

# MARKET ASSESSMENT ABOUT IMPACT INVESTING IN CLIMATE-SMART AGRICULTURE IN BRAZIL



**Rabobank  
Foundation**





# INDEX

- 04 Introduction
- 06 Executive Summary
- 08 Chapter One / Towards a Low-Carbon Agriculture
- 12 Chapter Two / Report Methodology
- 16 Chapter Three / Measuring What Matters
- 20 Chapter Four / Facts & Figures
- 26 Chapter Five / Risk Mitigation Strategies
- 33 Chapter Six / Enhancing impact investing in Climate-Smart Agriculture in Brazil
- 40 Chapter Seven / Case Studies
  - 42 7.1 In the Amazon
    - 42 a. Amazon-Pec
    - 45 b. CAMTA – Cooperativa Agricola de Tome Acu
    - 48 c. EcoEnterprises & Sambazon
  - 51 7.2 In the Cerrado / Brazilian Savannah
    - 51 a. APOMS (Associacao de Produtores Orgânicos do Mato Grosso do Sul)
  - 54 7.3 In the Atlantic Forest
    - 54 a. Floresta Viva & Moringa Fund
    - 57 b. EcoAxial & Instituto Estrela
- 60 Acknowledgements
- 62 Bibliography

# INTRODUCTION



## How to scale up more sustainable agricultural practices through impact investing?

On the one side, there are financial resources available to promote climate change mitigation or resilience programs related to deforestation reduction that encourage more sustainable agricultural systems including smallholder farmers' engagement.

On the other side, private investors declare there is a lack of investment-ready projects with reasonable risk-adjusted returns and clear governance structures. Furthermore, large institutional finance organizations state that most investable conservation deals are too small to attract investment at scale. And to complete the circle, there are entrepreneurs who complain that the requested collaterals and the cost of capital are too high.

## Struggles in frontier markets

The existence of both these sides are evidence of the struggles faced in frontier markets in which there is not yet a proven track record of business models. This suggests there is an underappreciated opportunity if investors are willing to accept a higher level of risk, a longer investment horizon, and a potentially unclear exit.

A growing number of investors and opinion leaders seem to be convinced that the cycle can, in fact, be broken and

that opportunities in frontier markets can be accessed successfully. At the COP21, country leaders committed to providing more than USD 5 billion over the timespan of five years to countries with large forest areas, if they demonstrate measured, reported, and verified emission reductions.

## Environmental and social impact

There are two inspiring examples for tapping into investment opportunities with environmental and social impact. The first is the Rabobank and UN Environment partnership with the announcement of a USD 1 billion facility to accelerate forest protection, sustainable agriculture and improve rural livelihoods on large scale in the tropical zone. The second is the World Resources Institute's (WRI) 20+20 initiative to invest USD 1,3 billion in restoration in order to change the dynamics of land degradation in Latin America. These are, however, programs started through sovereignty funds and foundations.

Regarding private investors, the amount allocated to impact investing in agriculture, food, and forestry or timber is still modest. In the 2017 edition of the GIIN (Global Impact Investing Network) annual report, the sectors of food and agriculture are clustered together and the same applies for forestry and timber with an asset allocation of 7% and 4%, respectively, of a total reported USD 113,7 billion AUM (assets under

management). Considering these low figures, it is odd to observe that, in the last two editions, it was reported that a quarter of respondents declared their willingness to grow their proportional allocation of capital in food and agriculture.

There is a declared need for larger financial capital flows, and there are financial resources available from foundations and sovereignty funds; but investments in these sectors remain rare. What is the missing link to attract investors and foreign investors?

In this report we address how impact investing could support pioneering initiatives in agriculture-related, climate change mitigation by providing seed and start-up capital to not-yet proven business models.

## Development of this report

The motivation for the development of this report originated from a series of interviews with private investors and foundations regarding the feasibility of scaling up agriculture-related, climate change mitigation initiatives, more specifically those involving standing forest such as agroforestry and integrated crops, livestock and forestry systems, and the forest and land restoration associated with these practices. Before we dive into the report, we would like to provide a few clarifications regarding its specific background.

To move from a satellite's view to having our feet on the ground and be more specific about practical business models already in place, we employed a qualitative approach investigating case studies with a clear geographic focus on specific Brazilian biomes, namely the Atlantic Forest, Amazon and Cerrado (Brazilian Savannah).

In the desk-research phase, fifty businesses and projects were analyzed and pre-selected. Then, from these, six cases were chosen, of which two were studied more broadly and four received an in-depth analysis aiming to identify and assess the proposed business models, financial flows, achieved and expected socio-environmental impact and economic return, as well as risk mitigation approaches. Moreover, to make the front-line experience tangible, the case studies were also reported in videos and pictures focusing on each respective part of the value chain. These are available on the knowledge sharing platform [www.climatesmart.com.br](http://www.climatesmart.com.br)

## Environmental services valuation

It is not possible to talk about impact investing and climate change mitigation without discussing environmental services valuation. Therefore, this report has a dedicated chapter in which conservation and emissions reduction are approached as both metrics to measure impact and value-adding associated services.

The in-depth cases offer an improved overview of the Brazilian biomes, production challenges and achievements. In the Amazon, three cases show the historical pattern of unsustainable use of land and, respectively, how a revolving fund, an innovative production method and a first mover's perspective can question and change the status quo. In the Cerrado (Brazilian Savannah), the creation of a smallholder farmers' network supports mitigating logistic and commercial risks. Finally, in the Atlantic Forest, there is the case of an agroforestry impact investing fund focused on both organic food products and timber production and a case of integrated fast-cycle microcredit with guaranteed purchase connected to large consumer markets in a transition zone with the Caatinga biome.

The risk assessment chapter builds on a collaborative session held in São Paulo with international and local experts from wealth management offices, private and institutional investors, insurance companies, universities, and NGOs. The objective was to not only identify common risks according to the biome but also share best practices in risk mitigation and avoidance strategies.

## Scaling up impact investing in climate-smart agriculture

We close the report with a chapter on how to scale up impact investing in climate smart agriculture in Brazil. In this last chapter we offer a discussion about whether blended finance serves as the silver bullet for risk mitigation, or if it should rather assist its original purpose of mixing venture philanthropy capital with private debt and private equity in order to develop this frontier market. In addition, other finance vehicles are presented.

The report is part of an evolving market research about impact investing in climate-smart agriculture in Brazil. We appreciate insights, feedback, and new ideas. Enjoy reading the report.

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# EXECUTIVE SUMMARY



This market assessment offers an overview of impact investing in climate-smart agriculture in Brazil, especially in the biomes Amazonia, Atlantic Forest, and the Cerrado (Brazilian Savannah).

The assessment outlines various initiatives, in different stages of development, that involve farming directed at reducing and mitigating climate change, in order to inspire new investment in this arena.

Being a frontier market, impact investing in climate-smart agriculture still lacks documented and proven business models that, in addition to environmental benefits, offer financial returns. For this reason, this market assessment presents the sector through an exploratory lens, employing qualitative research methods.

To build the backbone of this report, we started the mapping with a series of in-depth interviews with opinion leaders. The content of the interviews set the groundwork for the subsequent steps.

Based on a set of indicators taken from international environmental standards (UN Sustainable Development Goals, the Paris Agreement, the New York Declaration on Forests, and the Soft Commodities Compact), 50 initiatives in Brazil following climate-smart agriculture models were pre-selected. The six most significant initiatives were analyzed and made into case studies through fieldwork, using a network-based value chain perspective.

Another relevant topic covered in our analysis relates to risk perception. In order to present a perspective based on market experience, a collaborative-lab session was held involving various stakeholders who discussed risk-mitigation strategies for the sector. As a result of the collaborative session, the interviews, and the research as a whole, the five most significant risk categories were identified: (1) business and financial risks, (2) environmental and climate change risks, (3) infrastructure and supply chain risks, (4) political, legal, and governmental risks, and (5) risks regarding human capital. The report describes the specific factors included in each category, as well as examples of how they can be mitigated.

The Brazilian government appears to provide the majority of the financing in this sector, with modest private investment. Between 2015 and 2017, the capital invested in climate-smart agriculture reached USD 359.9 million. Private investors represent a mere 11% of that amount. In addition, more than half of the capital invested comes from public grants rather than loans. However, if we take into consideration the new arrangements like green bonds, and include capital earmarked for agro-forestry systems, as well as the capital allocated via NGOs and the International Development Institutions (DFIs), this figure goes up to USD 1.9 billion over the past 15 years.

The analyses of the case studies and interviews with opinion leaders as well as investors from Brazil and abroad have provided strategies and success factors for increasing the investment and business volume for climate-smart farming in Brazil:

- **Due diligence processes must involve analysis of the value chain in which the business operates, as well as identify leaders and potential commercial and incubation partnerships that could serve to leverage this value chain.**
- **The fundamental link to consumer markets: There is a growing consumer market that values products coming from more sustainable agriculture that is more than just a niche and offers the potential for scaling up.**
- **Blended finance that not only helps with de-risking but also serves as strategic philanthropic capital (venture philanthropy) allocated both as incubation and seed funding.**
- **More appreciation for environmental services and changes in the types of guarantees that are accepted by financial institutions, especially by development banks.**

In order to share knowledge and make the projects visit experience more tangible for readers, one of the results of the mapping was making a platform presenting the Climate-Smart Agriculture Case Studies Series. The complete assessment report is available on the platform along with the case studies, in-depth reports and analyses, and including the value chain, financial capital flows, impact generated, photos, interviews, as well as some video.

See: [www.climatesmart.com.br](http://www.climatesmart.com.br)

# TOWARDS A LOW-CARBON AGRICULTURE

By 2050, we will have 9.7 billion people on the planet and may have far over-ran the safe zone between food production and its impacts on climate change.

The Agrifood sector accounts for 30% of total GHG emissions. Inversely, climate change threatens agricultural production. A different business model and finance vehicles to scale up sustainable food systems is required, including food security, climate change mitigation, and resilience, along with the conservation of biodiversity.

The concept of Climate-Smart Agriculture<sup>1</sup> offers a systems perspective and encompasses the practices of sustainable soil use, engagement of smallholder farmers, integrating crops and/or ranching with forestry, climate change resilience, among others. It has to do with the land-use and economic-development choices that countries make.

Compared with other places in the world, the agriculture and forestry sectors in Brazil are even more relevant to

GHG emissions, accounting for 72% of the country's emissions, way above the global average of 21%.<sup>2</sup> Therefore, these sectors present the greatest opportunities to contribute to Climate Change mitigation. Global efforts to reduce greenhouse gas emissions are converging and, as consequence, there is a growing interest in sustainable agricultural practices and related activities supporting a Low-Carbon Economy (LCE). Consequently, the rationale of the LCE value chain is to bring together individuals, businesses, organizations and governments at different levels, around the same principles and impacts.

The world's main carbon emission reduction goals are generally organized in a top-down chain, in order to promote best practices that can be measured through indicators applied to businesses and countries locally. In the opposite logic, going from the bottom up, the results of the indicators assist with monitoring the progress toward goals and are used to see if they have been achieved. Therefore, the results contribute to creating positive impacts on a larger scale.

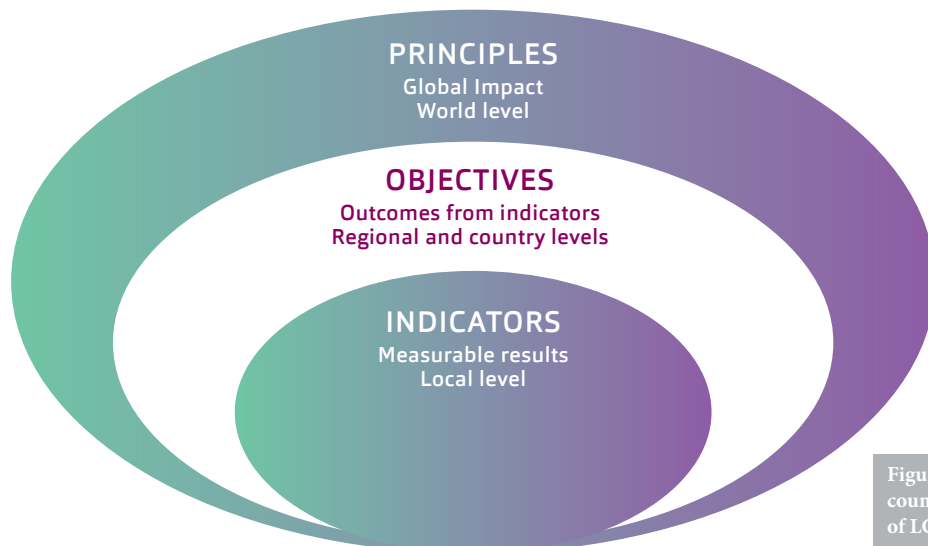


Figure 1: Local, regional, country and global levels of LCE monitoring.

1. The term was coined by the FAO (Food and Agriculture Organization of the United Nations) and the WEF (World Economic Forum).

2. McKinsey report 'Pathways to a low carbon economy for Brazil' available at





The UNFCCC (United Nations Framework Convention on Climate Change) states a global level vision for carbon emission reductions. Since 2005, the UNFCCC included in its agenda the Reducing Emissions from Deforestation and Forest Degradation program which specifies the role of conservation, sustainable management of forests, and the improvement of forest carbon stocks in developing countries, or in short, REDD+. It is a performance-based mechanism that supports the attribution of economic value to carbon that is stored or is not emitted. Its operationalization includes the mobilization of USD 100 billion per year until 2020 to support developing countries participating in the program.

Furthermore, the UNFCCC negotiated an agreement with 197 parties to reduce global GHG (greenhouse gas) emissions, in order to limit temperature increase, and therefore reduce the risks and impacts of climate change.

## At the National Level

Following the Paris agreement, the submission of the iNDC (intended Nationally Determined Contributions) stated the commitment to the voluntary reduction of greenhouse gas emissions by 37% (compared to 2005-levels), by 2025. At the national level, this commitment represents a reduction target of approximately 1 billion tons of CO<sub>2</sub> equivalents. In the case of Brazil, the following core actions were decided upon:

- Reduction of deforestation of the Amazon by 80% and the Cerrado/Brazilian Savannah by 40% by 2020
- The recovery of degraded pastures through the promotion of integrated production methods and best practices in planting and nurturing the soil
- Improvements in energy efficiency, using biofuels, hydropower electricity, and other biomass sources, wind power, and small hydropower factories, and the use of reforested charcoal

Since 2009, the Brazilian National Policy on Climate Change aims to guarantee the economic and social development with the protection of the climate system and the reduction of GHG emissions. In addition, to guarantee national joint effort towards an LCE, the Brazilian Government created ENREDD+ which is the National REDD+ strategy, which in turn established CONAREDD+, the National Committee responsible for coordinating the various working groups, other related institutions, and to guarantee information management and knowledge sharing within the group.

Another governmental initiative to motivate producers to reduce carbon emissions is ABC (Low Carbon Agriculture) Financing which, as mentioned in the Facts and Figures chapter, supports integrated production and bringing properties into compliance with the Forestry Code.

Brazilian efforts towards greenhouse gas emission reduction were recognized through the payment in the form of grants of over USD 1 billion<sup>3</sup>. This accomplishment has been the result of multi-stakeholder engagement at various levels for the development of metrics and goals to reduce emissions originating from deforestation and forest degradation. The first Brazilian FREL (Forest Reference Emission Level) was developed, focusing on the reduction of deforestation in the Amazon biome based on the gross deforestation estimate from the Legal Amazon.

