF blended finance mechanisms, technical assistance could be offered or subsidized through concessionary resources.
- The lender, investor, or a specialized third-party contracted by the financial institution assesses evidence of a rancher's implementation of Good Agricultural Practices according to sectorial benchmarks or an institutional checklist. This approach can ensure compliance with the gap analysis, but the investor/lender bears the costs for methodology development and monitoring processes.

Stakeholders involved in the consultation process indicated that whichever approach is incorporated into the DCF-financial mechanism, the certification or assessment methodology used should be disclosed and transparent, allowing for independent verification.

Although stakeholders who participated in the consultation process recognized the benefits of the application of Good Agricultural Practices, they also indicated that the associated costs of compliance, monitoring, and verification are significant, making it a niche market in Brazil. The Environmental Framework lists Good Agricultural Practices as an additional environmental element, because requiring their verification, either up front or during investment tenure, could limit the pool of eligible ranchers considerably. This would constrain overall deployment of

DCF financing, perhaps to the point where the positive environmental impact achieved through requiring Good Agricultural Practices would be significantly smaller than the conservation benefit that would be achieved by not requiring Good Agricultural Practices as part of the Core Requirements.

4. Lower GHG/kg of production

Cattle ranching and climate change are directly correlated. While cattle ranching affects climate change, climate change impacts feed crop quality and forage, water availability, livestock disease, animal reproduction, and biodiversity, posing a threat to cattle ranching.

Livestock is responsible for a considerably high level of emissions. The cattle ranching industry's methane-producing processes of animal waste decomposition and enteric fermentation, natural and intrinsic to ruminants, give rise to methane, the greenhouse gases (GHG) which have the greatest heating potential.

In 2019, livestock-related direct emissions represented 18% of total emissions in Brazil⁷⁷, while the full set of emissions linked to the sector represented approximately half of all Brazilian emissions. Consequently, the livestock sector is a key player in the mitigation of GHG emissions.

Cattle ranching intensification can abate GHG emissions by sparing land from deforestation outside the ranch. Additionally, intensified beef cattle production systems should lead to a per-kilo reduction in emissions from beef produced on the ranch. According to agricultural best practices, this could potentially generate a negative balance of GHG from cattle ranching activity, meaning that the ranch itself would be a carbon sequester.

Soil carbon sequestration via pasture recovery could offset the herd's GHG emissions, along with an earlier slaughter. This potential will vary according to the intensification practices that are implemented and the geographical characteristics of the property.

Considering this, the Environmental Framework aims to approach a lower GHG/kg of production as an additional element in as much as GHG net emissions from the target-properties are equal or lower, compared to the property's business as usual carbon balance, after the implementation of the sustainable intensification project.

Increasingly, investors and buyers in the sector are demanding qualified information regarding GHG emissions. To contribute to the agenda and ease the GHG emission balance associated with the intensification implementation, TNC has developed a **Carbon Calculator** to assess, ex-ante, the potential carbon balance of the target-property after the adoption of cattle ranching intensification practices. It is a user-friendly tool to help estimate GHG emissions and promote compliance with the proposed additional element.

The calculator assesses each cattle ranching activity according to GHG balance in relation to potential soil carbon sequestration from pasture recovery and the implementation of agricultural best practices. The mitigation of GHG emissions associated with avoided deforestation in the legal reserve surplus is quantified and disclosed as excluded from the balance compensation. Data points include the property's location at the municipal level, the initial pasture area, the area of intensified pasture, the expected and current occupancy, and the herd size.

The results are the carbon balance between GHG emissions estimation of tCO₂e/kg in the ranch-level from multiple sources linked to cattle ranching operation (soil, enteric fermentation, waste management, excretion, fertilizer application and limestone application) and soil sequestration linked to pastureland recovery.

5. Land conflict

The land management system in Brazil is complex, with eleven federal agencies sharing responsibilities with numerous state and municipal partners regarding land governance. This complexity puts the Brazilian system in the 64th position on the International Property Rights Index (IPRI)⁷⁸, which compares land and property rights among countries. The uncertainty brought by the Brazilian legislation regarding land rights is aggravated by several factors, including under-resourced government agencies tasked with monitoring and enforcing property rights, limitations to the official real estate registry, and lack of an authoritative and integrated database of public and private lands. These factors often lead to conflicts over land use⁷⁹. Given this reality, the burden of demonstrating and verifying the absence of land conflicts lies with both producers and investors/lenders.

Land grabbers commonly occupy public land and then clear the forest to plant grass and raise cattle. This is a relatively cheap way to signal land occupation and claim land rights⁸⁰. Although these cattle ranching properties usually maintain low productivity and tend to be unprofitable or even financially unfeasible, the occupier can profit from selling timber upon deforestation and through selling or leasing the land asset⁸¹.

Even when a property has all relevant documents in order and past conflicts seemingly resolved, land use and possession may still be called into question. Investors face significant financial risks from the potential interruption of cattle ranching activities and reduced value of the land pledged as collateral.

The most significant consequence of Brazil's insecure land rights are the resulting land-related conflicts, which can vary in nature and degree of severity ranging from property border disputes to squatters in indigenous lands to murder. In 2019, over 1,250 land conflicts were registered, occurring across 931 different locations in Brazil⁸². Between 2010-2019, over 100 conflicts occurred in the Cerrado and another 240 occurred in the Amazon⁸³.

Association with land conflicts pose a substantial reputational risk to ranchers, lenders, and investors and are an indication of social and environmental risks that may impact investment decisions. Including a land conflicts mitigation requirement in financing mechanisms protects investors and lenders from potential target-property disputes.

As there is a strong relationship between deforestation, land grabbing and land conflicts, a DCF financial mechanism with environmental impact goals for the sector should minimize its exposure to the risk of supporting ranchers involved in land conflicts and insecure land tenure. While the unlawful occupation of public lands is a general problem in all Brazilian states, it is more acute in the Amazon;⁸⁴ this additional element would be especially relevant for investors/lenders financing sustainable intensification projects in the biome. As such, the Environmental Framework recommends lenders and investors verify that potential borrowers' and their target-properties are:

78 <https://internationalpropertyrightsindex.org/about>

79 CPI (2016)

80 Brito (2019)

81 Silva (2014)

82 Comissão Pastoral da Terra (2019)

83 Agroideal (2020)

84 Benatti & Fischer (2018)

- Associated with a valid land title, proof of possession or lease and comply with environmental regulations, (both as part of the core requirement of legal compliance), paying particular attention to ensuring there is no overlap of the property or CAR registration with indigenous communities (indigenous reserves and their territorial domains), Quilombola lands or Conservation Units; and
- Free from recent or ongoing land conflict disputes, as reported through the Pastoral Land Commission (Comissão Pastoral da Terra – CPT) database⁸⁵, updated annually.

Additionally, the Environmental Framework recommends that DCF financial mechanisms consider conducting less-formal due diligence on the producer and target-property regarding land conflicts. This could include simple internet searches, reviews of any disclosed developing legal procedures, media research, and deeper probing on any revealed controversies around the ranchers and/or the property's past involvement in rural conflict.

Details for verification and monitoring of compliance with this environmental requirement are available in Annex A – Compliance documentation for core environmental requirements, and Annex B – Compliance documentation for additional environmental elements.

The Environmental Framework recommends that lenders and investors use remote monitoring tools to analyze the target property's geographic location and its exposure to land conflict risk, considering its proximity to indigenous lands (indigenous reserves and territorial domains), Quilombola lands, and Conservation Units, or any other region that justifies a deeper case-by-case analysis. Google Maps and www.agroideal.org's socio-environmental tools are credible sources for evaluating overlap and proximity risks to aid lenders/investors in the monitoring process without excessively burdening the ranchers.

Lenders and investors should also consider adopting criteria for mandatory land conflict risk mitigation measures, such as generating spaces for dialog and actions that improve the relationship with local communities.

The stakeholder consultation process confirmed that a significant share of financial institutions supporting the cattle ranching sector already integrate, to some extent, land conflict risk into their standard eligibility screenings, commensurate with each institution's risk tolerance. For example, to address the risk of financing properties

bordering traditional communities or indigenous properties, some institutions require a target property be a minimum distance from such areas.

Therefore, while the Environmental Framework suggests that Land Conflict be considered an additional environmental element for DCF resources targeting the intensification of cattle ranching, it encourages lenders and investors to incorporate the land conflict risk parameters directly into their standard screening process to verify legal compliance and avoid involvement with land conflicts.

6. IFC Performance Standards

The Environmental and Social Performance Standards (PS) put forth by the International Finance Corporation (IFC) lay out responsibilities for managing environmental and social risks in various sectors⁸⁶ and assume customized E&S management of each project. Some financial institutions have adopted the PS as part of their standard lending and investment practices for the assessment of project suitability and the capacity of borrower/investee to implement them. They require compliance with local legislation and prescribe policies and procedures to manage social and environmental risks related to business operations.

The stakeholder consultation process indicated that the IFC PS are not broadly applied in cattle ranching financing in Brazil, and are primarily only required to access resources linked to international institutional investors and development banks. Additionally, the organizations consulted indicated that compliance with the IFC PS would generate significant additional costs to develop internal procedures necessary for compliance with IFC's recommendations.

A comparative analysis conducted by TNC indicates that most IFC Performance Standards relevant for cattle ranching are already covered by the core requirements and additional environmental elements recommended in the Environmental Framework. Table 6 explores in detail how the requirements of the EF contribute to compliance with the Performance Standards and where gaps exist to achieving full PS compliance.

The IFC Performance Standards are considered an additional environmental element of the Environmental Framework. For many lenders and investors the IFC PS may not be necessary if lenders, investors and ranchers are following the Environmental Framework.

⁸⁵ <https://www.cptnacional.org.br/cedoc>
⁸⁶ IFC Performance Standards

Table 5: Comparison between the TNC Cattle Ranching Environmental Framework requirements and the IFC Performance Standards criteria.