### The Brazilian Forestry Code<sup>4</sup>

The Brazilian Forestry Code is a federal law that governs the terms of use and preservation of the native forests. It is in its first steps toward implementation as it requires bringing properties into compliance and the creation of tools to be effective. It specifies the areas that must be protected and the ones that allow rural production, infrastructure construction, and other general construction and types of economic use. The code establishes two main types of areas:

- **Legal Reserves: a percentage of each rural estate or property on which native forests must be preserved in order to maintain local biodiversity. In these areas, economic use is possible through sustainable forest management that respects the biome.**
- **Permanent Preservation Areas (APP): Have the goal of preserving vulnerable sites such as riverbanks, mountain tops and slopes, where deforestation can cause erosion and landslides, also protecting springs, fauna, flora, and biodiversity. APPs are untouchable natural areas the size of which is defined by law and where building, cultivation, and economic activities are prohibited.**

These two concepts are important in understanding some Brazilian legal issues concerning forestry conservation. When the Forestry Code finally came into force in February 2018, there were still some ongoing debates on, for example, amnesty for farmers who deforested the Legal Reserve and Permanent Preservation Areas on their farms before July 22, 2008. If these farmers register their properties with the Environmental Regularization Program (PRA) and agree to comply with the legislation, they are no longer obliged to pay the fines and other sanctions for the deforestation done before July 22, 2008.

Another controversial issue is the proposal to reduce the Legal Reserve from 80% to 50% in the Amazon biome, which may expose some parts of Amazon forest to potential deforestation.

## Zero Deforestation

In Brazil, there is both illegal and 'legal' deforestation. The Forestry Code determines the *Environmental Reserve* which varies according to the biome where the farm or ranch is located; and the *Permanent Protected Area* which applies to sensitive areas close to mountains tops, springs, slopes over 45 degrees, as well as sandbank vegetation and riparian vegetation adjacent to water sources. Those who destroy forests in one of these pre-determined conservation areas are committing illegal deforestation, whether on public or privately-owned land.

However, rural properties that have existing native vegetation and forest areas that exceed what is required by the Forestry Code and already comply with it, are allowed to 'open' (deforest or convert) new areas. This is the 'legal' deforestation.

The possible reasoning behind legal deforestation is based on the fact that Brazilian agricultural production is responsible for 23.5% of GDP and there is a belief that production growth requires expanding farmland. Therefore, the lawful suppression of native vegetation has the purpose of using soil to promote socioeconomic benefits. Landowners need to prove these future benefits in order to get authorization.

At the same time, the country agreed to zero deforestation by the year 2030 at COP-21. A recent study by Instituto Escolhas<sup>5</sup> on the Impact of Zero Deforestation in Brazil has estimated the impact of this 'legal' deforestation. In the Amazon biome, native vegetation stocks that exceed the reserve parts would be completely exhausted in several states before 2030. In the Brazilian Savannah, the average estimated year for native vegetation stocks being exhausted in the regions with high agricultural productivity is 2034. For the Atlantic Forest, due to low agricultural expansion pressure, and to Atlantic Forest legislation forbidding any sort of deforestation, the native vegetation stocks would not be affected.

This same study points out that the current 240 million hectares already 'opened' by and for agricultural production – of which 170 million are low-productivity pasture land that could be converted to be used for farming and forest restoration, resulting in more production without having to deforest new areas – are enough for the current and potential growth of food consumption and production. They have also calculated the impact a zero-deforestation policy would have on the GDP at the state level. The average calculated GDP reduction for the period of 2016 to 2030 would be 0.62%.

Climate-smart agriculture entails more than just zero deforestation, nevertheless it is clear that standing forests and the conservation of native vegetation are robust tools towards reducing GHG emission, and of course, slowing or stopping deforestation.

3. <http://redd.mma.gov.br/pt/financiamento>

4. [http://www.planalto.gov.br/ccivil\\_03/\\_Ato2011-2014/2012/Lei/L12651.htm](http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2012/Lei/L12651.htm)

5. Report available at [www.escolhas.org/biblioteca/estudos-instituto-escolhas](http://www.escolhas.org/biblioteca/estudos-instituto-escolhas)

However, it would only be valid for municipalities made up of more than 50% of indigenous lands and/or Conservation Units; or for states with more than 65% of their territory belonging to indigenous lands or Conservation Units that have areas under the Ecological-Economic Zoning plan. In addition to these controversial points, the Forest Code has important rules concerning Environmental Reserve Quotas. As described in the Measuring What Matters chapter, they represent areas of preserved forest that are not required as legal reserve, with a potential for economic valuing through payment for environmental services.

## Financial and Business Sector Engagement

Translating global efforts into goals and targets on the national level also includes the involvement of several business sectors, and one that cannot be left out is banking. One example of how banks are helping support the LCE is the Soft Commodities' Compact. Signatory banking institutions working globally and in Brazil are supporting their corporate clients in achieving zero net deforestation by 2020. The products focus are soybeans, oil palm, and forestry products.<sup>6</sup>

The 'Soft Commodities' Compact is a client-led initiative that aims to mobilize the banking industry as a whole to contribute to transforming soft commodity supply chains and therefore help clients achieve zero net deforestation by 2020. It is one of the key work streams of the BEI (Banking Environment Initiative). Since 2010, the Chief Executives of the CGF (Consumer Goods Forum) companies, with combined purchasing of over USD 3 trillion, decided to support seeking zero net deforestation by 2020. The CGF prioritized four of its supply chains (palm oil, soy, beef, pulp & paper) to deliver this goal.

In line with the process of translating goals to the national level, private institutions in Brazil have developed joint initiatives to discuss and to set targets that contribute to greenhouse gas emission reduction. One of them is the online platform of the Carbon Free Program established by the CEBDS (Brazilian Business Council for Sustainable Development) and includes the WBSCD (World Business

Council for Sustainable Development) and 27 other organizations. Another initiative, with a more concrete path, is IDESAM's Carbono Neutro program which offers the opportunity to offset greenhouse gas emissions.

## Growing consumer awareness about sustainable food production

On an individual level, there is growing consumer awareness about the influence their shopping habits and purchasing power have on the transition towards more sustainable production systems. Unsustainable cattle ranching and unbalanced labor practices are undesirable facts of animal husbandry production systems that can change consumers' purchasing choices. For instance, the protests at the Port of Santos that took place in February of 2018 show the hostility towards the sale of live cattle. In that case, the company was fined for mistreating animals, contaminating the drainage network, and the strong stench of excrement the city experienced, caused by the shipment of 25,100 live animals.<sup>7</sup>

In addition, the market for sustainable products has been growing. The Brazilian organic food and beverages market accounted for USD 86.6 million in 2017 with a forecast growth of 2.9% between 2017 and 2022.<sup>8</sup>

Other markets have drawn similar pictures: the LOHAS (Lifestyle of Health and Sustainability) market doubled to USD 600 billion in five years.<sup>9</sup> Sales of organic products in the US alone represented around USD 47 billion in 2016, which represents an increase of almost USD 3.7 billion from the previous year, that means a record growth rate of 5.3% of total organic food sales.<sup>10</sup> The UK reported a record growth rate of 6%, which represents an increase in organic food and drink sales last year reaching £2.2 billion.<sup>11</sup>

Globally, Fairtrade certified product sales increased from €7.30 to €7.88 billion in 2016.<sup>12</sup> When considering the new Fairtrade markets outside Europe, the UK, and the US, mainly in Asia, they experienced aggregated growth of 34% in one year. The expansion of the sustainable food market to Asia, Africa, and Latin America is behind this significant overall sales growth.

6. <https://chainreactionresearch.com/wp-content/uploads/2017/12/risks-and-benefits-in-the-soy-supply-chain-final.pdf>

7. [https://brasil.elpais.com/brasil/2018/02/05/politica/1517866118\\_265133.html](https://brasil.elpais.com/brasil/2018/02/05/politica/1517866118_265133.html)

8. <https://globalorganictrade.com/country/brazil>

9. Hurst, A. (2016). *The Purpose Economy, Expanded and Updated: How Your Desire for Impact, Personal Growth and Community Is Changing the World*. Elevate Publishing.

10. <https://ota.com/resources/organic-industry-survey>

11. <https://www.theguardian.com/environment/2018/feb/07/organic-food-and-drink-sales-rise-to-record-levels-in-the-uk>

12. <https://annualreport16-17.fairtrade.net/en/building-fairtrade-markets/>

# REPORT METHODOLOGY

## What is the basis for this market assessment?

Impact investing in businesses related to climate change mitigation is an embryonic activity in Brazil. Faced with a lack of available data and/or well-established business models, we approached the new sector in an exploratory manner. The nature of the study led us to adopt qualitative investigation strategies to analyze the sector, draw conclusions, and make recommendations. The methodological choice is aligned with the main purpose of the report, which is to provide a panorama of impact investing in climate-smart agriculture in Brazil.

In order to accomplish our goal, we combined several data collection and data analysis techniques. First, we held a series of in-depth interviews with experts in the sector, as well those in related fields in order to uncover the main themes of the issue under investigation. Then, from a list of dozens cases, we developed and applied filters to select initiatives based on the observable impact indicators. The filters pointed to six cases, which received detailed and in-field analysis through a network perspective of a supply chain. Finally, a roundtable involving key players gathered information on, and perceptions of, the risks for investments and, especially, risk-mitigating strategies. Together, these steps build a meaningful panorama of the sector.

### In-depth Interviews with Experts

The in-depth interviews with experts served as the backbone for our assessment, since they provided information for all parts of this report. We interviewed 51 experts in fields related to climate-smart agriculture, from different sectors and backgrounds. The interviews enabled the identification of the main themes regarding the market assessment's topic and, therefore, guided the definition of the chapters' organization and content.

### Case Selection Criteria

As part of the market assessment, this report describes six cases as examples of best practices and models in Brazil. The cases were selected using a rigorous process, following four main criteria: (i) the company or initiative must stand financially or have a feasible business model; (ii) the company or initiative must have adopted climate-smart agricultural systems, especially integrated crops, livestock, and forestry or agroforestry; (iii) the company or initiative must engage with smallholder farmers; (iv) the company or initiative must be in the field of food production.

**First criteria:** This report excluded initiatives related to social responsibility or philanthropy. To be selected, the case must have produced a financial return on the investment.

**Second criteria:** The distinction between an initiative that adopts a climate-smart agriculture from a conventional one is not trivial. Indeed, for the scope of this market assessment, it was a fundamental distinction. It was critical, therefore, to apply objective standards to classify a particular initiative as being climate-smart.

In order to reach a definition, we relied on five well-established indicators for sustainable development, climate change mitigation initiatives, and forest conservation programs, namely: the Paris Agreement; Sustainable Development Goals; New York Declaration of Forests; Soft Commodities Compact, and the Bonn Challenge. After reviewing these programs, we selected 24 indicators, clustering them into six dimensions. All cases had to comply with the majority of the indicators to be classified as a climate smart agricultural system. Table 1 presents the dimensions and the respective indicators.

## Table 1: Indicators for case selection and evaluation

<b>FINANCE MECHANISMS (ALIGNED WITH THE SOFT COMMODITIES COMPACT)</b>
A financial return on the investment
Composition of revenue streams to include environmental services
Level of novelty in the financing mechanism; risk management, illiquidity and patient capital
Novel solutions for risk management/reductions
<b>ECONOMIC</b>
Integration to larger value chains (local market; retailers in big centers; exports) (Paris Agreement; SDG#15; 9, Soft Commodities Compact)
Volume of production per labor unit by classes of farming/pastoral/forestry enterprise size (SDG#2)
Average income of small-scale food producers, by gender and indigenous status (SDG#2)
<b>ENVIRONMENTAL</b>
Clear use of technology towards a low carbon economy (SDG #13; 15)
Conversion from a conventional system to a more environmentally sustainable one (SDG #13; 15)
Reduction of post-harvest losses (SDG #12)
Reduction of use of agrochemicals (SDG #15)
Degraded land over total land area (Paris Agreement, New York Declaration of Forests, SDG #15)
Forest area as a proportion of total land area (Paris Agreement, SDG #15)
Proportion of agricultural area under productive and sustainable agriculture (SDG #2)
<b>SOCIAL</b>
Integration of smallholder farmers (SDG #1; 8; 9)
# of jobs created (in terms of income generation) (SDG #1; 8)
# of sustainable businesses created (SDG #1; 8)
Gender equality (SDG #5)
Reduction of next generation unemployment (SDG #8)
Provision of access to capacity building programs (SDG #8)
Organization's centrality in the local social network for leveraging partnerships and collaborations (SDG #17)
<b>GOVERNANCE</b>
Governance structure (in the case of cooperatives, associations and in the relationship between large corporations and smallholder farmers) (SDG #10; 17)
Coordination and monitoring in the supply chain to adopt the highest standards for forest conservation, expand commitments from financial institutions, commit to quantifiable emissions, reduce targets in their agricultural value chains, and evaluate and disclose the deforestation footprint of their sectors and organizations (New York Declaration of Forests; Soft Commodities Compact)
Pressure in favor of products/market legality (i.e., in the case of timber) or the creation of buffer zones (SDG #10)
<b>INNOVATION</b>
Use of technology as a means to sustainable agricultural production through lowering GHG emissions, protecting forests and ecosystems, or restoring degraded land, while providing economic benefits to farmers (SDG #9)

**Third criteria: smallholder farmers' involvement:** In Brazil, according to the last Agricultural Census in 2006, smallholder farmers, family owned and managed, are the economic foundations of 90% of Brazilian municipalities with at least 20,000 inhabitants. The production from these farms represents 35% of the national GDP, engages 40% of the employable population in general, and 74% of rural workers. The smallholder farmers are also responsible for the production of 70% of food consumed by the Brazilian population. Nevertheless, this group is still facing barriers to integrate into the market, and initiatives involving and enhancing its participation is relevant from social and economic perspectives.

**Fourth criteria: being in the field of food production:** We concentrated on daily food production, meaning that the main commodities which are also grown by smallholder farmers, like coffee or cocoa, as main crop, were not included. To avoid being too broad, in this first version of the mapping, we also excluded aquaculture for its environmental compliance specificities, and agrotech products.

In addition, owing to the geography of continental Brazil, we looked at businesses and initiatives in three biomes: Amazon, Atlantic Forest, and the Cerrado (Brazilian Savannah).

**Case selection procedures:** Applying the criteria, we started the searching process for all potential initiatives in Brazil that fitted the market assessment scope. The sources of the searching process were the experts of the in-depth interviews, foundations, and organizations that promoted prizes or competitions, reports, and scientific publications. From this search we built an initial list of 40 scanned cases. In sequence, we gathered information of

the case on each dimension of the indicators. The sources of information were publications, experts, or interviews with members of the initiative.

The final step in the case selection process was the creation of a shortlist of initiatives eligible for detailed case study. The cases were organized by the extent to which they met the indicators. Nevertheless, the cases' organization process did not generate a ranking. Our approach provided a filtered list of initiatives with the characteristics required for this market assessment. To ensure a balanced sample of case studies, we selected at least one case per biome and cases with different financial structures.