IFC PERFORMANCE STANDARDS (PS) CRITERIA	IFC PS CRITERIA MET IN THE ENVIRONMENTAL FRAMEWORK								IFC PS CRITERIA NOT MET IN THE ENVIRONMENTAL FRAMEWORK
	EF CORE ELEMENTS			EF ADDITIONAL ELEMENTS					
	LEGAL COMPLIANCE	REFERENCE DATE	GOOD SOURCING	GHG EMISSIONS	CROSS-FARM APPLICABILITY	SPATIAL PRIORITIZATION	GOOD PRACTICES*	LAND CONFLICTS	
PS #1 - ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS							IDENTIFICATION OF RISKS AND IMPACTS MANAGEMENT PROGRAMS MONITORING AND REVIEW EXTERNAL COMMUNICATIONS AND GRIEVANCE MECHANISM	EXTERNAL COMMUNICATIONS AND GRIEVANCE MECHANISMS STAKEHOLDER ENGAGEMENT	POLICY ORGANIZATIONAL CAPACITY AND COMPETENCY EMERGENCY PREPAREDNESS AND RESPONSE ONGOING REPORTING TO AFFECTED COMMUNITIES
PS #2 - LABOR AND WORKING CONDITIONS	CHILD & FORCED LABOR WORKING CONDITIONS OCCUPATIONAL HEALTH AND SAFETY						CHILD & FORCED LABOR WORKERS' ORGANIZATIONS NON-DISCRIMINATION AND EQUAL OPPORTUNITY		WORKER RELATIONSHIP WORKERS ENGAGED BY THIRD PARTIES SUPPLY CHAIN
PS #3 - RESOURCE EFFICIENCY AND POLLUTION PREVENTION	WATER CONSUMPTION PESTICIDE USE AND MANAGEMENT HAZARDOUS MATERIALS MANAGEMENT			GHG EMISSIONS			ENERGY AND RESOURCE EFFICIENCY GHG EMISSIONS POLLUTION PREVENTION WATER CONSUMPTION		PESTICIDE USE AND MANAGEMENT
PS #4 - COMMUNITY HEALTH, SAFETY, AND SECURITY	INFRASTRUCTURE AND EQUIPMENT SAFETY HAZARDOUS MATERIAL SAFETY EXPOSURE TO DISEASE							COMMUNITY HEALTH AND SAFETY	SECURITY PERSONNEL REQUIREMENTS
PS #5 - LAND ACQUISITION AND INVOLUNTARY RESETTLEMENT	COMPENSATION COMMUNITY ENGAGEMENT DISPLACEMENT								PROJECT DESIGN GRIEVANCE MECHANISM
PS #6 - BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES	PROTECTION AND CONSERVATION OF BIODIVERSITY MANAGEMENT OF ECOSYSTEM SERVICES	PROTECTION AND CONSERVATION OF BIODIVERSITY MANAGEMENT OF ECOSYSTEM SERVICES	SUPPLY CHAIN				PROTECTION AND CONSERVATION OF BIODIVERSITY SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES SUPPLY CHAIN		
PS #7 - INDIGENOUS PEOPLES	MITIGATION AND DEVELOPMENT BENEFITS						PARTICIPATION AND CONSENT	AVOIDANCE OF ADVERSE IMPACTS	PRIVATE SECTOR COLLABORATION
PS #8 - CULTURAL HERITAGE	NOT APPLICABLE AS IT IS NOT RELATED TO ENVIRONMENTAL REQUIREMENTS, AS PER THE EF SCOPE								

*IFC PS criteria met in each financial product adopting the TNC Environmental Framework recommendations may vary according to the Good Practices certification adopted as reference.

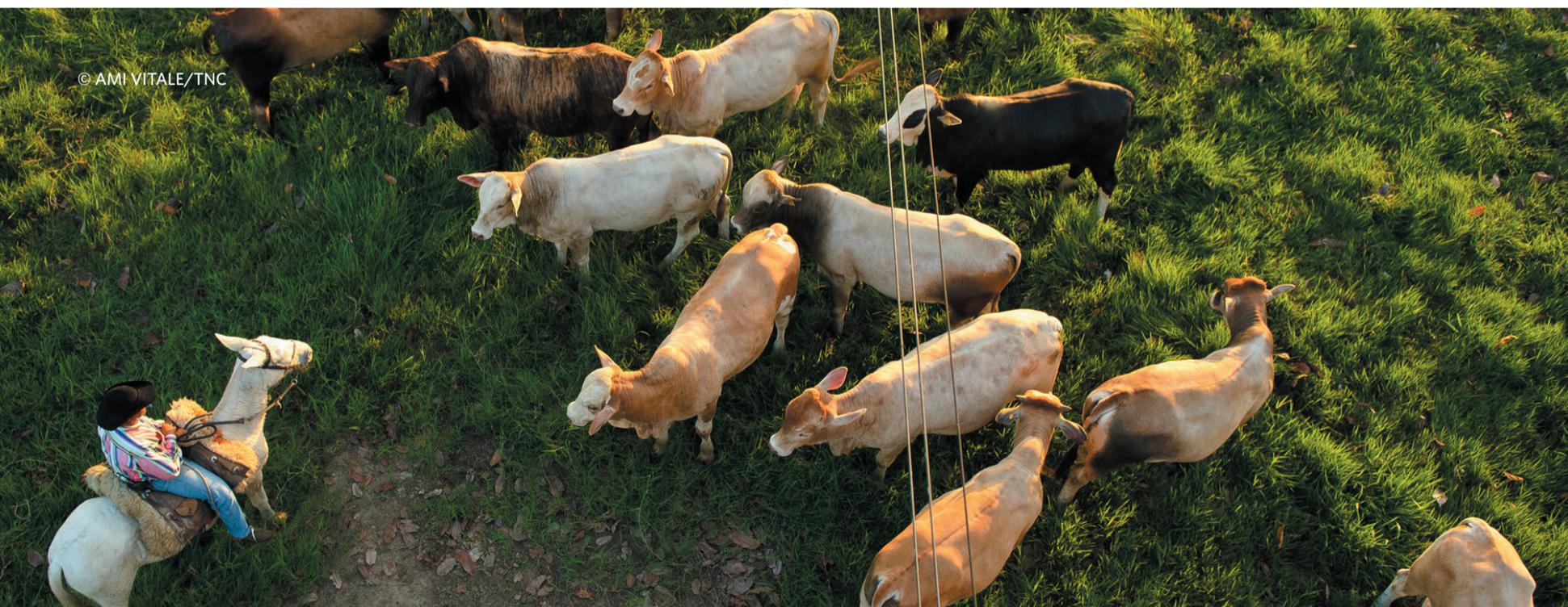
7. Good supplier sourcing practices

The Brazilian cattle rearing cycle from breeding to finishing is characterized by animals being sold and transported through several different farms before the final transaction of selling live cattle to a meatpacker for slaughter. Although the country imposes strict tracking via Animal Transport Permits (GTA) as an important sanitary measure to efficiently monitor and eradicate any disease that may severely impact the herd and Brazil's economic interests, there is no publicly available open-access tool that allows individual ranchers or banks to cross-check conversion, property lines and GTA origin data. While traceability systems and animal origin control tools⁸⁷ are making tremendous strides in this realm, technological and economic constraints currently limit the viability of traceability systems that cover the full cattle supply chain⁸⁸ from birth to slaughter. During the consultation process led by TNC, stakeholders confirmed that individual ranchers have limited resources and capacity to guarantee their direct suppliers and indirect suppliers are fully compliant with all legislation and any zero conversion requirements. Indeed, even the most progressive ranchers have struggled to find adequate supply of cattle stock that is fully compliant.⁸⁹

Still, some measures to reduce risk of deforestation and conversion in earlier stages of cattle production can be implemented without undue burden to a borrower or investee. The Framework already prohibits conversion

on farms that directly supply the financed property with unfinished cattle as of the start date of the loan or investment agreement. This core requirement only includes direct suppliers to the financed farm at this stage, due to data limitations in consistently tracking indirect suppliers. These direct suppliers to the borrower are considered indirect suppliers to the final slaughterhouse. Given that DCF financial mechanisms generally target large Tier 1 ranchers as potential borrowers/investees, this zero conversion requirement of their suppliers effectively addresses approximately 84% of deforestation⁹⁰, going a step further down the supply chain compared to current mainstream monitoring practices that cover only the direct supplier to slaughterhouse. However, to achieve greater environmental impact through its suppliers, DCF financial mechanisms can incorporate an additional environmental element that requires the borrower/investee to apply the GTFI (Indirect Suppliers Working Group) guidance on Good Monitoring Practices⁹¹. This industry agreement endorsed by several retailers and six major meatpackers⁹² offers a simple set of supplier criteria that currently includes a reference date for zero conversion of August 2019 for suppliers to ranchers who in turn sell directly to member slaughterhouses.

As technology and data availability advance, applying the GTFI reference date to indirect suppliers of the borrowers/investees may be considered in future versions of the Framework.



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87 Some examples include Conecta (Safetrace/TNC), Visipec (University of Wisconsin/NWF) and Green Platform (Agrotools/JBS)

88 Brazilian Coalition on Climate, Forests and Agriculture (2020)

89 <https://www.reuters.com/investigates/special-report/brazil-deforestation-cattle/>

90 Rausch & Munger (2020)

91 <https://gtfi.org.br/boas-praticas/>

92 Frialto, Frigol, JBS, Marfrig, Masterboi, Minerva - as of March 2021.

4. Monitoring and verification

Once a lender or investor has determined the environmental requirements (both core and additional) it will include in the DCF financial mechanism, it must then operationalize appropriate monitoring and verification procedures.

According to the definitions set out in the Accountability Framework (AFI), the monitoring and verification process must be ongoing, so that investors and lenders can continually assess ranchers' compliance, performance and progress on commitments under the DCF financing agreement.

Monitoring refers to the systematic collection of data on specific indicators to evaluate and document how implementation is progressing, and which targets are being met. Verification uses data from monitoring to evaluate and confirm compliance with requirements established in the funding mechanism.

Monitoring and verification begin before a lender or investor disburses funding, to determine property and producer eligibility, and continue throughout the tenure of the financing. Table 6 lays out the requirements by transaction phase. Note that some of the Core Environmental Requirements, namely full compliance with the Forest Code and the market re-entry terms endorsed by the Federal Prosecutor's office, are not required for immediate eligibility and can be satisfied during the loan term.



Table 6: **Monitoring and verification requirements by transaction phase.**

PHASE	REACH	CORE ENVIRONMENTAL REQUIREMENTS	ADDITIONAL ELEMENTS
ELIGIBILITY PRE-LOAN	ALL FARMS OWNED OR OPERATED BY BORROWER	<ul style="list-style-type: none"> • NO OUTSTANDING IBAMA SANCTIONS/EMBARGOS ON THE CANDIDATE PRODUCER OR TARGET PROPERTY • NO OVERLAPPING WITH CONSERVATION UNITS AND/OR INDIGENOUS TERRITORIES • CAR REGISTRATION OR, IF AVAILABLE, VALIDATED CAR • NO SLAVE OR CHILD LABOR • VALID ENVIRONMENTAL LICENSES AND PERMITS 	<ul style="list-style-type: none"> • CROSS-FARM APPLICABILITY: THE REFERENCE DATE FOR NO-CONVERSION (JANUARY 2018) SHOULD BE APPLIED TO ALL PROPERTIES
	FINANCED PROPERTY ONLY	<ul style="list-style-type: none"> • PROPOSED PRODUCTION PRACTICES ARE CONSISTENT WITH THE DEFINITION OF SUSTAINABLE INTENSIFICATION • TITLE, LEASE, OR PROOF OF POSSESSION • IN THE CERRADO: NO CONVERSION OF NATURAL HABITAT AFTER THE REFERENCE DATE (JANUARY 2018) • IN THE AMAZON: NO CONVERSION AFTER THE PUBLIC BEEF COMMITMENT'S ESTABLISHED REFERENCE DATE OF OCTOBER 2009, OR DEMONSTRATED PLAN TO FULFILL MARKET RE-ENTRY REQUIREMENTS⁹³ IS CURRENTLY UNDERWAY WITH COMPLETION FEASIBLE WITHIN THE TERM OF THE LOAN 	<ul style="list-style-type: none"> • LOCATED IN A MUNICIPALITY WITH HIGHER PRIORITY TO INVEST AS DETERMINED THROUGH SPATIAL PRIORITIZATION SUCH AS THE TNC DASHBOARD • NO LAND CONFLICTS ASSOCIATED WITH EITHER THE CANDIDATE PRODUCER OR THE TARGET PROPERTY, AS REGISTERED IN THE CPT DATABASE OR EVIDENCED IN OTHER DUE DILIGENCE • PROPOSED INTENSIFICATION PROJECT DOES NOT INCREASE THE HERD AND PASTURE GHG EMISSIONS BALANCE • EVIDENCE OF APPLYING GOOD PRACTICES, IE CERTIFICATIONS OR OTHER DOCUMENTATION
REQUIREMENTS POST-LOAN	ALL FARMS OWNED OR OPERATED BY BORROWER	<ul style="list-style-type: none"> • CONTINUED COMPLIANCE WITH PRE-LOAN REQUIREMENTS • LEGAL AND FOREST CODE COMPLIANCE 	<ul style="list-style-type: none"> • NO CONVERSION OF NATURAL HABITAT ON OTHER PROPERTIES OWNED OR OPERATED BY THE PRODUCER
	FINANCED PROPERTY ONLY	<ul style="list-style-type: none"> • NO CONVERSION OF NATURAL HABITAT ON THE PROPERTY DURING FINANCING TENURE. • IN THE AMAZON: EVIDENCE OF FULFILLED MARKET RE-ENTRY REQUIREMENTS FOR PROPERTIES WITH DETECTED DEFORESTATION OCCURRING BETWEEN OCTOBER 2009 AND JANUARY 2018 	<ul style="list-style-type: none"> CONTINUED COMPLIANCE WITH ABOVE ADDITIONAL ELEMENTS FOR PRE-LOAN ELIGIBILITY • CONTINUED LACK OF LAND CONFLICTS • EVIDENCE OF APPLYING GOOD PRACTICES • COMPLIANT WITH APPLICABLE IFC PERFORMANCE STANDARDS
	BORROWER'S DIRECT CATTLE SUPPLIERS	<ul style="list-style-type: none"> • NO CONVERSION OF NATURAL HABITAT ON THE PROPERTY DURING FINANCING TENURE, EFFECTIVE IMMEDIATELY AT TIME OF SIGNING. NON-COMPLIANCE SHOULD BE ADDRESSED THROUGH PREVIOUSLY AGREED UPON REMEDY PERIODS AND/OR PENALTIES 	<ul style="list-style-type: none"> • APPLY AN AUGUST 2019 CONVERSION-FREE REFERENCE DATE, IN ALIGNMENT WITH THE GTFI INDIRECT SUPPLIERS WORKING GROUP'S GUIDANCE FOR GOOD MONITORING PRACTICES

Most meatpackers and banks already require ranchers to provide evidence of their environmental compliance. To maximize efficiencies, the EF suggests applying a five-step monitoring process that is largely consistent with main-stream monitoring and verification procedures used by both financial and non-financial institutions involved in lending and investing. Figure 10 provides more details about each step of the proposed monitoring and verification flow.

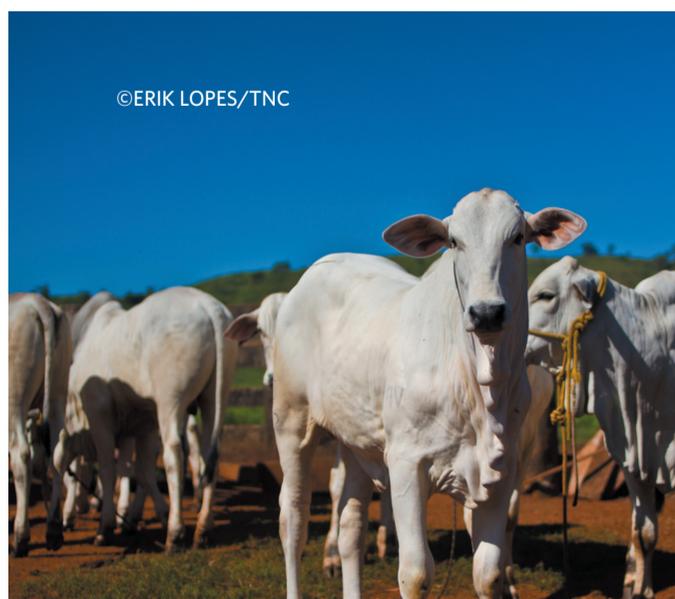
Figure 10: **Monitoring and verification flow.****Step 1: Identify target locations and producer profiles**

As with any financial product, the lender or investor should define a strategy for targeting ranchers for participation in its DCF-cattle ranching financial mechanism. This should identify the ideal rancher profile for uptake, in addition to defining credit and environmental eligibility requirements for ranchers to access DCF resources. Additionally, lenders and investors seeking to maximize the positive environmental impact of the financial mechanism should use spatial prioritization to define target regions for deployment, as part of the first step in the Monitoring and Verification process and discussed in the Spatial Prioritization section of the Framework.

With these criteria defined, lenders/investors can begin active prospecting of potential producers. Ranchers with highly attractive profiles (notably, those who meet not only the minimum requirements but also additional environmental elements) should be considered for preferential access to the mechanism and/or advantageous credit conditions, as outlined in the Additional Environmental Elements section.

Step 2: Determine producer and target property eligibility

As lenders and investors promote DCF-cattle ranching intensification mechanisms in target regions and to specific producer profile segments, potential rancher candidates and the properties to be financed will emerge. The target properties, the rancher and its direct suppliers will need to be vetted with respect to the core environmental requirements and any additional environmental elements the lender/investor has deemed necessary or desirable to include.

**Target-property and project eligibility:**

In general, it is simple to determine the initial property eligibility by analyzing a property's exact location, using information from a georeferenced identification document for the target property. This information can be obtained from:

- Rural Environmental Registry (*Cadastro Ambiental Rural – CAR*) number.
- Vector files with the spatial location of the property.
- Land Management System (*Sistema de Gestão Fundiária – SIGEF*) certificate.

With any one of these documents, the lender/investor can evaluate the property's exact location for pre-loan eligibility in both core environmental requirements and additional environmental elements, as laid out above in Table 7. While not required, lenders can also use this information to further confirm suitability for cattle intensification in the general region of the property, using TNC's dashboard "Priority areas to invest".

Additionally, lenders/investors should have a solid understanding of the proposed use of proceeds to be able to evaluate if the project to be financed meets the Environmental Framework's guidelines on an appropriate definition of sustainable intensification, as described in both the Executive Summary and Environmental Requirements sections. Annex C offers a simple questionnaire to assess project eligibility.

Rancher eligibility:

Verifying rancher eligibility is more complex, as the core environmental requirements mandate legal compliance of a producer and of all properties owned or operated by the producer and related parties. Verification begins with the rancher disclosing the names and taxpayer identification numbers - Natural Persons' Registry number (*Cadastro de Pessoas Físicas – CPF*) and/or Brazil National Registry of Legal Entities number (*Cadastro Nacional da Pessoa Jurídica – CNPJ*) of all related parties. Related parties are defined as:

- Business partners: Legal business partners related to cattle ranching production, such as joint ventures or joint-owned businesses.
- Informal economic groups: Informal business partners who jointly sell cattle, purchase inputs, sign for loans or undertake other commercial activities that would indicate they work together on a commercial basis
- Spouses or children whose names are on the title of the property, regardless of whether or not they are active in or responsible for the operations or running of the property.