### Cases' Analyses

Our approach for the cases' analyses was based on a network perspective of supply chains. We understand the set of firms, agencies, and stakeholders as an inter-organizational collaboration aiming at value creation. The participants of this network, therefore, develop distinct types of interdependencies, requiring specific coordination mechanisms. For this research, our interest lay in how particular kinds of impact investing mechanisms, with the intentionality of promoting climate change mitigation projects, affect the adoption of environmental-friendly agricultural and market practices. The fact that social and environmental impact is inherently present in the activities in each case underlies the construction of the framework. Beyond profits, the supply chains are capable of generating outcomes in social and environmental dimensions. Figure 2 below is a general representation of the underlying logic of our approach; this is a framework for the cases' analyses. Considering our focus on investment mechanisms, at the top of the framework is the financial structure of the

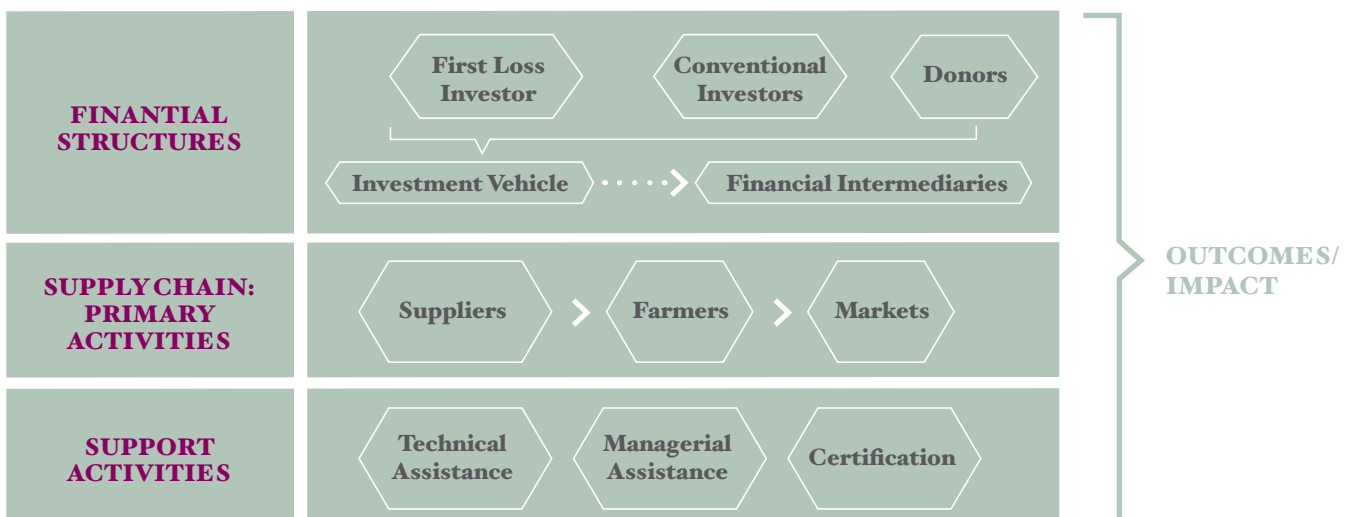


Figure 2: Framework for selected in-depth cases' analyses – value chain, financial flow, and expected impact in relation to climate smart agriculture (Source: Alimi Impact Ventures, 2018)

analyzed initiative. In general, impact investing has three categories of investors: (i) first loss investors agree to accept an amount of value damaged or destroyed without penalties, and this capital serves as a type of partial insurance; (ii) conventional investors commit capital expecting a financial return; and (iii) donors provide capital or real estate as a grant, without financial returns attached to it. These categories of investors mean that capital can be combined in different settings, depending on the investment vehicle and financial intermediaries. The financial structure, therefore, clarifies the ownership structure, decision-making process, and the residual claimants for financial returns.

Right below the financial structure there is the supply chain. The chain describes the sequence of activities involved in the production and delivery of products from the raw inputs to the final consumers. In this sense, supply chains also represent the value-creation process, showing how and when the transformation of inputs into outputs take place, and, consequently, where value is aggregated to products. With regards to food systems, contracts play a central coordination role in the governance structure. Therefore, we emphasize the contractual relationships between farmers and processing firms and/or distributions channels.

The primary activities of the supply chain receive support from secondary activities. In contrast to primary activities, support activities are indirectly involved in value creation. In the framework, the bottom row presents the most frequent categories of support activities in food systems. The overview offers three tiers of activities, i.e.: the financial structure, the supply chain, and the support activities.

The arrows in the framework represent the relationships between the participants of the initiative under analysis. We use both horizontal lines and vertical arrows connecting participants across tiers. For instance, if a specific credit line in the financial structure were related to farming activities, we would draw an arrow from the credit line to the farm. From the web of connections, the network perspective of the supply chain emerges. The framework highlights the underlying operation logic, making its value-creation process explicit and, consequently, its results and outcomes in a broader sense.

As investors and owners deliberately seek social and environmental benefits, the framework for a specific case represents more than the project's organization. The representation generates a theory of change. The theory of change is a logical way of articulating the connection between the activities carried out and the intended

environmental and social objectives.

For each case study, we performed a field trip of three to five days. We collected data through qualitative interviews before, during, and after the field trips, anchored in the framework. We also collected data from reports and published scientific articles related to the case. The data was organized around the framework, as the boxes received case-specific labels. We detailed the operation of the case splitting the activities into several boxes in the framework, and linking the boxes according to established relationships.

Each case report consists of a characterization of each members and stakeholders and an explanation of the relationships represented in the framework. The report also emphasizes the local context, and how the biome, the socioeconomic situation, and local agents affect the initiative. The case report is complemented by a short video, which aims to make the experience more tangible and to provide the participant's own perspective. Ultimately, the case report makes clear the causal connection between the project's activities and the financial return and impacts – the theory of change.

## Roundtable on Risk Mitigation Strategies

In order to understand the sorts of risks most frequently faced, we organized a collaboratory session, inviting investors, investees, and experts to debate this topic. The objective was to promote the “best and worst” experiences shared by the described stakeholders investing in iCLF and Agroforestry in Brazil. The event was held in São Paulo, on May 5th 2018, with 22 participants (see Appendix 2), co-organized by Alimi Impact Ventures, WRI (World Resources Institute)/Verena Project, and Rabobank Brazil. The collaboratory was organized in three phases.

**In Phase 1:** the group held a discussion in a fishbowl technique set-up to share their risk-related experiences on the frontline and, based on this, the most frequently mentioned risks were collected and clustered and these served as inputs for Phase 2.

**In Phase 2:** Using the risk clusters identified in the first part, the group was divided according to their area of expertise to gather and exchange mitigation strategies.

**In Phase 3:** The outcomes of Phase 2 were presented to the whole group of participants. The presentation elaborated concrete actions that could be implemented immediately. The material and content generated by this highly collaborative event is available at the risk mitigation chapter.

## CHAPTER THREE

# MEASURING WHAT MATTERS

Climate-Smart Agriculture involves systems that prioritize sustainable agricultural practices including use of existing forest, engaging smallholder farmers, agroecology, better use of the soil, and other activities that cause positive impacts. These impacts represent a third dimension—in addition to the traditional risk and return—for investments.

In order to assess positive environmental and social impact, we come to the question of how we can best quantify and value the PES (Payment of Ecosystems Services), so that they can also be included in the investment equation.

In general, there are two methods for assessing impact. The first is based on additionality and the second, on attribution. Impact measurements applying the concept of additionally are still challenging tasks as they rely on large data-collection and analysis efforts and are consequently time-consuming and therefore expensive. As a result, some companies and investors prefer to rely on assessment practices based on impact attribution.

Impact assessments can be used to understand the creation of value at different levels: from communities and local contexts, and the markets and countries of origin and destination, to the consumer and investor side. If aligned with climate-smart agricultural practices, the entire chain creates an LCE (Low Carbon Economy) with a direct connection to global targets for climate-change mitigation. It is therefore possible to use impact measurements to know direct contributions to the Paris Agreement, UN Sustainable Development Goals (SDGs), and other similar and clearly-defined global targets.

In the table below, we have summarized recommendations of possible indicators to be used for climate-smart agriculture aligned with the aforementioned global targets.

## Key Concepts in Impact Assessment

**ATTRIBUTION:** In order to calculate the investor's impact, some investors calculate the share of impact on their investees that they feel is attributable to the investor's portion of the funding. There are divergent views on the benefit of making such a calculation: some focus on checking if they made a contribution rather than calculating the size of it, while others scale the impact they report by the proportion of capital they provided.

**ADDITIONALITY:** Additionality indicates that an intervention delivered an outcome or additional result that otherwise would not have occurred. Several investors do not assess additionality, some due to cost, while others are unconvinced of the value of such an assessment. Some investors do assess additionality in order to know if their capital is being used effectively, either qualitatively or quantitatively.

Source: J.P.Morgan – Impact Assessment in Practice. 2015





GLOBAL PRINCIPLES	IMPACT TARGET	POSSIBLE INDICATOR
SDG1: No poverty	Integration of smallholder farmers	* Total number of smallholder farmers integrated with the value chain
SDG2: Zero hunger	Production and productivity increase	* Composition of Revenue Streams * Increase in Productivity Levels * Average income of small-holder farmers
	Development of sustainable agricultural practices	* Sustainable Agriculture as a proportion of total farmed area * Use of integrated production (iCLF, Agroforestry, crop+livestock, livestock+forestry) * Certification (FSC, Organic, Sustainable Extractivism, Fairtrade)
SDG5: Gender equality	Gender Inclusion	* Number or percentage of women members (in cooperatives) * Number or percentage of women managers (in cooperatives or iLCF farms)
SDG6: Clean water and sanitation	Efficient use of water	* Technologies aimed at reusing water * Irrigation systems that optimize water use and reduce energy consumption
SDG7: Affordable and clean energy	Efficient use of energy	* Percentage of alternative energy in the power grid * Implementation of more energy-efficient processes
SDG8: Decent work and economic growth	Income generation	* Percentage of smallholder farmers
	Reduction of next-generation unemployment	* Percentage of young people engaged in climate-smart businesses * Number of cooperative members from the next generation
SDG9: Industry, innovation, and infrastructure  Paris Agreement Soft Commodities Compact	New business incubation	* Number of partnerships established with other organizations * Increase in the number of clusters which include smallholder farmers in the value chain; and the growth of existing ones * Percentage of young people engaged in the business * Number of financial organizations offering credit
	Integration with larger value chains (local market, retailers in large consumer centers, exports)	* Financial Return in percentage and timeframe * Integration with larger value chains beyond the local market * Percentage of smallholder farmers integrated with the value chain
SDG12: Responsible consumption and production	Reduced post-harvest losses	* Percentage of production waste reused * Percentage of byproducts of the production process
	Use of technology as a means toward sustainable agricultural production	* Inclusion or development of Climate-Smart Practices (technological)
SDG13: Climate action	Clear use of technology towards a low-carbon economy	* Adoption or increase in Climate Smart-Practices (technological)
SDG15: Life on land  Paris Agreement New York Declaration on Forests	Conversion from a conventional system to a more environmentally-sustainable one	* Certification (FSC, Organic, Sustainable Extraction, Fairtrade) * Percentage of Sustainable Agriculture over total farmed area
	Reduced use of agrochemicals	* Certification (FSC, Organic, Sustainable Extraction, Fairtrade)
	Reduction of degraded land	* Use of integrated production (iCLF, Agroforestry, crop+livestock, livestock+forestry) * Amount of Carbon Credits
	Forestry initiatives (restoration, integrated production)	* Percentage of Forested Area as a proportion of total land area * Use of integrated production (iCLF, Agroforestry, crop+livestock, livestock+forestry) * Number of hectares of restored forestry
SDG17: Partnerships for the goals	Systemic issues and monitoring	* Adoption of indicator to measure sustainable production, climate-smart practices, efficient processing, and new technologies

Source: Alimi Impact Ventures (2018)



## The challenges and opportunities of impact measurement in Climate-Smart Agriculture

Assessments of the impacts of climate-smart agriculture should take into consideration the many contexts and variables (as well as the interrelations between them) making these assessments complex challenges. Sustainable farming is about understanding ecosystem services and having a systemic bird's-eye-view perspective that considers a wide range of variables.

The complexity of social and environmental issues means that causal relations between variables go beyond the simple cause-consequence pattern, because their impacts exceed the limits of business — traversing community, regional, continental, and global boundaries.

Ecosystem services include a wide range of benefits that we receive from the natural environment. Payments are made in infrastructure, services, and other factors that help us access natural resources — and not only the ecosystem services themselves.

In Brazil for example, water as a resource entails no costs. Users pay for the sanitation services and the infrastructure to get water at home, but not for the resource itself. Other examples are rainfall benefiting agriculture, the sourcing of mineral water in which the payment is for the bottling process and logistics or the view of a beautiful sunset over a lake. But how much does water actually cost?

Brazil's National Policy of Water Resources governs the various uses of water in order to preserve the quality and abundance of this resource. However, this law is not strict and not fully-implemented. It establishes that those who capture water, dispose of wastewater, or undertake non-consumptive use directly in bodies of water must pay for the use of this public good. Consequently, if the law is fully-implemented, water resources would have intrinsic economic value and it would be an advantage of having land with springs.

Another type of environmental services with potential economic value has to do with the existing native forest in rural areas. As described in the Towards a Low-

Carbon Agriculture Chapter, the Brazilian Forestry Code governs the use and conservation of native forests. Both Environmental Reserve Quotas (“Cotas de Reserva Ambiental”, CRAs in Portuguese) and the economic use of legal reserves are outlined in the Code, which says that rural properties must have a percentage of natural vegetation depending on several factors such as size, geographic area, and the years of economic activity since its establishment.

According to the Forestry Code, in the required legal reserve section, producers may conduct economic activity on 50% of this land so long as they preserve the existing forest. Farms that do not have the required legal reserve area on their own property have the option of compensating by renting or buying another area with extra native forest. This process of compensating the legally required reserve area has not yet been regulated by the Forestry and Environmental Secretaries. Nevertheless, it is a promising option for finally placing an economic value on the existing forest.

Water and legal reserves are ecosystem services that have already been included in Brazilian law. As these laws are not yet fully implemented, measurement practices are applied only on a voluntary basis. Law enforcement, therefore, would finally be able to promote and foster the valuation of and payment for ecosystem services.

The challenges of measuring ecosystem services increase when we consider the system’s behavior over time. Not so long ago, people didn’t believe in global warming, and the payment of ecosystem services and green funds were an unrealistic idea. For the future, for example, how can we estimate the cost of losing biodiversity? Setting the appropriate payment amounts for ecosystem services is still challenging being that the complexity of measuring and quantifying costs and benefits leads our rudimentary cause-effect thinking to exclude issues that do not affect our daily lives right away.

In our economies up until now, the measurement of what matters has focused on what is financially worthwhile. In Brazil, environmental services that offer potential returns are those that have the backing of legal framework. The law provides a way to monetize these services through economic returns or monetary punishment. Examples listed here are carbon insetting, the use of water, and forestry preservation/legal reserves.

Impact measurements, however, should also consider that the consequences over time include relevant long-term issues. No existing measurement or valuation tool is enough to grasp the uncertainty and complexity of these investment decisions. However, the recognition of the information gaps represents a step towards understanding the multilayer value chain and envisioning new investment opportunities.



One of the environmental services of the Agroforestry System is the development of microbial activity, with symbiosis nodules of bacteria (*Bradirhizobium* sp) with leguminous plants (*Crotalaria ochroleuca*), which results in the fixation of atmospheric nitrogen in the soil and contributes to the fertilization of the entire agroecosystem.

# FACTS & FIGURES

## Investing in Climate-Smart Agriculture in Brazil



Figure 3 - Main Players of Impact Investing in Climate-smart Agriculture, 2015-2017

### Impact investment in climate-smart agriculture in Brazil is still an emerging sector and relies on public policies and governmental support.

Between 2015 and 2017, the total capital invested in climate-smart agriculture amounted to USD 359.9 million.<sup>1/2</sup> Of this total amount, 53% was offered in the form of

grants, while 36% was offered in the form of loans provided via governmental rural credit lines. Private investors were responsible for the remaining 11% of the total investments. The group of private investors consisted mainly of impact investors who aimed to reconcile financial returns and social-environmental benefits.

1. We have not taken into account the investment by Development Finance Institutions (DFIs)

2. We have not taken into account investments in technology related to climate-smart agriculture

## Private Impact Investors

Private impact investors' participation in climate-smart agriculture in Brazil is still incipient, but the financial, as well as social, and environmental rewards are potentially high<sup>3</sup>. The overall number of active impact investors in Brazil increased from seven in 2009 to 29 in 2016, showing that there is an overall growing interest in this sector.

From 2014 to 2015, agriculture received the largest amount of capital from impact investors in Brazil, with a total of USD 31.4 million in invested capital. The largest share of impact investments was made via equity, however, the relative amount of debt investments has grown recently.

For the period 2016–2017, we report the closing of a new deal in agroforestry by an international impact investing fund totaling USD 7.7 million in committed capital to be allocated throughout the next three years. The investment targeted the company Floresta Viva, created through a partnership of co-investors in Brazil and the France-based impact investing fund named Moringa.

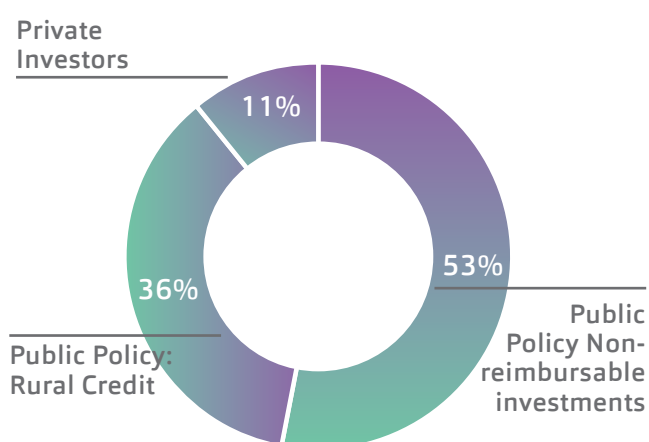


Figure 4 - Participation of the Main Investment Players in Climate-smart Agriculture in Brazil, 2015–2017

## Public Policy: Forest Conservation and Rural Credit

### Fundo Amazonia<sup>4</sup>

Since the foundation of Fundo Amazonia in 2008, the BNDES (Brazilian National Development Bank)<sup>5</sup> has been responsible for its fundraising and management. Meanwhile, the fund has raised USD 720 million of

committed capital and has supported 97 projects, with USD 378 million of invested capital.

The majority of the funded projects are aimed at supporting and promoting sustainable value chains and must be aligned with REED+ (Reduced Emissions from Deforestation and Forests) in the Amazon biome. Furthermore, up to 20% of their financial resources are used to develop and support monitoring systems concerning deforestation control in the Amazon and in other rainforest areas.

In the last three years, from 2015 to 2017, the Amazon fund invested USD 190 million through 30 partner not-for-profit organizations. During this period, the average ticket size was USD 6.3 million, indicating that the partners of the fund are typically large and impactful projects and initiatives. All the investments made by Fundo Amazonia are non-reimbursable.

Since 2008, the social impact of the investments includes engaging 142,000 people and generating USD 50.6 million in revenues for the Amazonian population.

## PRONAF (National Program for Strengthen Family Farming)

Created in 1995, PRONAF (The National Program for Strengthening Family Farming) aims at promoting the sustainable growth of family farming and agrarian reform settlements. This credit line is thus fully dedicated to smallholder farmers, and its purpose is to integrate these producers into commercial value chains. The investments are used to develop professional and modern production systems of small farmers. In this sense, the program is expected to impact the income of the farmers, improving their quality of life. PRONAF's interest rates are the lowest ones available in the rural credit market, ranging from 2.5% to 5.5% per year, and they have to be paid back within a timeframe of between 2 to 10 years.

PRONAF offers three credit lines closely related to climate-smart agriculture. The grand total of these lines amounts to USD 53.4 million of loans in the last three years, from 2015 to 2017.

3. All data related to impact investing from 2014 to 2016 are from "The Impact Investing Landscape in Latin America: Trends 2014 & 2015, Special Focus on Brazil, Colombia, and Mexico", published in August 2016, by ANDE, LGT Impact Ventures, and LAVCA. Data from 2017 was gathered by Alimi Impact Ventures.

4. All the information related to Fundo Amazonia were sourced at <http://www.fundoamazonia.gov.br> and accessed between May and June 2018

5. BNDES is a state-owned bank.

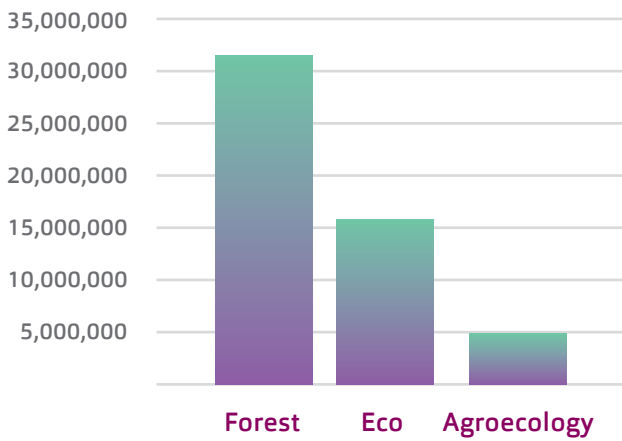
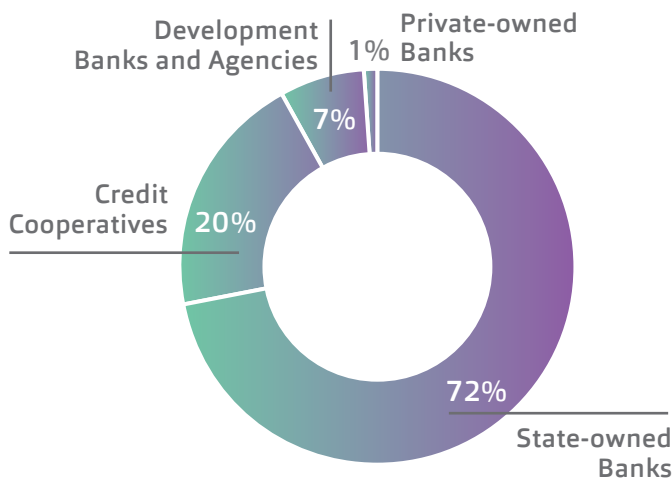


Figure 5 - Volume of Loans under PRONAF's Subprograms related to Climate-smart Agriculture, 2015-2017

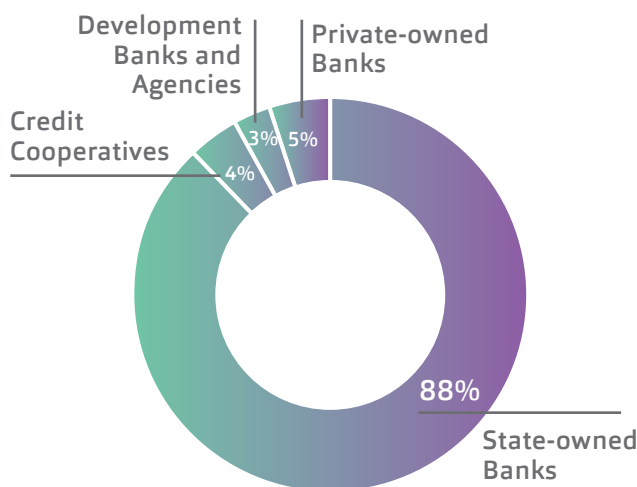
The first credit line is the forest subprogram, which encompasses the activities of agroforestry, extractivism, restoration of deforested areas, and enrichment of natural forests. Forest-related projects received a total of USD 31.5 million in the period under analysis. The second subprogram, called Eco, is aimed at financing initiatives related to renewable energy and environmental sustainability. The capital lent through the Eco subprogram totals nearly USD 16.7 million. Finally, the third subprogram is dedicated to agroecology projects, and it provided USD 5.3 million to these types of projects during the last three years. Despite these efforts, these three subprograms related to climate-smart agriculture represent only 0.25% of the total loans of the PRONAF program.

### Agroecology



PRONAF's financial resources dedicated to climate-smart agriculture are channeled to the market via different financial institutions. Data from 2015 to 2017 shows that state-owned banks are the main distributors, channeling all loans for the forest subprogram, and more than 70% of the other two subprograms. Credit cooperatives appear as an important player in the agroecology subprogram, offering 20% of the total amount of loans to the farmers. This third program requires a certain familiarity with small scale and organic agriculture; thus, the cooperatives are playing a more active role in the channeling of the loans. This evidence is aligned with the APOMS case description (chapter 7), as the cooperatives are more apt to deal with the idiosyncrasies of these special kinds of small producers.

### Eco

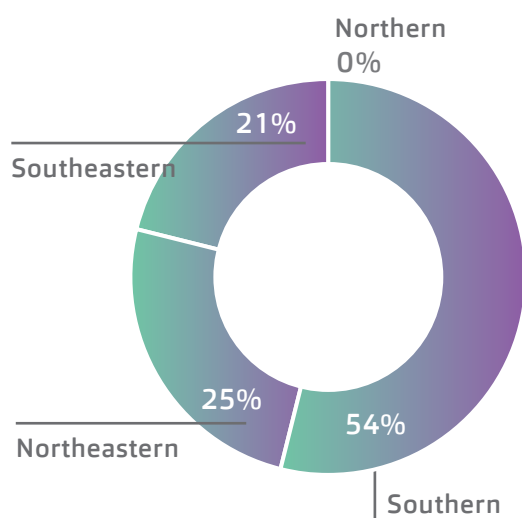


In the APOMS Agroecology Network (chapter 7), located in the Cerrado (Brazilian Savannah), one of the key elements in the activities is to decrease or even eliminate the barriers that smallholder farmers face when trying to access credit. Consequently, APOMS is making efforts to attract credit cooperatives to the region, as they argue that this kind of financial institutions are best fitted to smallholder farmers' needs. In their perspective, the financial institutions should adapt their language and procedures to the farmers' daily realities.

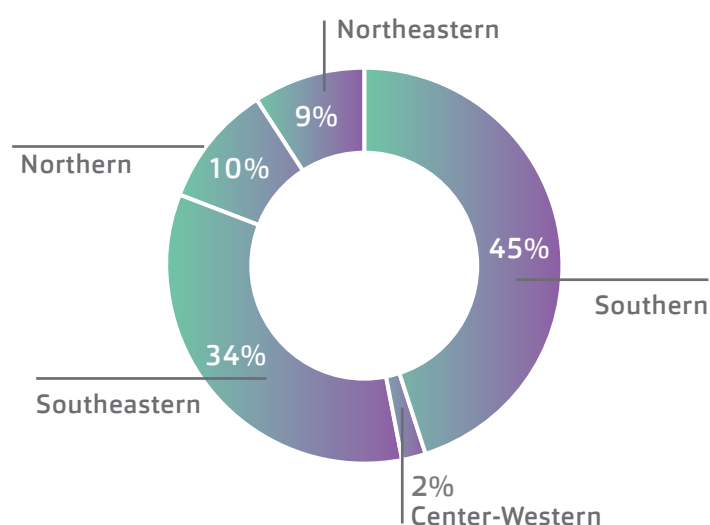
Figure 6 - Participation of Financial Institutions in the Eco and Agroecology Subprograms, 2015-2017

Regarding the biomes, 86% of the loans for the forest subprogram are invested in the Amazon area (Northern region), while the major amount of the loans for the Agroecology and Eco subprograms are borrowed in the Atlantic Forest area (Southern and Southeastern regions). The Cerrado area (Center-Western region) exhibited only minor participation in PRONAF's subprograms related to climate-smart agriculture.

### PRONAF / Agroecology Subprograms Loans, 2015 to 2017



### PRONAF / Eco Subprograms Loans, 2015 to 2017



### PRONAF / Forest Subprograms Loans, 2015 to 2017

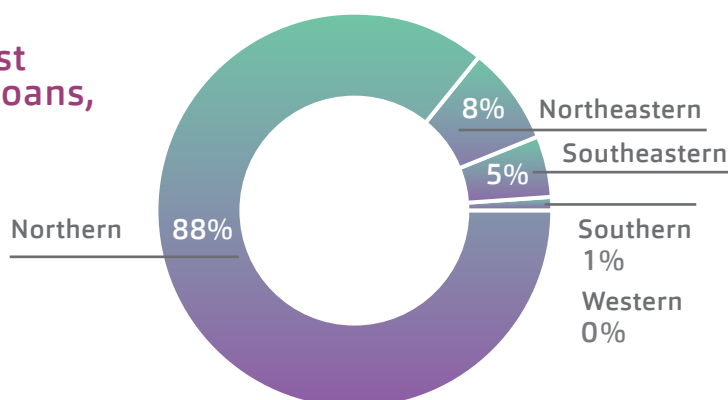


Figure 7 – PRONAF's Loans by Region and Subprogram, 2015–2017

### ABC (Agricultura de Baixo Carbono – Low Carbon Agriculture)

Another governmental green financing program is the ABC (Agricultura de Baixo Carbono/Low Carbon Agriculture), which targets initiatives that aim to reduce the emission of greenhouse gas emissions.

In contrast to PRONAF, the ABC program is not focused on smallholder farmers, but rather meets the needs of medium- and large-sized farms. The program's distinct approach becomes clear considering the average credit amount of USD 93.2 thousand invested through the ABC credit line in comparison to the average of USD 4.7 thousand invested through the PRONAF program during 2017. The interest rates of the ABC program are significantly higher than those of the PRONAF program as well, with a rate of 7.5% per year.

The ABC program has two credit lines specifically dedicated to climate-smart agriculture: i) integrated Crop, Livestock, and Forestry (iCLF), and ii) Environmental Regularization. From 2015 to 2017, these two ABC credit lines provided USD 78.4 million in loans, which represents 4.6% of ABC's total program.

The first of these subprograms related to climate-smart agriculture is aimed at financing projects that integrate crops, livestock, and forests or use agroforestry systems (iCLF). In the last three years, the iCLF program represented only 4.03% of the ABC program, with a total of invested capital of USD 69.2 million. All three biomes - Amazon, Cerrado, and Atlantic Forest – exhibited relevant participation in the loans.

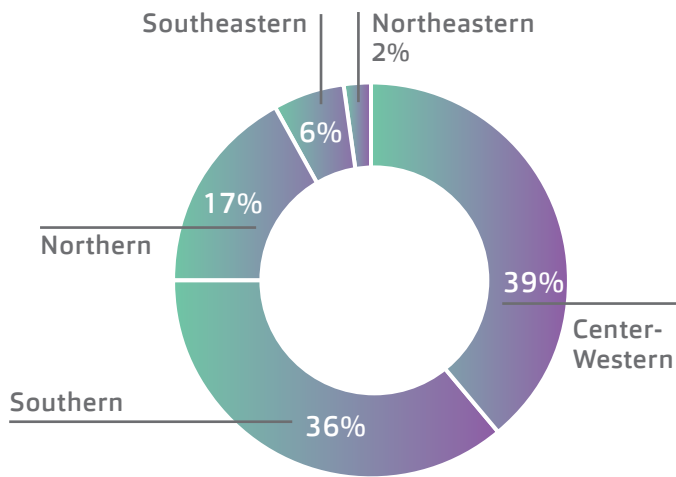


Figure 8 - ABC's iCLF Subprogram Participation by Region, 2015-2017

The second of ABC's subprograms, called Environmental Regularization, was created to enable farmers to comply with the new environmental law – the Forestry Code. This subprogram was responsible for providing USD 9.2 million in loans during the last three years. The Atlantic Forest region (Southern and Southeastern) received 90% of the loans, while the Amazon (Northern) and Cerrado (Center-Western) regions received 7% of the loans.