The rancher must also disclose the location of all rural properties that the rancher and/or the identified related parties own, hold or operate by providing a CAR, vector files or SIGEF certificates (as mentioned above). Farmers should also provide adequate documentation to demonstrate that those rural properties are operating legally. Lenders and investors can prepare candidates (and related parties, if applicable) for this process by sharing a list of acceptable evidence to demonstrate eligibility; Annex A provides a detailed list of relevant documentation that can be used to conduct due diligence on ranchers, related parties, and their cattle ranching operations.

The list of disclosed properties with associated documentation is also a key input for verification in cases where a lender/investor chooses to require cross-farm applicability of other core and/or additional environmental elements to ensure greater conservation impact, such as the conversion-free reference date. Equipped with this information, a lender/investor can use publicly available databases such as CAR databases, Mapbiomas, Deter, and others to confirm a candidate rancher's broader operations align with the financier's ambitions for positive environmental impact.

Direct Supplier Identification and Engagement:

To demonstrate compliance with the Environmental Framework's core requirement that direct suppliers of cattle to the borrower must be conversion-free effective the date of the loan, borrowers should be prepared to annually provide the lender with the CAR numbers, copies of the CAR certificates or vector files associated to a list of the properties from where they purchased cattle. Alternatively, the borrower may provide copies of all the

GTA's that account for his annual cattle acquisitions, as well as their associated CAR numbers or vector files. The borrower should inform their suppliers that the loan will require him to source cattle only from ranchers who do not convert natural vegetation going forward. Free spatial analysis tools, such as Mapbiomas Alerta! and DETER offer near real-time deforestation alerts to verify compliance. While ultimately the lender/investor is responsible for identifying conversion on the direct suppliers' ranches, the borrower's intimate relationship with his/her suppliers is critical to generate awareness and understanding of the new market demands the supplier must abide with to continue selling to the borrower to avoid triggering negative repercussions on the borrower from the lender/investor. The terms of the loan should explicitly cover acceptable tolerance levels, if any⁹⁴, and expectations for remediation, including exclusion of suppliers from future sales of their cattle to the borrower.

Step 3: Preparation for monitoring and verification

Once a suitable property has been identified and a producer's eligibility for DCF-financing has been determined, the terms and process for environmental compliance, monitoring and verification should be incorporated into the relevant financing agreements. Terms should clearly address aspects such as:

- Frequency and notice of on-site visits
- Post-loan eligibility requirements as outlined in **Table 7**, including a schedule of milestones for compliance. This is especially relevant in instances where, at the time of financing:
 - o The target property or related properties are not in full compliance with the Forest Code; and/or
 - o The target property has not yet fulfilled market re-entry requirements⁹⁵ in the case of ranchers in the Amazon who deforested on the target property between October 2009 and January 2018; and/or
 - o Where the lender or investor has determined that fulfilling additional environmental elements will trigger better terms.
- Systems to be used to collect and track relevant information

⁹⁴ While TNC encourages zero tolerance of any instances of conversion with direct suppliers, the GTFI Good Monitoring Practices protocol currently recognizes that instances of deforestation by smallholder suppliers with properties of less than 100 ha should be afforded special considerations.

⁹⁵ As laid out in the Beef on Track monitoring Protocol https://www.beefontrack.org/public/media/arquivos/1597414501-fluxograma_protocolo_de_monitoramento.pdf

- Procedures and sanctions for infractions and non-compliance with environmental requirements
- Other responsibilities of each party during the process of monitoring, verification and accountability

The Environmental Framework seeks to maximize the use of existing practices, systems and remote sensing tools to ease adoption of monitoring components and reduce associated operational costs; some of the requirements are likely already captured in lenders' and investors' current screening processes. Nevertheless, it is important that lenders and investors of DCF cattle ranching mechanisms review their monitoring capabilities to ensure they have adequate capacity to assess a rancher's compliance with the environmental requirements. Capacity to conduct screening for environmental compliance verification and monitoring can be built directly into a lender's current capacity, or elements can be outsourced to third parties, given that most of the systems and tools to evaluate compliance are publicly available.

Having an initial detailed property diagnosis (including photos, satellite images and an on-site visit) is key, serving as a baseline for assessing future performance with the environmental requirements and additional environmental elements. Several databases exist (listed in Annex A and B) to support monitoring and verification processes, providing secure, accurate and up-to-date information and data about target properties and potential rancher borrowers.

Furthermore, as with other terms of financing, lenders and investors should clearly lay out procedures and penalties for non-compliance with the environmental requirements, as binding clauses within the agreements. Clauses can address details such as acceptable remedy periods when infractions occur, as well as the penalties for various infraction types, such as interest rate increases, acceleration of loan repayment and, ultimately, the invocation of default provisions.

Step 4: Participate in annual monitoring and reporting

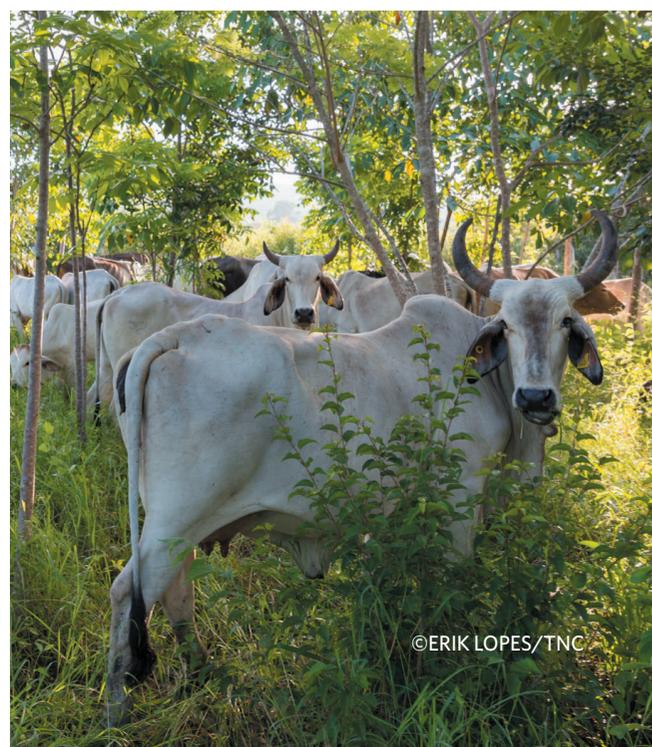
Throughout the duration of the contract, it is important that the lender or investor conduct annual monitoring of the rancher and properties to confirm compliance with the environmental requirements.

Previously collected and accurate data on the relevant properties, ranchers and their related parties makes consulting public databases to conduct remote monitoring relatively straightforward. Monitoring evalua-

tions may also include periodic on-site visits, with the lender or investor determining the frequency and scope, in agreement with the rancher.

In addition to annual and other scheduled reviews, alert systems are now available that can automatically make lenders and investors aware of non-compliance events at the time they occur. Mapbiomas Alerta! and DETER are both able provide such alerts with reasonably high accuracy. The Environmental Framework recommends using alert systems that have demonstrated high accuracy rates so that all parties are aware of infractions quickly, without having to wait up to a year between annual reviews. This will allow the process of resolving infractions to proceed on a timely basis. The Environmental Framework also recommends that on-site visits be triggered when remote monitoring alerts or analyses indicate non-compliance, to confirm and better assess the situation.

Lenders and investors should prepare annual reports assessing each financed producer and the property's production performance and overall compliance with the Environmental Framework requirements. The report should include, but not be limited to, basic information on the loan/investment status, such as total disbursements compared to the disbursement schedule; loan repayment vis-à-vis debt service schedule (if applicable); any issues regarding disbursement, repayment or compliance with other conditions; assessment of the core environmental requirements and additional environmental elements; and a basic environmental impact assessment (as described in **Evaluating Performance**). The scope should include quantitative and qualitative metrics of progress related to contractually agreed terms of compliance; monitoring methodology; data sources; and, if relevant, details of any independent verification process.



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Step 5: Use ongoing oversight

Banks and investors can adaptively manage a DCF financing program for success when they have an overview of their portfolio performance. A roll-up analysis of the individual monitoring and verification described previously can provide insights into the efficiency of the DCF program. Such oversight can diagnose the extent to which the program is complying with environmental requirements, identify recurring barriers or trends in implementing the environmental monitoring protocols, identify any gaps in achieving the lender's/investor's environmental goals, and justify adjustments to improve the DCF financial mechanism's environmental performance.

Oversight can be conducted by an appropriate partner

organization, such as an NGO with experience in this area, or lenders and investors can contract third party reviewers to conduct external evaluations, such as those described in the Green Bond Principles of the International Capital Market Association:

Second party opinion: External independent institutions with expertise on the environmental and cattle ranching areas may analyze the level of adherence to the Environmental Framework. The SPO may be publicly disclosed by the institution that is applying the EF.

Certification: If there is enough demand, certifying bodies may identify an opportunity to develop verification and oversight services based on the Environmental Framework.

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5. Evaluating Performance

The Environmental Framework suggests a set of environmental and production metrics that lenders, investors and other stakeholders can use to monitor performance and manage for desired impacts. The metrics can be used to evaluate performance at a portfolio level and on an individual transaction basis.

Table 7: **Suggested metrics for DCF financial mechanisms focused on cattle ranching intensification.**

METRICS	METHODOLOGY	UNIT
TOTAL VOLUME OF RESOURCES THAT ARE APPLYING THE EF AS GUIDANCE	SUM OF LOAN AND EQUITY AMOUNTS CONDITIONED TO EF REQUIREMENTS	USD OR BRL
AREA UNDER INTENSIFICATION	ANNUAL CHANGE IN HECTARES ON THE RANCH THAT HAVE BEEN BROUGHT UNDER INTENSIFICATION PRACTICES USING PROCEEDS FROM THE LOAN	HECTARES
TOTAL ON-FARM CATTLE PRODUCTIVITY UNDER THE DCF FINANCIAL MECHANISM	ANNUAL CHANGES INFORMED BY THE RANCHER TO THE BORROWER/INVESTOR	KG/HECTARE/YEAR ANIMAL UNITS PER HECTARE
TOTAL AREA OF NATURAL HABITAT CONSERVED OR RESTORED ON FINANCED PROPERTY: <ul style="list-style-type: none"> • TO MEET LEGAL REQUIREMENTS • BEYOND LEGAL REQUIREMENTS 	CAR AND PRADA IN BASE YEAR + ANNUAL MONITORING (I.E.MAPBIOMAS)	HECTARES
FARM CARBON EMISSIONS	ESTIMATED CARBON EMISSIONS	TCO2 TCO2EQ/KG
AVOIDED CONVERSION OF NATURAL VEGETATION <ul style="list-style-type: none"> • ON-FARM • OFF-FARM 	ESTIMATED AREA WHERE CONVERSION WAS AVOIDED <ul style="list-style-type: none"> • ON-FARM, BASED ON SURPLUS LEGAL RESERVE • OFF-FARM, MAY BE DEVELOPED BASED ON ANALYSIS OF REGIONAL CATTLE EXPANSION 	HECTARES
AVOIDED CARBON EMISSIONS <ul style="list-style-type: none"> • ON-FARM • OFF-FARM 	ESTIMATED AVOIDED AREA OF CONVERSION MULTIPLIED BY THE AVERAGE CARBON STOCKS (TNC'S CARBON CALCULATOR MAY BE USED)	TCO2EQ
SUPPLIERS MONITORED	# OF DIRECT SUPPLIERS OR % OF CATTLE TRACED (IDEALLY BOTH)	# OR %

The metrics suggested in Table 7 are not exhaustive. Lenders and investors can adapt or complement them with other relevant indicators to evaluate the financial mechanism's performance and impact.

The Environmental Framework does not require that DCF cattle intensification mechanisms, or the ranchers who contract them, meet specific performance targets. Rather, it leaves that assessment and determination to individual lenders and investors.

The suggested indicators are related to components of the previously presented Theory of Change. As part of the Environmental Framework, The Nature Conservancy developed the **TNC Carbon Calculator**, a quantitative tool that supports calculating and monitoring a DCF financial mechanism's impacts on the on-farm carbon balance and avoided emissions (tCO₂), based on herd and ranch parameters and assumptions of implementing sustainable intensification practices.

The **TNC Carbon Calculator** uses assumptions and parameters based on the ranch location (municipality), total pasture area and pasture intensification area, current and projected stocking rates, herd size and composition, and other zotechnical information. The calculator results include estimates of GHG emissions from different sources (such as soil, enteric fermentation, excrement, fertilizer and limestone use, and pasture recovery capacity).

While total emissions on a farm generally increase under sustainable intensification practices, this increase is in part due to the increased number of animals. Under TNC modeling using actual farm data, while total farm emissions increase, emissions per animal and per kilo of meat produced decrease significantly. In addition, intensification has carbon benefits from avoided emissions from avoiding expansion into natural habitat beyond the property borders, which is not included in our model currently. Under current market conditions where beef supply must increase to meet growing global demand, financing sustainable intensification is expected to result in overall reduced emissions.

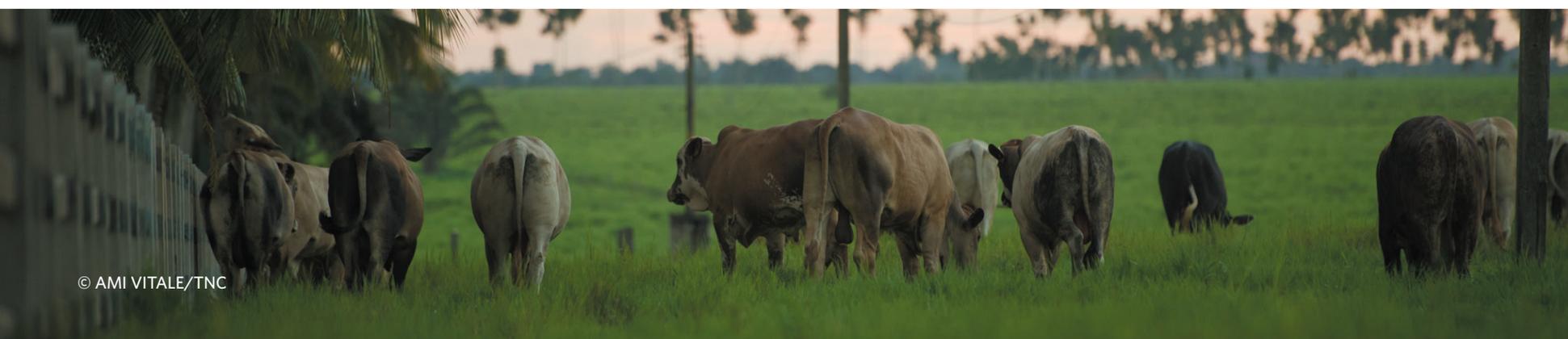
6. Final note

Sustainable intensification of cattle ranching in Brazil is a tremendous opportunity to grow production, meet the needs of key markets, improve the income of ranchers, free up land for the production of soy and other agricultural products, conserve natural habitat while restoring productivity of pasture lands and soils, and ultimately contribute to the global effort to control greenhouse gas emissions and even disease. A substantial expansion in lending and investment to Brazilian ranchers will be needed to realize this transition, and this Environmental Framework offers a practical guide to help financial institutions design and implement the innovative financial products necessary to achieve this.

This cattle paper complements our previously released *Environmental Framework for Lending and Investing in Soy in the Cerrado*¹, in an integrated approach to orientate finance for efficient land use in Brazilian territory. Optimizing land use in Brazil is imperative—and financial incentives are key to this effort. In the Cerrado, for instance, the existing pasture area suitable for soybeans (18.5Mha) would be enough to meet more than twice the expansion needs by 2030 (7.3Mha) estimated by the Brazilian National Supply Company (CONAB). Meanwhile, beef production in the country is still plagued by low productivity (national average is less than 1 head/ha), albeit with significant potential for intensification (up to 4 head/ha). Cattle ranching intensification which increases profitability, boosts productivity, and frees up land for alternative uses in combination with soy expansion in previously cleared land is a key strategic element to achieve deforestation- and conversion-free value chains.

TNC's Environmental Frameworks set both essential requirements and additional elements to assist the development of new financial mechanisms based on sustainable production approaches. The ability to incorporate additional requirements in novel ways gives lenders and investors the chance to develop a diverse set of products, as well as offering additional benefits to ranchers who meet additional criteria. The Frameworks' development process engaged different players in the soy and beef production chains to arrive at a roadmap able to meet the most diverse market needs. Thus, lenders can standardize the requirements for offering sustainable finance products to producers, helping ensure that financed production is developed in a more sustainable way. And producers have the additional benefit of consistent requirements from different sources of capital.

Together, the two frameworks provide a reference guide for financing agricultural production that is both environmentally and economically sustainable; they support a broader development approach that has long been scientifically hypothesized and even politically supported under previous administrations in Brazil, in which international demand signals, effective market incentives and good local governance work in tandem to catalyze conversion-free intensification of cattle ranching and free up open land for the expansion of grain and oilseed production. The Nature Conservancy looks forward to working with all stakeholders who share our common vision for agricultural development where people and nature can thrive.



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8. Annex A - Due diligence documentation for core environmental requirements

Table 8 presents a compilation of documents that can be used to verify and monitor ranchers' compliance with core environmental requirements that lenders and investors should incorporate into their financing mechanisms for DCF soy expansion.

Table 8: **Recommended documentation for compliance with core environmental requirements.**