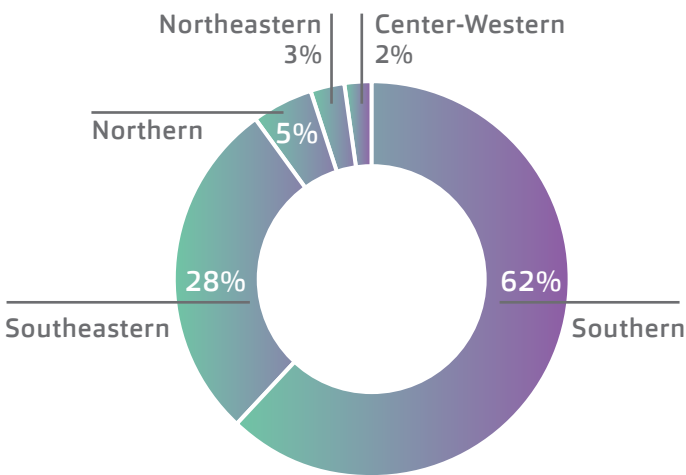


Figure 9 - ABC's Environmental Regularization Subprogram Participation by Region, 2015-2017

## Future Perspectives of Capital Needs and Other Funds

Regarding other non-reimbursable funds, donations, and green bonds, we estimated that a total of at least USD 1.9 billion of capital was invested in Brazil from 2004 to 2018. The previously described investments made by impact investment funds and Brazilian public programs towards climate-smart agriculture amounted to only humble values in the last three years.

We collected data from organizations and experts in order to estimate figures from development finance institutions and private investors who are active in Brazil. This data is not comprehensive, and potentially underestimates the total market, nevertheless it provides an indication of the latent farmers' demand for capital.

### Capital Needs for Agroforestry to be Met by Private Investors

Initiatives implementing agroforestry systems are attracting the attention of private investors in Brazil. A recent study conducted by the World Resource Institute (WRI) in 2017 called Projeto Verena (Economic Valuation of Reforestation with Native Species) estimated investments of USD 10.2 million for 8 agroforestry projects in Brazil with a total area of 700 hectares.

### Interamerican Development Bank

The IDB (Interamerican Development Bank) traditionally supports several initiatives in Brazil, for instance, financing and managing the project Rural Sustentável<sup>6</sup> (Sustainable Rural Development). The project aims to improve the land and forest use by farmers in the Amazon and Atlantic Forest areas. There are several activities developed by Rural Sustentável: i) making technical assistance available and providing training to farmers in order to support the adoption of low carbon technologies and environmental regularization, ii) implementing demonstration units as benchmarks for best practices, and iii) helping the farmers to access rural credit. IDB committed an amount of more than USD 21.9 million, targeting 350 demonstration units, 11,000 farmers, and 1,120 technical assistance staff. To date, the project is present in seven Brazilian States.

6. Source: <http://www.ruralsustentavel.org>





## Grants and Donations

NGOs, foundations, and private donors also play a relevant role in financing climate-smart initiatives in Brazil. Usually, these types of financing sources support the creation or development of farms and value chains.

**The GEF (Global Environment Facility)**<sup>7</sup> makes funds available for developing countries in order to accomplish environment conventions and reach the goals of international agreements. The GEF was created during the 1992 Rio Earth Summit and is today supported by 39 donor countries. In Brazil, GEF committed USD 841.6 million to support projects in the following focal areas: land degradation, biodiversity, and climate change. From this total, only USD 99.9 million were allocated until June 2018.

**Programa Petrobras Socioambiental**<sup>8</sup>: Petrobras, a state-owned Brazilian Oil Company, makes a significant effort to promote social and environmental projects. One part of the program is dedicated to a sustainable development focusing on production systems that are integrated into the environment. From 2004 to 2012, Petrobras Socioambiental granted USD 165.9 million through five public application proposals in the environmental program.

**FBB (Banco do Brasil Foundation)**<sup>9</sup>: The FBB traditionally supports initiatives related to Agroecology and the Agroindustry, focusing on smallholder farmers, family farmers, and settlers from the agrarian reform. From 2015 to 2017, the FBB granted USD 31.9 million to these two areas.

## Climate and Green Bonds<sup>10</sup>

Globally, the Climate Bonds Initiative estimated the total value of climate bonds to equal USD 895 billion of which USD 221 billion were labeled as green bonds. Only 0.95% of the climate bonds are related to agriculture and forests. The Brazilian market is considered one of the most promising places for forest and agriculture green bonds. In fact, there is a boom of green bonds in the Brazilian territory, with a total value of green bonds sold of USD 3.6 billion in the time between June 2015 and September 2017. Currently, 24% (USD 864 million) of the green bonds in Brazil are used to raise capital in the forestry and agriculture sector. Large corporations, such as BRF SA, Fibria, Klabin, and Suzano Papel e Celulose, are the main players. According to the Climate Bonds Initiative, the implementation of the CAR (Rural Land Registration), a new legal apparatus, is attracting international investors and influencing the expansion of funds for agriculture.

7. Source: <https://www.thegef.org/country/brazil>

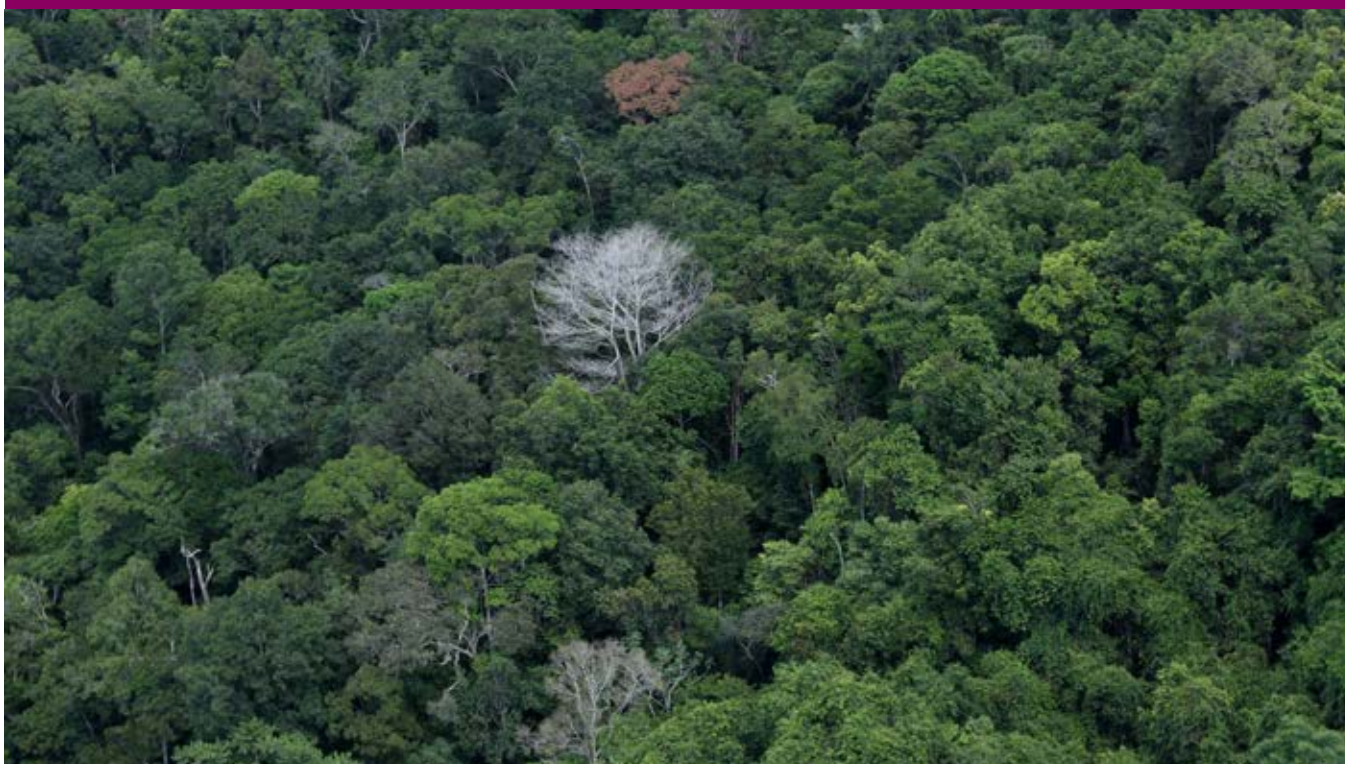
8. Source: <http://sites.petrobras.com.br/socioambiental>

9. Source: <https://www.fbb.org.br>

10. Source: <https://www.climatebonds.net/market/country-market-development/brazil>

## CHAPTER FIVE

# RISK MITIGATION STRATEGIES



Impact investors can play a crucial role as capital providers in markets that are characterized by capital scarcity and uncertainty. Thus, impact investment focusses on frontier markets. This way of viewing offers an interesting and new perspective on potential risks and associated mitigation costs. As shown in Table 2, investments can be linked to having different layers, depending on the risk profile and the general capital availability for the type of investment or business. The further away the business model is from proven concepts, the higher the risks associated with the investment and the scarcer the capital available to finance the business. This simplified model can be applied both to conventional investments and to alternative and potentially more innovative investment approaches.

Traditionally, venture capital serves as a financing source for business models that are less proven, but potentially offer large returns and disruptive innovation.<sup>1</sup>

When including impact investment in the picture, it becomes clear that it too has the highest potential for frontier capital businesses and markets. In such types of markets, investors need to have an inherent appetite for an increased amount of risk and, consequently, need to be equipped with the knowledge and tools to tackle and mitigate these uncertainties. With the aim of providing an overview of potential risks and respective mitigation strategies for impact investors in climate smart agriculture in Brazil, we looked at five risk clusters, namely Financial Risk, Environmental and Climate Change Risk,

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1. Frontier Capital: Early Stage Investing for Financial Returns and Social Impact in Emerging Markets (Omidyar Network).

Infrastructure and Supply Chain Risk, Political, Legal, and Governance Risk, and the ‘H Factor’ or Human Capital.

We also took into account that the risks within these clusters can be, and in general are, interdependent. In that sense, the risk of having – for example – an unsuccessful harvest due to a period of unusually heavy rainfall is clearly interlinked with a higher probability of harmed infrastructure and thus limited access to markets, eventually resulting in a higher probability of the borrowers defaulting on their credit.

When discussing risk mitigation, it is important to define our understanding of ‘risks’, so as to differentiate between ‘risks’ and ‘issues’. In this chapter and during all our research, we consider a risk to be a potential, harmful event and as having different levels of impact on the investment. Thus, a risk can be described as an interaction between a threat and a vulnerability, meaning that it is the relationship between the statistical probability of a threat, thus a particular event, happening, and the magnitude of the harmful impact, thus the level of vulnerability.

On the other hand, in our research we define issues to be given, unfavorable components of the investment or the investment environment and thus in this context of risk mitigation strategies we disregard issues. We also do not look at a context in which companies and investors consider ESG (environmental, social, governance)

topics as risks themselves for conventional operations or investments but instead we are focusing on risks that are associated with impact investing.

### Where does the content for this chapter come from?

The purpose of the market assessment is to be very close to what is currently taking place on the front line. Aligned to this, the risk mitigation chapter builds on a *collaboratory* session held in May 2018 with a diverse set of actors and experts in the field, on interviews with specialists and opinion leaders, on a roundtable about the bottlenecks related to accessing the BNDES green line organized by the WRI (World Resources Institute) in April 2018, and on a series of interviews for reporting the case studies.

In order to access the perceived risks by a diverse set of organizations operating in the field of climate-smart agriculture, the collaboratory session was organized with a group of 22 experts and opinion leaders and consisted of two main parts: first, the group held a discussion following a fishbowl technique set-up to share their risk-related experiences on the frontline and, based on this, the most frequently mentioned risks were collected and clustered. Second, using the risk clusters identified in the first part, the group was divided according to areas of expertise to gather and exchange mitigation strategies.

An overview of the risks clusters that were found is provided in the table below.

RISK CLUSTER	RISKS WITH HIGHEST MENTIONS IN THE COLLABORATORY SESSION
Financial and Business Risk	Risks associated with the financing industry and capital markets, and the businesses’ financing and capital structure. Investors face a specific uncertainty regarding potential monetary loss due to inability to collect returns. This also includes liquidity risk, market risk, credit risk, amplified by the lack of track record and the consequent increased difficulty to assess these risks.
Environmental and Climate Change Risk	Risks associated with harmful events caused by unexpected short term weather conditions or by long term climate and related biome changes.
Infrastructure and Supply Chain Risk	Risks associated with uncertainties regarding logistics, functioning of own or partner facilities, information or technology networks, electricity infrastructure, and partnerships along the value chain.
Political, Legal, and Governance Risk	Risks associated with failing cooperating with Brazilian public institutions, risks of non-complying with (changing) laws, and risks related to the governance structure of the invested business.
The “H Factor” Risk	Risks associated with human capital, including education, related to impact investments.

Table 2: Risk clusters found in the collaboratory session and their definitions (Source: Alimi Impact Ventures, 2018)

In the paragraphs that follow, we offer a more focused and detailed look at the risk clusters mentioned above, based on interviews and the experiences shared in the collaboratory session. The mitigation strategies are examples that were explained to us in the context of our research process; they are neither exhaustive, nor can we guarantee that they can be applied to every business model or investment.

## Financial Risk

Our understanding of Financial Risk can be described as the risk that is associated with, on the one side, the financing industry and, on the other side, the capital structure and financing of a business. Inherent to any investment, investors face a specific uncertainty regarding potential monetary loss if they are not able to collect their returns.

Financial risks can either affect investors directly, or indirectly through uncertainties faced by the farmers. Typical risks for the farmers include liquidity risk regarding the sale of their products and market risk as for example product price volatility.

Both in the collaboratory session, as well as in the interviews we conducted, liquidity risks were mentioned several times.

**Risk Description:** Firstly, liquidity risk is the uncertainty about the ability to sell the products or services in the market at the expected price and in the expected time. In a market with low liquidity, the producer has to pay a liquidity cost by decreasing the price, and the business might fail if the producer is not flexible enough to adjust the product according to demand or even switch to a different product. According to the experience of our interviewees, farmers in Brazil are sometimes tempted to produce goods that seem to be lucrative, as surrounding farmers earn profits with the same approach, and thus fail to thoroughly assess the market saturation and resulting demand, leading to a high exposure to liquidity risk and potential business failure.

**Examples of Mitigation Strategies:** As an investor, as well as a business owner, it is crucial to carefully and realistically research and value the market size, the potential demand, and lastly both the time until the products are likely to be sold as well as the time until a break-even point is reached and the investment starts to pay off.

Furthermore, the production of several diverse goods could provide the needed flexibility to decrease liquidity risk. Integrated crop, livestock, and forestry systems might offer such a diversification, as a very distinct set of goods is combined: in a system of dairy and beef production with cocoa production, for example, temporarily low liquidity for beef could be balanced with the sale of cocoa which might have an unaffected high liquidity.