ENVIRONMENTAL REQUIREMENT	DOCUMENT/EVIDENCE	INFORMATION AVAILABILITY	COMMENTARY
COMPLIANCE WITH ENVIRONMENTAL LEGISLATION	RURAL ENVIRONMENTAL REGISTRY (CAR - CADASTRO AMBIENTAL RURAL)	SHARED BY RANCHER AND PUBLICLY AVAILABLE	REGISTRATION RECEIPT OR, IF AVAILABLE, VALIDATED CAR
	SIGEF CERTIFICATE	SHARED BY RANCHER	-
	ENVIRONMENTAL COMMITMENT TERM (TCA - TERMO DE COMPROMISSO AMBIENTAL)	SHARED BY RANCHER	-
	DEGRADED AREAS RECOVERY PLAN (PRAD - PLANO DE RECUPERAÇÃO DE ÁREAS DEGRADADAS)	SHARED BY RANCHER	REQUIRED IF CAR IS NON-COMPLIANT TO THE FOREST CODE
	PROXIMITY TO CONSERVATION UNITS, INDIGENOUS LANDS AND QUILOMBOLA LANDS	PUBLICLY AVAILABLE	-
	ENVIRONMENTAL LICENSE	SHARED BY RANCHER	ALL FARMS, IF APPLICABLE
	PROOF OF REGISTRATION WITH STATE AGRICULTURAL DEFENSE AGENCY, IE ADAPAR (PARÁ), INDEA (MATO GROSSO)	SHARED BY RANCHER	REGISTRATION IS REQUIRED FOR RANCHERS TO THEN BE ABLE TO GENERATE ANIMAL TRANSPORT PERMITS - GTAS
	IBAMA EMBARGOES	PUBLICLY AVAILABLE	-
	ICMbio EMBARGOES	PUBLICLY AVAILABLE	RELEVANT IN CASE THE PROPERTY IS WITHIN 10KM FROM A PROTECTED AREA
	STATE ENVIRONMENTAL AGENCY EMBARGOES	PUBLICLY AVAILABLE	SPECIFIC AGENCY DEPENDS ON THE PROPERTY'S LOCATION
	MUNICIPAL ENVIRONMENTAL AGENCY EMBARGOES	PUBLICLY AVAILABLE	SPECIFIC AGENCY DEPENDS ON THE PROPERTY'S LOCATION
	PROJETO AMAZON PROTEGE	PUBLICLY AVAILABLE	ONLY FOR PROPERTIES IN THE AMAZON
	CONDUCT ADJUSTMENT AGREEMENTS (TACS)	SHARED BY RANCHER	-
REFERENCE DATE	PRODES/DETER	PUBLICLY AVAILABLE	GEOSPATIAL ANALYSIS
	MAPBIOMAS, MAPBIOMAS ALERTAS	PUBLICLY AVAILABLE	GEOSPATIAL ANALYSIS
	ON-SITE VISITS	LENDER/INVESTOR'S RESPONSIBILITY	-
LAND TENURE	CERTIFICATE OF REGISTRATION OF RURAL REAL ESTATE (CCIR - CERTIFICADO DE CADASTRO DE IMÓVEIS RURAIS)	SHARED BY RANCHER	-
	RURAL PROPERTY TAX DECLARATION (ITR - DECLARAÇÃO DO IMPOSTO SOBRE A PROPRIEDADE TERRITORIAL RURAL)	SHARED BY RANCHER	-
	CERTIFICATE OF DEED OF ENTIRE CONTENT OF THE RURAL REAL ESTATE	SHARED BY RANCHER	-
	NEGATIVE CERTIFICATE OF FISCAL DEBTS ON RURAL REAL ESTATE (CNDIR - CERTIDÃO NEGATIVA DE DÉBITOS DO IMÓVEL RURAL)	SHARED BY RANCHER	-
	CNPJ CARD REGISTRATION AND CADASTRAL SITUATION OF LEGAL ENTITY	SHARED BY RANCHER	IF APPLICABLE
	REGISTERED OR NOTARIZED LEASE, PARTNERSHIP OR LENDING AGREEMENT	SHARED BY RANCHER	-
COMPLIANCE WITH LABOR LEGISLATION	SOCIAL SECURITY WEBSITE CONFIRMS THAT ALL EMPLOYEES ARE PROPERLY REGISTERED, AND ALL RELEVANT INSURANCE IS IN PLACE	SELF-DECLARATION OF COMPLIANCE BY THE RANCHER	-
	DECLARATION OF THE GENERAL REGISTER OF EMPLOYEES AND UNEMPLOYED (CAGED - CADASTRO GERAL DE EMPREGADOS E DESEMPREGADOS)	SELF-DECLARATION OF COMPLIANCE BY THE RANCHER	-
	CERTIFICATE OF NEGATIVE LABOR DEBITS (CNDT - CERTIDÃO NEGATIVA DE DÉBITOS TRABALHISTAS)	SHARED BY RANCHER	-
	NEGATIVE CERTIFICATE OF LABOR LAWSUITS (CERTIDÃO NEGATIVA DE PROCESSOS TRABALHISTAS)	SHARED BY RANCHER	-
	CRF-FGTS COMPLIANCE CERTIFICATE	SHARED BY RANCHER	-
	INSURANCE EVIDENCE (INSS)	SHARED BY RANCHER	-
ANIMAL ORIGIN CONTROL FOR DIRECT SUPPLIERS	COPIES OF ANIMAL TRANSIT GUIDES (GUIA DE TRÂNSITO ANIMAL, GTA)	SHARED BY RANCHER, ANNUALLY	-
	LIST OF CAR NUMBERS FOR ALL PROPERTIES THAT SUPPLIED CATTLE TO THE RANCHER, OR THEIR CAR DOCUMENTATION OR VECTOR FILES OF THE PROPERTY BOUNDARIES	SHARED BY RANCHER, ANNUALLY	-
	SUPPLIER EVALUATION FOR CONVERSION	THIRD PARTY SERVICE IF AVAILABLE, OR LENDER/INVESTOR EVALUATION OR DIRECT SUPPLIERS PROPERTIES	E.G.: CONECTA, VISIPEC OR PAID SERVICE

9. Annex B - Design and Due Diligence documentation for additional environmental elements

Table 9 presents a compilation of documents and information sources that can be used to define additional environmental elements, and to verify and monitor compliance. Table 8 presents a compilation of documents and information sources that can be used to define additional environmental elements, and to verify and monitor compliance.

Table 9: **Recommended documentation for definition, compliance with additional environmental elements.**

ENVIRONMENTAL ELEMENT	DOCUMENT, INFORMATION SOURCE	INFORMATION AVAILABILITY	COMMENTARY
GOOD SUPPLIER SOURCING PRACTICES	ANIMAL TRANSIT GUIDE (GUIA DE TRÂNSITO ANIMAL, GTA)	SHARED BY RANCHER'S INDIRECT SUPPLIERS	-
	SUPPLY CHAIN MONITORING TOOL	THIRD PARTY SERVICE HIRED BY LENDER/INVESTOR	E.G.: VISIPEC, CONECTAS (PARÁ)
CROSS-FARM APPLICABILITY	NEEDS TO IDENTIFY FARMS OWNED AND OPERATED BY FARMER (AS DEFINED IN THE MONITORING SECTION), WITH THE RESPECTIVE MONITORING SYSTEM (I.E. MAPBIOMAS) TO CONFIRM THERE IS NO CONVERSION.		
GHG EMISSIONS	TNC'S CALCULATOR, GHG PROTOCOL OR HIRE SPECIALIZED INSTITUTION	PUBLICLY AVAILABLE PROVIDED BY FINANCE MECHANISMS SPONSOR	-
SPATIAL PRIORITIZATION	TNC DASHBOARD MECHANISM SPATIAL PRIORITIZATION PLAN	PUBLICLY AVAILABLE PROVIDED BY FINANCE MECHANISMS SPONSOR	-
GOOD PRACTICES	GAP CERTIFICATION	SHARED BY RANCHER	-
	THIRD-PARTY AUDIT OF COMPLIANCE WITH CRITERIA	SHARED BY RANCHER	E.G.: RTRS, ISCC, 3S, PROTERRA
LAND CONFLICTS	SIGEF CERTIFICATE	PUBLICLY AVAILABLE	IF APPLICABLE
	FUNAI DATABASE	PUBLICLY AVAILABLE	IF APPLICABLE
	PASTORAL LAND COMMISSION DATABASE (CPT - COMISSÃO PASTORAL DA TERRA)	PUBLICLY AVAILABLE	IF APPLICABLE
	JUDICIAL PROCEEDINGS ASSOCIATED WITH LAND CONFLICTS	SHARED BY PRODUCER	IF APPLICABLE
	NEWS MONITORING	PUBLICLY AVAILABLE	FREQUENCY TO BE DETERMINED
IFC PERFORMANCE STANDARDS	POLICIES AND INTERNAL PROCEDURES	SHARED BY PRODUCER	-
	THIRD-PARTY ASSESSMENT OF COMPLIANCE WITH PS	SHARED BY PRODUCER	-



10. Annex C - Summary of Sustainable Cattle Initiatives and Mechanisms

Sector-wide voluntary initiatives.

GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

GLOBAL PARTNERSHIP CREATED IN 2010 AND LED BY FAO BETWEEN PUBLIC AND PRIVATE SECTORS, RANCHERS, RESEARCH AND ACADEMIC INSTITUTIONS, NGOS, SOCIAL MOVEMENTS AND COMMUNITY-BASED ORGANIZATIONS AND FOUNDATIONS, COMMITTED TO THE SUSTAINABLE DEVELOPMENT OF THE LIVESTOCK SECTOR. CONSIST ON CREATING CONSENSUS ON THE PATH TOWARDS SUSTAINABILITY AND CATALYZING COHERENT AND COLLECTIVE PRACTICE CHANGE THROUGH DIALOGUE, CONSULTATION AND JOINT ANALYSIS. INVOLVES ISSUES SUCH AS GLOBAL FOOD SECURITY AND HEALTH, EQUITY AND GROWTH AND RESOURCES AND CLIMATE.

GLOBAL ROUNDTABLE FOR SUSTAINABLE BEEF (GRSB)

GLOBAL, MULTI-STAKEHOLDER INITIATIVE DEVELOPED IN 2011 TO ADVANCE CONTINUOUS IMPROVEMENT IN SUSTAINABILITY OF THE GLOBAL BEEF VALUE CHAIN. ITS GOAL IS FOR ALL ASPECTS OF THE BEEF VALUE CHAIN TO BE ENVIRONMENTALLY SOUND, SOCIALLY RESPONSIBLE AND ECONOMICALLY VIABLE.

G4 CATTLE AGREEMENT

AGREEMENT AMONG THE BRAZILIAN MEATPACKERS GREENPEACE, JBS, MARFRIG, MINERVA TO PURCHASE BEEF EXCLUSIVELY FROM RANCHES IN THE BRAZILIAN AMAZON THAT ARE NOT CONNECTED WITH DEFORESTATION. INCLUDES AS COMMITMENTS: NO NEW DEFORESTATION FOR CATTLE RANCHING AFTER 2009, NO INVOLVEMENT WITH SLAVE WORK OR INVASION OF INDIGENOUS LANDS AND PROTECTED AREAS, AND TRACEABILITY OF THE SUPPLY CHAIN.

BRAZILIAN ROUNDTABLE FOR SUSTAINABLE LIVESTOCK (GTPS)

LAUNCHED IN 2009, GTPS WAS THE FIRST ASSOCIATION ON SUSTAINABLE PRACTICES IN THE BEEF CHAIN. COMPOSED BY REPRESENTATIVES FROM DIFFERENT SEGMENTS OF THE BRAZILIAN BOVINE CATTLE BREEDING VALUE CHAIN. AIMS TO PROMOTE THE DEVELOPMENT OF SUSTAINABLE LIVESTOCK IN BRAZIL THROUGH CHAIN LINKAGE, CONTINUOUS IMPROVEMENT AND DISSEMINATION OF INFORMATION. ITS INITIATIVES COVERAGE VARY BETWEEN INTERNATIONAL, NATIONAL AND STATEWIDE COVERAGE.

WORKING GROUP OF INDIRECT SUPPLIERS (GTFI)

CREATED IN 2016, IS CURRENTLY THE MAIN FORUM FOR DISCUSSION ON TRACEABILITY SOLUTIONS, MONITORING OF INDIRECT SUPPLIERS AND TRANSPARENCY FOCUSED ON CONTROLLING DEFORESTATION OF THE LIVESTOCK CHAIN IN BRAZIL. IT BRINGS TOGETHER VARIOUS STAKEHOLDERS OF THE CHAIN WITH THE PURPOSE OF IDENTIFYING, DEVELOPING AND SUPPORTING THE IMPLEMENTATION OF TRACEABILITY SOLUTIONS FOR INDIRECT SUPPLIERS.

Government-led initiatives.**MEAT TAC**

THE MEAT CONDUCT ADJUSTMENT DECLARATION (TAC) WAS FIRST LAUNCHED IN 2009 BY THE FEDERAL PROSECUTION SERVICE (MPF) OF THE PARÁ STATE IN WHICH MEATPACKERS AND BEEF EXPORTERS PLEDGE NOT TO BUY LIVESTOCK FROM SUPPLIERS NON-COMPLIANT TO THE BRAZILIAN ENVIRONMENTAL AND SOCIAL REGULATIONS. SINCE THEN, MPF FROM OTHER STATES SUCH AS MATO GROSSO, ACRE, RONDÔNIA AND AMAZONAS, HAVE ADOPTED THIS MECHANISM.

AMAZON CATTLE SUPPLIER MONITORING PROTOCOL

LAUNCHED IN 2020 BY THE FEDERAL PROSECUTION SERVICE AND IMAFLORA, THE AMAZON CATTLE SUPPLIER MONITORING PROTOCOL, AN EFFORT TO HARMONIZE MONITORING COMMITMENTS AND APPROACHES FROM MEATPACKERS AND RETAIL COMPANIES TO HAVE A SINGLE COMPLIANCE AND AUDIT PROCESSES AND TO EXPAND ADHERENCE, AIMING AT THE EFFECTIVE HEALTH AND ENVIRONMENTAL CONTROL OF THE MEAT. AIMS TO STRENGTHEN THE SOCIAL AND ENVIRONMENTAL COMMITMENTS OF THE BEEF SECTOR AND PROMOTE ITS IMPLEMENTATION.

ABC PROGRAMME

THE ABC PROGRAMME WAS CREATED IN 2010 AND THE NATIONAL PROGRAM FOR LOW CARBON EMISSIONS IN AGRICULTURE CONSISTS OF SEVEN PROGRAMS, OF WHICH THE FIRST TWO ARE DEGRADED PASTURELAND RECOVERY AND CROP-LIVESTOCK-FORESTRY INTEGRATION (ILPF) AND AGROFORESTRY SYSTEMS (SAFS). ITS CREDIT LINES AMOUNTED BRL 12.4 BILLION IN TOTAL INVESTMENTS FROM 2013 TO 2018.

Industry's voluntary initiatives.**WORK PLAN**

PROJECT DEVELOPED BY MINERVA IN 2015 WHICH ACTIONS WERE CARRIED OUT THROUGH PARTICIPATION IN THE IBAMA WORKING GROUP AND THE BOARD OF DIRECTORS OF THE SUSTAINABLE LIVESTOCK WORKING GROUP. IT INCLUDES AN ACTION PLAN WITH VERIFIABLE GOALS AND INDICATORS, ACTIONS AND DEADLINES FOR ACHIEVEMENT.

CARBON-FREE BEEF LABEL

THE BRAZILIAN AGRICULTURAL RESEARCH CORPORATION (EMBRAPA) AND MEATPACKER MARFRIG DEVELOPED, IN 2020, A PROTOCOL TO OFFSET CATTLE RANCHING METHANE EMISSIONS THROUGH ILPF OR ILP SYSTEMS. MARFRIG, WHICH RETAINS EXCLUSIVE RIGHTS TO THE SALE OF GOODS UNDER THE LABEL FOR THE NEXT TEN YEARS, AFTER WHICH TIME IT WILL BECOME PUBLIC DOMAIN. SEVEN INDEPENDENT CERTIFIERS ARE ACCREDITED TO AWARD THE LABEL.

MARFRIG VERDE+ PLAN

MARFRIG AND IDH DEVELOPED IN 2020 A PLAN WITH THE OBJECTIVE OF GUARANTEEING THAT 100% OF THE COMPANY'S PRODUCTION CHAIN IS SUSTAINABLE AND FREE OF DEFORESTATION IN THE NEXT TEN YEARS, THROUGH THE STRUCTURING OF FINANCIAL MECHANISMS, TECHNICAL ASSISTANCE NETWORK AND DESIGN OF AN INDIRECT SUPPLIER MONITORING SYSTEM. IN ADDITION, IT INTENDS TO EXPAND ITS POSITIVE IMPACTS ON SOCIOECONOMIC DEVELOPMENT, MAINTENANCE AND RECOVERY OF BIODIVERSITY IN THE TERRITORIES WHERE IT OPERATES.

TOGETHER FOR THE AMAZON

COMMITMENT MADE BY JBS IN 2020, ADDRESSED TO THE AMAZON BIOME. IT CONSISTS OF PROMOTING THE SUSTAINABLE DEVELOPMENT OF THE BIOME, PROMOTING CONSERVATION AND SUSTAINABLE USE OF THE FOREST, IMPROVING THE QUALITY OF LIFE OF THE LOCAL POPULATION, DEVELOPING A PORTFOLIO OF QUALITY SUSTAINABLE PRODUCTS AND ENGAGING WITH STAKEHOLDERS THROUGH COLLABORATION WITH PARTNERS TO DEVELOP A MODEL OF SUSTAINABLE PRODUCTION, COMPETITIVE, INCLUSIVE AND RESILIENT.

AMAZON PLAN

A JOINT PLAN BETWEEN BRADESCO, ITAÚ AND SANTANDER TO PROMOTE SUSTAINABLE DEVELOPMENT IN THE AMAZON IN 2020. INCLUDES THE STIMULATION OF SUSTAINABLE CHAINS IN THE REGION THROUGH DIFFERENTIATED FINANCING LINES AND NON-FINANCIAL TOOLS, THE VIABILITY OF INVESTMENT IN BASIC INFRASTRUCTURE FOR SOCIAL DEVELOPMENT, SUPPORT FROM LOCAL LEADERS FOR SOCIO-ECONOMIC DEVELOPMENT IN THE REGION AND PROMOTION OF PARTNERSHIPS TO DEVELOP TECHNOLOGIES THAT BOOST THE BIO-ECONOMY.

Technical assistance/training support.