**“Coffee, for example, is typically exposed to liquidity risk as it can generally be sold, but the price and volume can vary to the sellers’ disadvantage”.**

(Collaboratory participant)

Another important factor influencing the financial success of agribusiness is the risk of high price volatility, which is part of the market risk faced by business owners.

**Risk Description:** In the commodities markets, prices can fluctuate largely, as stock markets and speculation have an impact, as well as global demand. For highly perishable goods in particular, this can pose a high risk, as the products cannot be stored until prices increase. Farmers with a low-scale production are specifically affected as they often need to engage costly trading agents to provide access to global markets.

**Examples of Mitigation Strategies:** Although investors are able to hedge against price volatility in the commodities markets, the producers themselves are often unable to decrease the risk and might be forced to accept low prices.

For this reason, the natural diversification and flexibility of integrated systems offer potential resilience for both farmers as well as investors.

In addition to the risks that are likely to transfer from the farmer to investors, investors themselves, especially equity investors, have to take further uncertainties into account.

**Risk Description:** Firstly, investors bear a risk concerning not-yet proven business models. Investments in agroforestry or iCLF (integrated Crops, Livestock, Forestry) businesses are typically characterized by high upfront funding, while there



Participants of the collaborative session sharing practices for risk mitigation in climate-smart agriculture.

**“The agroforestry system is a climate change risk mitigation strategy”.**  
(Clement Chenost, Moringa Fund)

are not yet enough track records providing quantitative data and experience with comparable investments. In particular, technical and managerial training, and remodeling of farms to provide ideal conditions for integrated systems require time, effort, and capital.

**Examples of Mitigation Strategies:** These investments are likely to lead to stronger businesses and, so, should not be avoided. The Sambazon case, for instance, showed how large investments in the Amazonian infrastructure helped to secure steady and high-quality product inflows. In addition, it can be beneficial to be very involved in the management and in decision-making processes. The funds we researched mostly did not avoid high upfront costs, but instead facilitated success through close collaboration, decreasing their risk of financial loss over the long term.

**Risk Description:** Investors face also face liquidity risks. Just as producers are exposed to the risk that they may not be able to sell their products, investors face the risk of illiquidity regarding the exit of the investment. Equity investors might fail to find a suitable buyer of the acquired shares at the end of the investment term and, so, might be forced either to keep the shares or sell them at a harsh discount.

**Example of Mitigation Strategies:** In general, the Brazilian economy is growing and the market particularly offers an increasing demand in organic and more sustainably sourced food, according to the experiences and expectations of the experts we talked to. It was stated that – if the invested business model is promising – both large corporations as well as more conventional investors are interested buyers of the companies in later stages, as soon as the viability of the business model is proven.

Another layer of investors’ liquidity risk is that often long investment horizons are inherent in the business model due to long production cycles. This is, for instance, naturally the case for forestry businesses; they can be highly profitable, but only pay off after a time of perhaps 25 years.

This risk could be decreased by combining the forestry business with a shorter term business, such as the production of grains, vegetables or fruits, or the keeping of livestock. Additionally, at an exit point, investors are able to integrate the discounted value of – for instance – the timber that is still to be harvested in the selling price of the company shares. So, investors do not necessarily have to remain invested for a longer time horizon than they think appropriate.

## Environmental and Climate Change Risk

We define Environmental and Climate Change Risk to include all risks associated with harmful events caused by both unexpected short term weather conditions and long term climate and related biome changes. Environmental and climate change risks are faced by farmers in their daily lives and can be closely connected to agronomic risks.

**Risk Description:** The majority of the participants of our collaborative session agreed that, owing to the high probability of unforeseen weather conditions harming production, the related risks were the most important for farmers and, hence, investors.

**Examples of Mitigation Strategies:** A potentially costly but also relatively easy way to protect the business

from weather risks is to insure the harvest or the facilities. Accordingly, the insurance most sold to farmers covers the impacts of fire, floods, and droughts, with about 90% of the damage being caused by flood and drought and about 80% only by the latter.

**Risk Description:** Agronomic risks more generally include those related to a production that is not as successful as expected, for instance, due to diseases, pests, such as ants, or the previously described weather conditions, leading to a variation in productivity.

Although a diverse and integrated system is more complex to maintain, it might provide a natural protection against agronomic risks by increasing resilience and flexibility. In particular, a growing body of research and a track record of well-functioning agroforestry or iCLF systems will facilitate the installation of integrated systems in the future.

## Infrastructure and Supply Chain Risk

For the purpose of this report, we have attributed risks to the Infrastructure and Supply Chain Risk cluster that relate to uncertainties regarding logistics, functioning of own or partner facilities, information or technology networks, electricity infrastructure, and partnerships along the value chain. This risk cluster is closely connected to the previous one, as weather conditions may also influence the logistical infrastructure as well as electricity and communication.

**Risk Description:** Particularly for smallholder farmers, an excessively long interruption to the transportation of their production is a risk that might even lead to a default on loans, depending on the value of the products lost or delayed. Delays can be caused by several factors, including weather conditions, unreliable technology, or scarcity of inputs such as gas for the trucks. The likelihood of the risk increases if the infrastructure is less well developed.

**“The Bloomberg prices don’t correspond to the reality for farmers”.**

(Alan Batista, Investment Specialist, World Resources Institute)

**Examples of Mitigation Strategies:** Although the upfront costs of the construction of facilities and potentially even infrastructures such as roads or railways are high, and the benefits tend to materialize only in the long term, the business might benefit from immaterial advantages such as a decreased supply chain risk early on, as the experiences of our interviewees showed.

Additional risks mentioned included potentially failing partnerships along the supply chain (owing to unreliability, bankruptcy, disagreement, policies, etc.) and the potential existence or formation of industry monopolies controlling prices and operations.

Participants of our collaboratory session suggested the formation of cooperatives to create economies of scale and, hence, benefit of more efficient logistics in terms of costs, time, and uncertainty. Specifically in areas where cooperatives are not rooted in the culture, both local governments as well as private parties should be involved in order to facilitate or provide assistance and capital, respectively.

## Political, Legal, and Governance Risk

We understand Political, Legal, and Governance Risk to comprise the risks in conjunction with failing cooperation with Brazilian public institutions, with the compliance with complex new laws, and with the governance structure of the invested business, which might be disregarded or not set up properly.

**Risk Description:** Legal risks that are frequently faced are related to the lack of ownership of land titles, especially in areas in the new ‘cattle ranching and agricultural frontier’. Although the electronic registration of all rural property is



**“ I considered investing in a sustainable cattle-ranching business in the Amazon. I met many nice people that would take me in their own private jets to visit large properties. But, when coming to the question related to land title, I was never able to see any legalized documents. The explanation was always: oh we applied for it and it is guaranteed we will have it in hand soon. I did not want to pay for the land twice, so I gave up investing there”.**

**(Foreign Impact Investor)**

obligatory under Brazilian law, to be precise the Cadastro Ambiental Rural (CAR), it is difficult to enforce and monitor this. However, not complying with the law can have serious consequences and, consequently, financial implications for investors.

**Examples of Mitigation Strategies:** Various shared experiences showed that often banks and other investors required valid land titles as a necessary condition to proceed with the investment deal. Potentially, collaboration with local NGOs or other institutions might help farmers to overcome bureaucratic barriers and to be able to successfully complete the process of land registration and the claiming of the land title.

A specific example of a new and complex law, that was mentioned several times by participants of the collaboratory, is the ‘new’ Forest Code of 2012 which is intricate while having several implications for a large part of Brazil’s population that might not have extensive legal expertise. Thus, investors and farmers typically face a large risk of non-compliance and resulting substantial fines.

The assessment or development of a potential business model should include a thorough analysis of the agricultural system with regards to this particular law. Again, successful experiences shared at the collaboratory, included the introduction of an integrated system, such as an iCLF system, ensuring compliance with the forest code and, in the best case, even giving enough room and flexibility so that the system complies with likely future adjustments to the law as well.

Furthermore, reputational risks were brought up in the discussion of the collaboratory. In particular, it was mentioned that close collaboration with local politicians could lead to reputational risks. This can be the case if communities tend not to trust public institutions or, more

specifically, if the political orientation or opinion of a politician wears off on the business. Closely related is the risk of corruption, both in the context of public institutions and in the governance of the business.

According to an international impact investor and the experiences shared at our collaboratory session, these risks are best avoided by maintaining a high level of transparency and high compliance standards within the business and related partnerships along the value chain, and, consequently, following up on cases of misconduct.

### **The ‘H Factor’ Risk (Human Capital)**

A risk cluster that was discussed particularly extensively in the collaboratory was the ‘H Factor’ Risk cluster, which we define as consisting of social risks, or risks that are generally associated with the human capital related to impact investment.

**Risk Description:** There is increased complexity in the farming approach for integrated systems. The investors thus bear the risk that technical assistance and training of farmers, used to monocultures or generally more traditional agribusinesses, might not be successful.

**Examples of Mitigation Strategies:** Our cases and the experiences of the participants in the collaboratory session showed that farmers can successfully gain the expertise and technical knowledge to introduce an integrated system. The training approach and the subsequent support has to be adapted in collaboration with the producers’ needs and knowledge.

An increasing issue that becomes a risk in the long term is the problem of family succession. Young people tend to prefer moving to large cities to find work instead of staying in rural areas working on often not very lucrative farms.

**“The Amazon is not the same in its diverse territories and states in Brazil. It is very much influenced not only by geographies but also and, especially, the political backgrounds, tax incentive programs and human capital.”**  
(Private investor in organic farming in Brazil)

Most business models we have considered aim at – among other things – creating a more appealing work place for business owners. When there are increased livelihoods, improved education, and entrepreneurial responsibilities, younger generations may prefer to stay in rural areas.

### **Reflections Related to the Geo-political and Biome-related risks**

Depending on the biome, there is an exposure to distinct risks, for example infrastructure and supply chain, can vary greatly. For instance, while the uncertainty regarding a well-functioning logistics infrastructure is rather high in the biomes of the Amazon and the Cerrado, it is relatively lower in the Atlantic Forest. The denser population of the Atlantic Forest means it is a well-developed area in terms of logistical infrastructure.

Brazil's biomes are also characterized by distinct sets of political, legal, environmental, and social environments for businesses and, therefore, also investments. Accordingly, the business models and associated risks of agribusinesses vary greatly. Amazonian farms, for example, are typically built in remote locations leading to difficulties in supply chain management and, therefore, market access, while farmers in the Cerrado biome deal with water inefficiencies and high food perishability because of the hot climate.

### **The insurance market as potential risk mitigation and collateral provider**

It is relatively common that large banks either require the farmer to be insured against certain harvest-harming events, or to accept such an insurance as a collateral instead of farmland. Currently, the main insurance products sold in Brazil in the agricultural sector are those protecting either livestock or rural property and machinery against fire, flooding, electrical damages, or theft. Nevertheless, no products are offered yet that are well-suited for iCLF or agroforestry systems, as the companies still have to both gather data on the exact risk-decreasing characteristics of the approach, as well as find the best fitting way to measure these benefits. However, the individual parts of the integrated system can already be insured and as the products are often tailor-made, the clear benefits of natural diversification can be valued.



## CHAPTER SIX

# ENHANCING IMPACT INVESTING IN CLIMATE-SMART AGRICULTURE IN BRAZIL



Climate-Smart Agriculture entails unproven business models being applied in emerging markets which, despite presenting more developed capital markets structures, still lack domestic awareness of the opportunities offered by more sustainable agricultural systems, investment-ready projects, abilities and, above all, a mindset shift toward looking at different sorts of collateral and the valuing of environmental services.

Businesses in this field present an opportunity to enter larger markets that include healthier food with traceability and positive impact that goes beyond compliance in distribution chains. It involves a growing trend related to healthier/functional food.

Early stage investors in this arena may have first-mover advantage. Nevertheless, these are frontier markets—no or little track record, uncertain market size and margins, and an unconventional set of collaterals—and present higher risk,

more difficult financing, and challenging investment models.

On top of this, investors with expectations that go beyond ESG compliance in the distribution chain will also require a set of tangible impacts.

When looking at agroforestry and other combinations of standing forest with crops or cattle ranching, these involve longer investment return time horizons—due to the process of maturing lumber products—as well as a change in mindset regarding types of repayment guarantees and collateral, and creativity in building the most appropriate mixed-income model.

To overcome these difficulties, there are several new business and financing models being drafted, planned, and implemented, in order to bring climate-smart agriculture in Brazil out of the dark ages.

## Blended Finance for unlocking private capital and for capacity building

Currently, many conversations revolve around finding innovative investment structures that combine different sorts of financing capital—from philanthropic funding from families and foundations or development banks to de-risked investments to more conservative sources. The recipients of these investments are typically early stage businesses that either cannot present conventional collateral as guarantee, or pose a higher default risk. Consequently, offering tranches with different risk and return characteristics, including first loss tranches absorbing risk for the more senior tranches, would likely attract more traditional investors. Blended finance models can thus be a promising approach to impact investing—if they are set up appropriately.

However, blended finance is not just about mixing public and private resources into a pool of capital that can be invested. Rather, it involves a range of actors working together at distinct stages of a project's or enterprise's lifecycle.

According to the World Economic Forum,<sup>1</sup> the use of blended finance mechanisms serves three purposes. Firstly, it increases capital leverage by taking a given amount of philanthropic or development capital, using it to attract capital from more traditional investors, and hence raising the total amount of capital that can be used to generate development outcomes.

Secondly, the impact and the effectiveness of the investment can be enhanced and expanded through the broadened skill-set the diverse investors bring to the table. If the experience and the expertise of the investors together with the different types of capital are used efficiently and in contexts where they are necessary, the scope and success of the development achieved can be scaled up.

Thirdly, by managing the risk and return characteristics, market expectations can be met for a higher number of investments. Especially in a setting with a low track record, investors find it challenging to properly assess risk, and thus a blended financing structure can help reduce the risk premium paid to a more appropriate level.

These goals can be achieved in three different ways<sup>1</sup> Traditionally, philanthropic means are used to provide support—for instance through technical assistance or

education—to the business receiving the investment and thus indirectly decrease risks for investors by improving the business itself. This support can take place before the investment itself in order to make the business “investment-ready”, or in the course of the investment cycle.

By addressing the risks for the investors more directly, capital without financial return requirements can serve as a guarantee for investors requiring returns through “risk underwriting”. In case of losses or other negative events, the investors with senior tranches will still be compensated due to the first loss capital.

Lastly, especially in less developed markets, market incentives can be offered, for instance by (temporarily) guaranteeing purchases at fixed prices and therefore creating less exposure to volatility. This can help businesses build up scale and might take pressure off start-ups.