BIOMAS PROJECT
PARTNERSHIP BETWEEN CNA AND EMBRAPA LAUNCHED IN 2009. AIMED TO SUPPORT RESEARCH ON SUSTAINABLE TECHNIQUES TO RECOVER AND RESTORE NATURAL HABITAT IN THE SIX BRAZILIAN BIOMES. CONCLUDED THAT THE SPECIFICITIES OF EACH LANDSCAPE SHOULD BE CONSIDERED TO MAXIMIZE THE ENVIRONMENTAL AND ECONOMIC RETURNS IN SUSTAINABLE AGRICULTURE SYSTEMS.
SUSTAINABLE BEEF: FROM THE FARM TO THE TABLE
PARTNERSHIP BETWEEN THE NATURE CONSERVANCY (TNC), MARFRIG AND WALMART AND SUPPORTED BY THE MOORE FOUNDATION, SINCE 2013. THE PROJECT OPERATES IN SÃO FÉLIX DO XINGU (PA), THE MUNICIPALITY WITH THE LARGEST CATTLE HERD IN BRAZIL. ITS OBJECTIVE IS TO BUILD A MODEL OF RESPONSIBLE LIVESTOCK FARMING THAT CAN BE ADAPTED TO DIFFERENT PARTS OF THE AMAZON, AND INCREASED PRODUCTIVITY AND GREATER USE OF DEGRADED PASTURES WITHOUT THE NEED FOR DEFORESTATION.
NOVAPEC
MULTIPLE-STAKEHOLDER INITIATIVE CREATED IN 2015 BY BNDES, INNOVATI PARTICIPAÇÕES, AGRO CERES MULTIMIX. IT IS FOCUSED ON BEEF CATTLE RAISING AND AIMS TO PROMOTE SUSTAINABLE INTENSIVE PRODUCTION IN BRAZIL THROUGH INTENSIVE BEEF CATTLE PRODUCTION, RESEARCH & DEVELOPMENT AND TECHNOLOGICAL DIFFUSION. IT PROVIDES RANCHERS AND RESEARCHERS THE OPPORTUNITY TO TEST, VALIDATE AND DEVELOP METHODS AND TECHNOLOGIES FOR CATTLE INTENSIFICATION IN A NOVAPEC RANCH.
SUSTAINABLE LIVESTOCK IN PRACTICE
PROJECT CARRIED OUT BY THE SUSTAINABLE TERRITORIES PROGRAM, LED BY AGÊNCIA PÚBLICA, ECAM AND IMAZON IN PARTNERSHIP WITH THE ORIXIMINÁ MUNICIPAL SECRETARY OF AGRICULTURE. CREATED IN 2017, IT AIMS TO PROPOSE IMPROVEMENTS IN FARM MANAGEMENT TO INCREASE PRODUCTIVITY, RECOVER DEGRADED AREAS, FOREST AND WATER CONSERVATION, WHILE OBSERVING THE WELFARE OF EMPLOYEES AND ANIMALS.
BRAZILIAN CENTER FOR SUSTAINABLE LIVESTOCK PRODUCTION
NON-PROFIT ASSOCIATION FOUNDED IN 2011 WHICH AIMS TO PROMOTE THE ECONOMIC, SOCIAL AND ENVIRONMENTAL SUSTAINABILITY OF LIVESTOCK THROUGH SILVIPASTORAL PRACTICES, EXPERIMENTS AND STUDIES ON HARMONY OF EACH STAGE OF CATTLE BREEDING AND THE NATURAL REGENERATION OF THE ECOSYSTEM.
PRODUCE, PRESERVE AND INCLUDE (PCI) STRATEGY
PLAN FOR ZERO DEFORESTATION IN MATO GROSSO STATES, DEVELOPED IN 2015 BY MT GOVERNMENT, AMAGGI, MARFRIG, IDH, AGROICONE, EII, ICV, ECOARTS. AIMS TO INCREASE PRODUCTION AND REDUCE DEFORESTATION RATES WHILE RESTORING DEGRADED FORESTS AND PASTURES. INCLUDES RAISING FUNDS TO INCREASE EFFICIENCY OF AGRICULTURAL AND FORESTRY PRODUCTION, CONSERVING REMAINING NATURAL HABITAT, RECOVERING ENVIRONMENTAL LIABILITIES, INCREASING SOCIOECONOMIC INCLUSION OF FAMILY FARMING AND REDUCING GHG EMISSIONS BY LIMITING DEFORESTATION AND PROMOTING A LOW CARBON ECONOMY.
INCLUSIVE AND SUSTAINABLE TERRITORIES IN THE AMAZON PROGRAM
CATTLE RANCHING MANAGEMENT AND PARTNERSHIP FIRM CREATED IN 2016 AND BASED IN NORTHERN MATO GROSSO STATE. LED BY SOLIDARIDAD AND IMAZON, IT REHABILITATES DEGRADED CATTLE RANCHES IN THE AMAZON TO MAKE THEM PRODUCTIVE, PROFITABLE, DEFORESTATION-FREE AND ENVIRONMENTALLY COMPLIANT. INVESTMENT FOR THE FARM'S SUSTAINABLE INTENSIFICATION: PASTURE REFORM, INFRASTRUCTURE AND FOREST RECOVERY. THE RESULTS OF THE PARTNERSHIP ARE SHARED, ACCORDING TO.
BEEF ON TRACK
BEEF ON TRACK PLATFORM WAS LAUNCHED IN 2020 BY IMAFLORA WITH SUPPORT FROM THE FEDERAL PROSECUTION SERVICE, IN ORDER TO ADVANCE THE TAC COMMITMENTS IN THE AMAZON BUILD A DEFORESTATION-FREE MEAT CHAIN. STRONG FOCUS ON ENGAGEMENT AND PROVIDING INFORMATION THROUGH TRAINING AND WORKSHOPS WITH MEATPACKERS, RETAIL COMPANIES AND SERVICE PROVIDERS WITHIN THE CATTLE VALUE CHAIN.
RENATURE
FOUNDATION CREATED IN 2018 BY MARCO DE BOER AND FELIPE VILLELA WITH INTERNATIONAL COVERAGE IN TERMS OF REGENERATIVE AGRICULTURE. THROUGH THE VAST POTENTIAL OF REGENERATIVE AGROFORESTRY, IT SEEKS TO RETHINK THE WAY AGRICULTURE IS DONE, GOING BEYOND SUSTAINABILITY AND DESIGNING AND IMPLEMENTING DIVERSE REGENERATIVE SYSTEMS AT ALL SCALES. IT ASSISTS RANCHERS WITH RESEARCH, INSIGHTS AND FUNDING SOURCES TO FACILITATE THE TRANSITION TO REGENERATIVE AGRICULTURE, AS WELL AS CONNECTS RANCHERS TO BUYERS AND OFFERS IMPACT PROJECTS TO FINANCIAL
PECUÁRIA VERDE PROGRAM
CREATED BY SINDICATO RURAL DE PRODUTORES RURAIS DE PARAGOMINAS IN 2011, THE PROGRAM OFFERED TECHNICAL SUPPORT TO INTENSIFY FARMS WITHIN PARAGOMINAS, PARÁ, UNTIL 2014. IT ALSO INCLUDED FARM MANAGEMENT AND ANIMAL WELLBEING COMPONENTS AND IT HAD NO SIZE RESTRICTION.
SILVIAPASTORIL SYSTEM PROGRAM
CREATED BY INSTITUTO DE CONSERVAÇÃO E DESENVOLVIMENTO SUSTENTÁVEL DO AMAZONAS (IDESAM) IN 2014, THE PROGRAM, WHICH IS STILL FUNCTIONING IS LOCATED IN APUÍ, AMAZONAS. IT PROVIDES TECHNICAL SUPPORT TO INTENSIFY AND REFOREST AREAS AND OFFERS A SMALL LOAN SCHEME.

Financial mechanisms promoting sustainable cattle ranching.**&GREEN FUND**

INVESTMENT FUND CREATED IN 2017 BY SAIL VENTURES, INNPACT, IDH. ITS FOCUS IS ON FOREST PROTECTION AND TROPICAL FOREST COMMODITIES. INVESTS IN COMMERCIAL PROJECTS IN AGRICULTURAL PRODUCTION VALUE CHAINS IN ORDER TO PROTECT AND RESTORE TROPICAL FORESTS AND PEATLANDS AND MAKE AGRICULTURE MORE SUSTAINABLE AND INCLUSIVE. TARGET CLIENT BASE INCLUDE PRIVATE COMPANIES THAT ARE DIRECTLY OR INDIRECTLY INVOLVED IN COMMODITY PRODUCTION, INCLUDING SUFFICIENTLY INDEPENDENT STATE-OWNED ENTERPRISES.

AGRI3 FUND

PUBLIC-PRIVATE PARTNERSHIP BETWEEN UNEP, RABOBANK, IDH WITH RELATED LAYERED FINANCING STRUCTURE. CREATED IN 2017 TO CATALYZE PRIVATE FINANCIAL RESOURCES, FOREST PROTECTION AND SUSTAINABLE AGRICULTURE. DEVELOPMENT OF BUSINESS MODELS, INCLUDING ACCELERATION OF SUSTAINABLE MANAGEMENT OF FORESTS AND THE IMPLEMENTATION OF INNOVATIVE AGRICULTURAL SOLUTIONS.

NOVO CAMPO PROGRAM

LAUNCHED BY ICV IN 2012, PROMOTES GOOD AGRICULTURAL PRACTICES BY PROVIDING INFORMATION, TECHNICAL ASSISTANCE, AND FUNDING TO INCREASE INTENSIFICATION. PROJECTS ARE DEVELOPED IN VOLUNTARY FARMS, WHICH ALREADY ARE IN THE ENVIRONMENTAL RURAL REGISTRY (CAR). RESULTS FROM THESE UNITS ARE USED FOR DISSEMINATING KNOWLEDGE AND TRAINING TO OTHER RANCHERS.

AMAZON SUSTAINABLE CATTLE RANCHING (PECSA)

CATTLE RANCHING TECHNICAL ASSISTANCE AND MANAGEMENT FIRM CREATED IN 2015 BY ALTHELIA CLIMATE FUND AND ICV. PROVIDES AMAZON-BASED RANCHERS WITH ACCESS TO THE TECHNOLOGY, FINANCE AND MARKETS FOR SUSTAINABLE BEEF PRODUCTION. OFFERS BUSINESS MODELS ADAPTED TO EACH RANCH AND APPLY TECHNOLOGIES TO INCREASE ECONOMIC RESULTS AND GUARANTEE THE TRANSPARENCY IN THE SUPPLY CHAIN, WHILE ALSO CONSERVING AND RESTORING FORESTS, SOILS AND WATER RESOURCES. THE RESULTS OF THE PARTNERSHIP ARE SHARED AMONG THE PARTIES INVOLVED.

CLIMATE SMART CATTLE RANCHING

INITIATIVE LED BY THE NATURE CONSERVANCY AND NATUREVEST, CREATED IN 2016. AIMS TO INCREASE DCF CATTLE RANCHING PRACTICES IN THE AMAZON REGION. TESTED AN INNOVATIVE BUSINESS MODEL FOR RANCHERS TO ADOPT MORE SUSTAINABLE AND EFFICIENT PRACTICES: CO-INVESTMENT BETWEEN THE COMPANY AND CATTLE RANCHERS, SHARING PROFIT AND RISKS. OFFERED TECHNICAL ASSISTANCE, CAPITAL AND BETTER TERMS FOR PURCHASING INPUTS AND FOR CATTLE SALES AND TO PROMOTE COMPLIANCE WITH THE BRAZILIAN FORESTRY CODE.

PASTO VIVO PROJECT

PARTNERSHIP AMONG PRETATERRA, GRUPO LUXOR, MERAKI IMPACT, RENATURE AND EMBRAPA, CREATED IN 2020. PURPOSE TO BE A SOLUTION FOR LARGE SCALE AGROFORESTRY CATTLE BREEDING, IN AN INTEGRATION OF CROP-LIVESTOCK-FORESTRY. CONTEMPLATES AN INCREASE IN LEGAL RESERVES AND AREAS OF PERMANENT PROTECTION (APPS).

SUSTAINABLE AGRICULTURE FINANCE FACILITY (SAFF)

CREATED BY REDE ILPF IN 2020, SAFF CREATES A CREDIT FACILITY FOR RANCHERS WHO PASS A SUSTAINABLE AGRICULTURE CERTIFICATION, ENHANCING THE ADOPTION OF SUSTAINABLE AGRICULTURAL TECHNOLOGIES (SATS) IN BRAZIL AND PROVIDING LONG-TERM, LOW-COST, FLEXIBLE FINANCIAL AND TECHNICAL RESOURCES FOR RANCHERS, CREATING SOCIO-ECONOMIC AND ENVIRONMENTAL BENEFITS.

CALF SUSTAINABLE PRODUCTION PROGRAMME

FOUNDED IN 2019 BY CARREFOUR FOUNDATION AND IDH, WITH ACRIMAT AND IDH AS IMPLEMENTERS. AIMS TO CHANGE THE PRODUCTION AND MARKETING DYNAMICS OF LIVESTOCK IN MATO GROSSO. INCLUDES TRAINING TO INCREASE PRODUCTION EFFICIENCY AND REDUCE CARBON EMISSIONS; AND SUPPORT TO SMALL RANCHERS ON LAND TENURE AND ENVIRONMENTAL REGULARIZATION. THE PROGRAM WILL ALSO OFFER CREDITS AND INVESTMENT.



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