One example of this third approach to blended finance is applied in the case of the partnership of the French supermarket chain Carrefour and the Dutch independent sustainable trade organization IDH (Sustainable Trade Initiative).<sup>2</sup> A co-investment of EUR 2.6 million aims at recovering degraded pastureland in the state of Mato Grosso. In cooperation with the Brazilian sustainability initiative PCI (Produce, Conserve, Include), up to 182,404 hectares of degraded land will be recovered by 2023. The investment further entails technical support and assistance for the local cattle ranchers. Thus, on the one hand, the farmers benefit from increased efficiency and sustainability in their operations, and on the other hand, the higher productivity results in less pressure to expand pasture lands. Another layer of the project is to facilitate the local producers' search for private and public financing and the establishment of stable trading partnerships in Brazilian and European markets. This layer is mainly covered through joint investment with Carrefour which secures market access for the supported cattle ranching businesses and thus promises economic success along with the environmental and social

One important point was brought up by an international investor, referring to the use of blended finance as a de-risking tool: The use of philanthropic capital as insurance for private investors can be inefficient or expensive being that capital tied up in something other than the development investment itself. In fact, this can even be

1. A How-To Guide for Blended Finance; [http://www3.weforum.org/docs/WEF\\_Blended\\_Finance\\_How\\_To\\_Guide.pdf](http://www3.weforum.org/docs/WEF_Blended_Finance_How_To_Guide.pdf)

2. <https://www.idhsustainabletrade.com/news/pacto-pci-regional-e-lancado-no-vale-do-juruena-mt/>

counter-productive as investors will wonder why such a guarantee is needed. Rather than providing a comfort cushion, the guarantee could in fact lead to uncertainty and doubts about the investment, its inherent risks, and the possibility of success through business growth and a normal end to the investment cycle.

In two of the reported cases in this market assesment, which engaged Impact Investing Funds—Moringa Fund and EcoEnterprises Fund—neither of them applied philanthropic capital for first loss.

Neither funds began with a specific amount of philanthropic capital that was earmarked to be used in a new and accelerated way. Instead, from the beginning, they sought to generate market returns for their investors, who all require financial returns in addition to the social and environmental returns. Therefore, a particularly careful selection process focusing on the viability of the business model, growing experience in impact investment frontier markets, and the creation of track records, along with close collaboration with the business receiving investment, are the main ingredients for delivering returns and decreasing risk.

**“The fact that we have an impact shall not affect our financial return”.**

**(Clément Chenost, co-founder and investment director of Moringa Fund)**

In all cases reported in-depth in this market assesment, there was a need for financial support for skills development, which does not pay off directly. In the case of Floresta Viva and Moringa Fund, they are implementing the H.O.M.E (Heart of the Atlantic Forest) Project. It entails the creation of a network of smallholder farmers, with knowledge and skills in organic production. Floresta Viva is incubating the project developed through partial financing from ATAF (Agroforestry Technical Assistance Facility). ATAF is part of the Moringa Fund, and it provides technical assistance to the companies the fund invests in, but in form of grants.

In the case of Sambazon, since the very beginning, the founding members have focused on developing skilled management teams, providing technical education to producers, and investing heavily in the Amazon’s infrastructure, in order to secure steady and high-quality product inflows.

The use of philanthropic capital for skills development may offer the means for projects and businesses to become investment ready, and therefore becomes a risk-mitigation tool itself.

**“We also have a very engaged management approach, which means we stay close to our portfolio companies throughout the investment and work with them to solve problems and mitigate risks. Our exposure is therefore different than it would be for a first-time investment manager and the additional cost for such a guarantee, which ultimately reduces our investors’ returns, is less reasonable”**

**(Julia Santander, Managing Director Investments, EcoEnterprises Fund).**

## Focus on the Value Chain

### The fundamental link to the consumer market

In addition to looking at philanthropic capital for de-risking or as collateral, the conversations could involve the development of business models that turn investing in climate-smart projects into something that offers both positive socioeconomic impact and financial return.

In the case of Açaí, the current market size is of 300,000 tons of Açaí Berries per year (2016) and the forecast is that it will reach 1 million tons (in 2026). One sign of how this is an interesting market: Frooty (the third-largest player) was acquired by Patria Private Equity Fund in 2016 and Coca-Cola is already in the business, currently holding 4th place in the ranking of largest players in this market.

This is also the case of Moringa Fund and Floresta Viva. In April 2018, the European Parliament voted to prohibit sales of biofuels made from vegetable oils by 2020 in order to meet its climate goals. This includes a palm oil ban. There is also an expected growth in demand for sustainable hearts of palm to stop deforestation. This new trend also includes organic production.

In the case of sustainable practices in cattle ranching, there is IDESAM’s Amazon-Pec in the southern part of the state

of Amazonas, the TNC and Kaeté Investimentos' EcoPec (ecological ranching project) in São Felix do Xingu in the state of Pará, and Althelia's PECSA<sup>3</sup> (Pecuaría Sustentável da Amazonia – Amazon Sustainable Cattle Ranching) in the municipality of Alta Floresta in the state of Mato Grosso. Their connection to the market is that in Amazonas, 70% of beef is imported from other states because local production cannot keep up with demand. In addition, there is a growing worldwide preference for sustainable meat—between 2005 and 2014, the total sales of organic beef, poultry, and fish in the United States increased fourfold, representing a USD 1.14 billion<sup>4</sup> market. In 2015, this market's total sales added up to USD 2.9 billion.<sup>5</sup> The forecast for the global organic beef market is that it will surpass USD 16.4 billion by 2027.<sup>6</sup>

Bringing in the smallholder farmers' perspective, of the two cases we looked at that are being led by smallholder farmers' cooperatives, both have struggled to access consumer markets.

The small-scale factor combined with geographical fragmentation create specific challenges for marketing products from small farms. As a result of their typically low income, we see a lack of technical assistance, as well as barriers to modernization and professionalization of farms. The solution appears in the form of collective actions, where groups of smallholder farmers organize associations and cooperatives. Joining efforts, the small farmers can break the inertia and improve the rural properties and production capacities and, then, add value to their products.

For instance, in the case of APOMS in the Brazilian Savannah (there's more about it in the Cases chapter), they have invested in technical development and professionalization for their associated producers before creating distribution channels and a sales cooperative.

In the case of CAMTA in the Amazon (more about it in the Cases chapter), they have invested in agroindustry in order to deal with a crop crisis and breakdown. Their difficulties motivated the organization of a professional team responsible for marketing channels in Brazil and abroad.

Venture Philanthropy can be a good tool for, in terms of value chain, helping to fill in the gaps related to skills building and strengthening the weak bonds which are only noticed when actually analyzing the chain.

**“Guaranteed purchase is a risk mitigation strategy in providing microcredit to smallholder farmers”.**

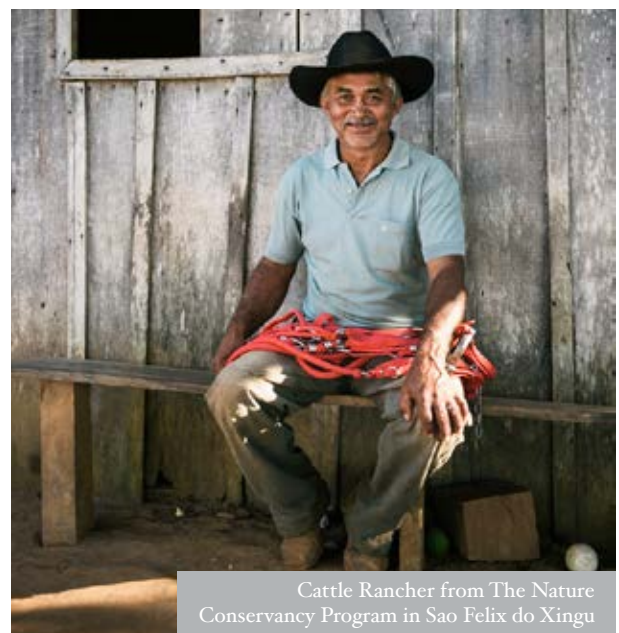
**(Edinalda Lima, director of Instituto Estrela)**

### **Value Chain Champion – anchor companies supporting integration with larger markets**

Involving an anchor company to coordinate the value chain could possibly promote smallholder engagement, training, as well as joint access to the market. This is even more the case when looking at regional producer clusters which could reach a larger scale and could make investing in climate-smart agriculture interesting for pension funds or for issuing climate-bonds. The type of anchor company will vary according to the local challenges related to the level of development of the entrepreneur/smallholder farmer organizations, infrastructure, and human capital.

A case involving the development of an anchor company is the business model being implemented and improved by Kaeté Investimentos over the last 5 years.

Kaeté Investimentos is the manager of the first private equity fund with an impact investing mindset focusing on sustainable SMEs exclusively in the Brazilian Amazon.



Cattle Rancher from The Nature Conservancy Program in Sao Felix do Xingu

3. <https://pecsa.com.br/en/>

4. <https://www.meatinsitute.org/index.php?ht=a/GetDocumentAction/i/126066>

5. [https://www.sustainablefoodnews.com/printstory.php?news\\_id=24661](https://www.sustainablefoodnews.com/printstory.php?news_id=24661)

6. <https://www.prnewswire.com/news-releases/demand-for-organic-beef-meat-to-remain-high-in-developed-regions-during-2017-2027-future-market-insights-638300073.html>



Peixes da Amazonia site in the State of Acre.

The committed capital is of USD 40 million mainly from the BNDES (Brazil's Development Bank), BANPARA (State Bank of Pará), ANAC (Acre State Development Agency) and individual investors. The fund intends to tackle “social deforestation” in the region. Social deforestation is unintentionally produced by family farming through the course of their, in many cases, subsistence agricultural practices.

Taking the example of their USD 8 million capital invested (out of a total of USD 30 million invested in the company) in the “Peixes da Amazonia”—aquaculture for local fish species—the core elements of Kaeté's business model are: i) the engagement of smallholder farmers in the region through technical assistance and guaranteed purchase of their production; ii) the creation of an anchor company that will manage both the supplier as well as consumer market relationships; iii) provide smallholders with the techniques for fish farming. The company also provides guaranteed purchase.

“Peixes da Amazonia” has its own R&D center for native species and genetic improvements and has the capacity to produce up to 10 million fingerlings per year. The Kaeté Investimentos Fund aims for a cycle of 12 years, 75% of the investing is done via equity and the expected IRR is 10% to 20% on top of Brazil's interest rate.

### Engagement of rural farmers as partners for growth in cattle farming with traceability and zero deforestation

EcoPec is a commercial enterprise established to accelerate growth in the supply of high-quality beef from the Amazon and the Cerrado biomes that does

not contribute to deforestation. The rationale behind it is to establish a co-investing model between the company and the cattle ranchers through Rural Partnerships (RP).

In addition to the profit and risk-sharing with ranchers, EcoPec is also a one-stop shop providing technical assistance, access to capital, better terms for purchasing inputs and for cattle sales. The company is being jointly developed by TNC Brazil in partnership with Kaeté Investimentos, and was incubated and endorsed by the Brazil Innovation Lab for Climate Finance.

In order to test ranchers' ability to commit to best agricultural practices and to improve baseline productivity, EcoPec will sell technical assistance services. Best-in-class ranchers will be eligible to receive a co-investment to increase productivity from 1 head/hectare (Brazilian average) to 4.5 heads/hectare. A third business line will offer accessory services like bulk input purchases, organized cattle sales to slaughterhouses, accounting, among others. Criteria for co-investment include commitment to strict environmental standards including zero deforestation, restoration of riparian forests, legal reserves, and 100% herd traceability.

EcoPec will initiate its activities in São Felix do Xingu, Pará with plans to expand to other areas before creating a franchise system to scale up. To finance growth, the company will need grants to help with working capital needs at the beginning and to fund the initial portfolio of RPs. The second stage will be financed by concessional capital followed by equity. Once enough of a track record is made, EcoPec's capital structure can be optimized through loans.



Weaving Value Project by Solidaridad and C&A Institute

## Gender Perspectives

In 2016, C&A Institute together with the Dutch NGO Solidaridad, started a program to rescue the culture of cotton growing by smallholder farmers in the semi-arid regions of Brazil. The program takes place in the Vale do Iuiú, between the cities of Catutí, Minas Gerais and Guanambi, Bahia, with 106 smallholder families producing cotton. A key preliminary step was taken before starting the program—Solidaridad held a participatory needs assessment with the target groups. The program sought to engage the women in cotton growing and for this reason, the assessment was done with a mixed group involving both men and women, as well as single-gender groups.

The unexpected result was that the women did not want to participate in managing the project nor in activities related to cotton production, which is considered to be men's work in that region. In further in-depth interviews, the women declared that their roles managing their families already took up most of their time and that including extra activities would put extra pressure on them. Based on this, Solidaridad together with the targeted women, changed the program around the following pillars: i) food security; ii) water management; iii) income generation; iv) not putting pressure on the family structure and the women's perceived role and responsibility in it.

This resulted in a program in which women grow food crops in their home gardens in an agroecological manner, using gray water to irrigate this produce, being that water is very scarce in this semi-arid region. Currently, the 106 smallholders grow cotton in one-hectare backyards with supplementary irrigation and have seen an increase of 200% in their production level.

## Finance-Smart Tools for Climate-Smart Agriculture

### Agribusiness Receivables Certificate with a green element – CRA Verde

CRAs or Agribusiness Receivables Certificates are backed by receivables that come from business between rural producers (or their cooperatives) and third parties, including financing or loans relating to production, sales, or processing or the making of products, agricultural inputs or machines, and implements used in agricultural production. The CRAs are sold on financial markets and available for investors with any budget. These investors can buy the right to receive the agricultural financing payments. That way, the investors have the right to receive a return from the issuer of the security along with the principal invested either periodically or on the maturity date.

WWF in partnership with the Gordon and Betty Moore Foundation through the project CFA (Collaboration for Forests and Agriculture), has been lab-testing tools that seek to pair food production with environmental conservation. WWF Brazil team is developing a financing tool that seeks to curb the legal deforestation by large producers of soybeans and corn, and cattle ranchers, mainly in the Brazilian Savannah and the Amazon—CRA Verde (Green CRA) which follows the same mechanism of the CRA (Agribusiness Receivables) but adds to it the 'green' element which is the compliance with the Forestry Code and the intentionality of zero deforestation in the Amazon and zero conversion of areas in the Brazilian Savannah.

There are key success elements in CRA-Verde: i) it engages the financing agents in the value chain; ii) it builds on the experience and reputation of an already existing refinancing vehicle; iii) it engages producers with large plantations by offering a "benefit" and entails environmental services valuation, more specifically, the conservation of standing forests.

Aligned with this, the CRA-Verde will apply a MVR (Monitoring, Verifying and Reporting) system to assess and guarantee producers' commitment to zero deforestation, as well as to assure investors that are investing in zero deforestation agriculture. From the environmental impact perspective, they expect to promote the conservation of standing forest in the Amazon and the Brazilian Savannah by preventing legal deforestation.<sup>7</sup>

WWF is currently building this financing product with the various sets of partners and plans to launch it by the end of 2018.

7. Please refer to Chapter 2 for more information about legal deforestation in Brazil

## Collateral Funding to Unlock Climate-Smart resources by institutional investors

In Brazil, the most common collateral for agricultural credit is the land/property itself. The main issue is that, depending on the region, land titles are still rare,<sup>8</sup> nevertheless, they continue to be the most preferred guarantee by institutional finance organizations, including the Brazilian Development Bank.

BNDES' ABC (Low Carbon Agriculture) credit line<sup>9</sup> generally manages to allocate 63% of the available financial capital to the market in the form of loans. In the State of Pará, less than approximately 5% of farms have land titles. It is as a result of this lack of the guarantees required to unlock available competitive credit lines for low-carbon agriculture that TNC (The Nature Conservancy) in Brazil started developing a collateral fund which involves a combination of philanthropic capital that leverages private capital. Only cattle ranchers that comply with the new forest code and apply more sustainable cattle ranching technologies, including silvopastoral systems, will qualify for funding. The fund also includes the use of technological apps for traceability in sustainable cattle raising. It is expected that for each USD 1 of invested capital, another USD 6 will be leveraged from private capital.

The collateral fund pilot is set to be launched in Pará (in the Amazon) in the city of São Felix do Xingu, where the average cattle ranching farm has 1,200 hectares. In order to access the fund, cattle ranchers will have to commit to zero deforestation. The plan is to reach 690 producers in ten years, which would generate an impact of 835,200 hectares preserved in that region.

## Equity Crowdfunding Climate-Smart Agriculture in Brazil

Since the recent implementation of Equity Crowdfunding Regulations in Brazil in 2017, this has become an emerging sector and offers an uncomplicated and democratic funding vehicle through which SMEs can fundraise, angel investors can scout companies, and different types of investors can collaborate for joint investing. On the Brazilian market, Kria is the leading equity crowdfunding platform. Kria (originally Broota) was founded in 2013 and since then USD 5.2 million has been invested online in 45 businesses. It also plays a relevant role in supporting regulation of the industry at the national level. The minimum deal size for crowd-fundraising on the platform is USD 45,000.

While on one hand there is the potential for an increase in the use of equity crowdfunding to scale up the number of deals with SMEs in Climate-Smart Agriculture in Brazil. On the other hand, there is a need to develop several incubators and accelerators in this field of climate-smart agriculture. On the general Agritech entrepreneurship landscape in Brazil, there are already specific incubators such as Pulse Hub,<sup>10</sup> which is backed by one of the largest ethanol and sugar cane companies, Raizen,<sup>11</sup> and counts on partnerships with companies like VC Fund SP Ventures and the Nxtplabs,<sup>12</sup> which provides an acceleration program and invests seed capital in Agritech start-ups in Latin America.

Some of the businesses that were accelerated and invested in by Pulse Hub are in the business of climate-smart agriculture and are more technology-oriented. There is tough a lack of training and incubation for businesses that focus on the 'brick and mortar' side of climate-smart agriculture, such as better soil use, agroforestry systems, agroecology, among others.

## The Transformation Leaders Network

The "transformation leaders' network" is a circle formed by likeminded individual investors, DFIs, and organizations that have declared their willingness to prove that climate-smart agriculture—from "brick-and-mortar" systems to high Agritech—can go mainstream. The network engages transformation leaders from different geographic regions in order to promote a more diverse set of experiences and investing expectations. Their main goals include:

- Peer-to-Peer benchmarks and sounding-boards, including shared external support of pre-selected experts in climate-smart agriculture
- Map common investment topics and co-invest in a blended portfolio for joint action
- Prove and showcase that mainstreaming climate-smart agriculture is feasible
- Risk-sharing when accessing new trends (services and products) in climate-smart agriculture
- Engage key players in the value chain like the food industry and retailers

The Transformation Leaders Network is being coordinated by Alimi Impact Ventures in direct collaboration with NextGen in the Brazilian Agribusiness as well foreign private investors.

8. For more information about land titles in Brazil, see the Towards a Low Carbon Economy chapter  
9. For more information about the ABC Credit Line, check the Facts & Figures chapter

10. <https://www.pulsehub.com.br>

11. <https://www.raizen.com.br/>

12. <https://www.nxtplabs.com>

## CHAPTER 7 / Case Studies

For this market assessment, we applied qualitative methodology focusing on in-depth interviews and case studies. We did so to provide less of an overview of what is going on in this market from the financial side of it—committed and needed capital—and more on sharing recent experiences, many of which were until now, below the radar. Our purpose is to make the projects already in place in this sector more tangible, as well as to help promote a positive image of Brazil as a

climate-smart agriculture country. In addition, our goal is to shed light on the fact that there are qualified people doing high-quality work on the frontline—developing an ever so necessary track record for impact investing in climate-smart agriculture in Brazil.

This chapter covers the six cases we have analyzed, with systemic analysis based on the value chain the businesses operate in.







A group of Greater Rhea in an open field in the Cerrado.

## AMAZON-PEC: A Revolving fund for loans in the form of services and products for the implementation of a sustainable cattle-ranching program aligned with forest restoration

The city of Apuí, with its 21,000 inhabitants, is located in the southern part of Amazonas State in a region that is part of the new ‘cattle-ranching and deforestation frontier’, with a predicted deforestation rate of 1.4% per year over the next ten years.

The deforestation process typically starts with the migration of illegal timber dealers and land-grabbers searching for currently uncontrolled forested areas. Subsequently these forests are cut down, without securing of land titles, and pasturelands are established. Attracted by the official declaration of the land as deforested and the potential for economic ascent through acquisition of state land, cattle ranchers soon follow in search of cheaper land.

Extensive cattle ranching is popular as it costs little to implement and maintain free-roaming cattle, and there is a growing market demand for beef.

In 2017, Apuí was included on the Environmental Ministry’s red list of cities with the largest amount of accumulated deforestation in the last three years in a row. One of the consequences of this is financial as farmers are blocked from access to credit from commercial finance institutions.

Holding back illegal deforestation must indeed come from strong and active rules of law and penalties. However, the key to transforming the current scenario is to create a new economy based on climate-smart agriculture and cattle ranching in the Amazon.

This predicament is what has motivated IDESAM’s team based in Manaus to create Amazon-PEC.

Amazon-PEC aims to break the process of migrating large numbers of cattle, which is both inefficient in terms of production and causes deforestation. Instead, it promotes land fertility recovery and the intensification of permanent cattle-ranching systems, while generating economic, social, and environmental benefits.

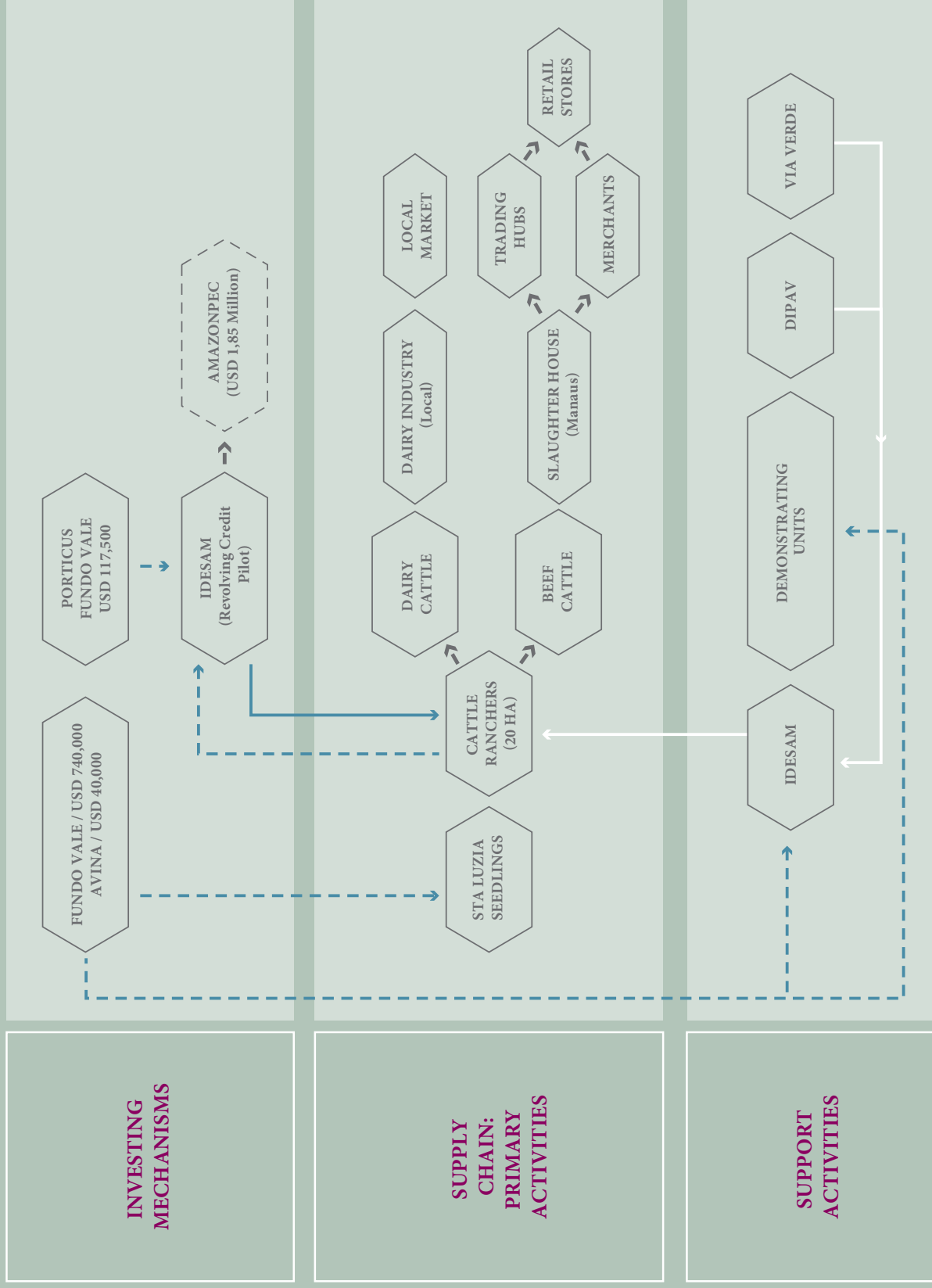
Amazon-PEC started in 2012 with the Sustainable Cattle-ranching Program. This included the implementation of 23 demonstrating units to serve the purpose of proving the project’s concept feasibility, of show-casing it, and of providing capacity building sites. This first phase was developed in a time-frame of five years and was financed with seed-money from Fundo Vale and AVINA totaling approx. USD 782,500.

As a natural next step, in 2015, IDESAM started a pilot revolving fund to provide financial support in the form of products and services to five pioneer farmers. The initial financial capital was provided as seed-money by Porticus Foundation and Fundo Vale totaling USD 117,500.

Having set the ground with the demonstrating units, the seedlings, the preparation of a strong technical assistance team, and having tested the revolving fund, IDESAM is now in the process of scaling up this program with the creation of the credit and technical assistance organization. The pilot project’s success will be expanded initially to 100 additional small-scale cattle ranches over the first three years, and then – using the loan repayments – will progressively increase to a total of 300 farms over the next ten years.

The goal of Amazon-PEC is to achieve attractive financial returns from enhancing the productivity of cattle (beef and dairy) husbandry on degraded lands on small-scale farms in Southern Amazonas, Brazil.

# Amazon-PEC's Value Chain and Financial Capital Flow



253 RANCHES CONVERTED INTO SILVOPASTORAL SYSTEMS - 50,000 HECTARES OF CONSERVED NATIVE RAINFOREST - 4,383 HECTARES AVOIDED DEFORESTATION

## Near Future Plans

In order to be able to scale-up this initiative, IDESAM is fund-raising USD 1.85 million in equity to be allocated over the course of three years. Although IDESAM is primarily looking for equity financing, debt may be considered as partial financing. This funding will be used in the following way: USD 1.77 million will be offered as loans in the form of services and products, while USD 80,000 will be spent for initial management, and overhead and administration costs.

IDESAM estimates Amazon-PEC's Net Present Value to equal USD 2.24 million with an IRR of 18% over the next ten years.

## IDESAM (Instituto de Conservação e Desenvolvimento Sustentável da Amazônia)

IDESAM is a not-for-profit organization based in Brazil with programs in sustainable forestry and agricultural production, protected areas, climate change and REDD+. It was established in 2004, and has pioneered innovative concepts and business approaches for sustainable development and forest conservation since its conception. It is currently one of the ten largest Brazilian environmental NGOs and is emerging as an internationally recognized institution in works related to climate and forests.



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## CHAPTER 7 / Amazon Biome / Case Study 2

# CAMTA: Amazon Agroforestry System and Market-Driven Adaptation



Aiming to develop the agriculture in the state, Pará Government encouraged the immigration from Japan to Brazil which resulted in 43 families (189 people) arriving in the Acará River area in 1929.

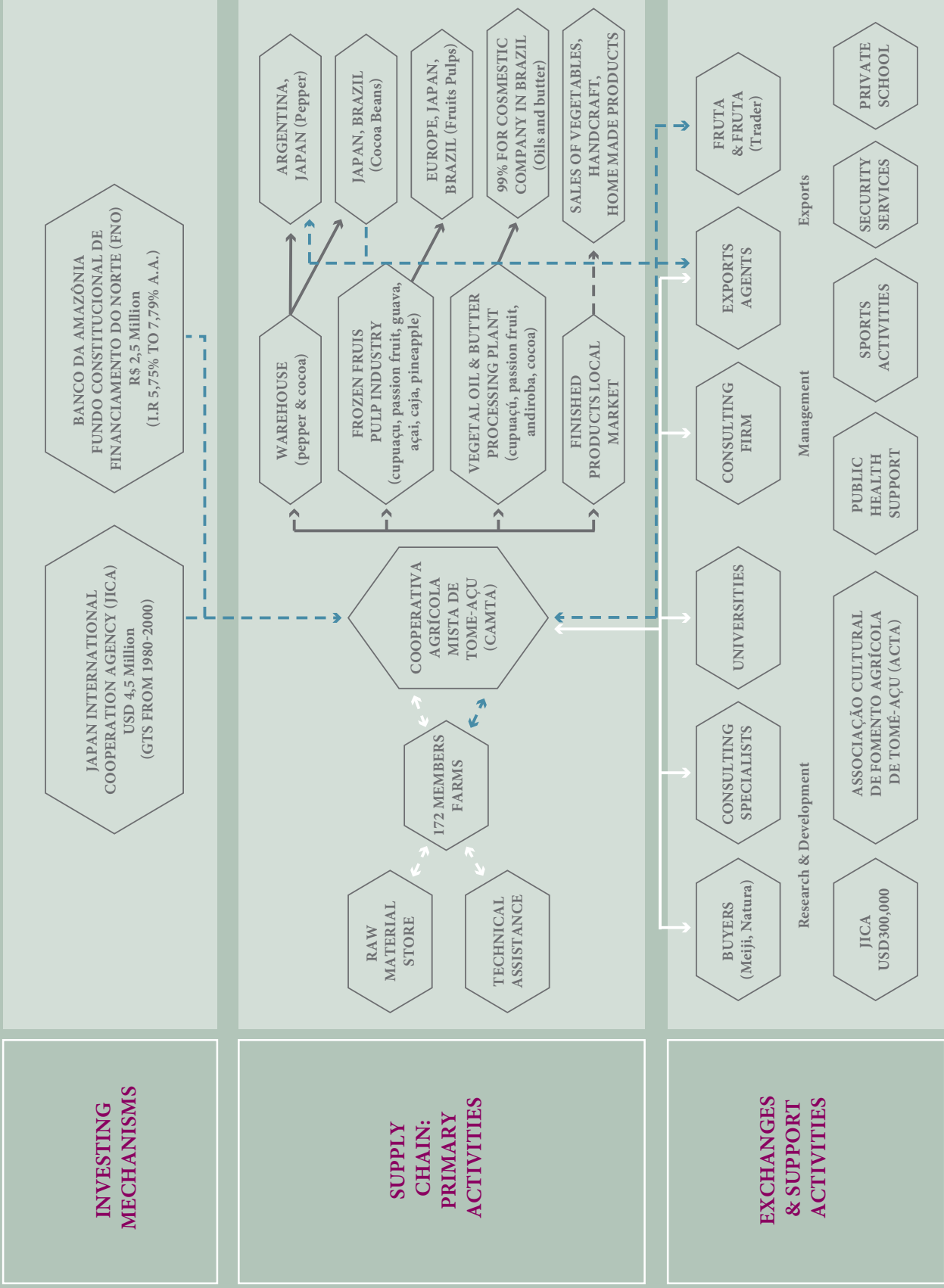
These families founded CAMTA – Mixed Agricultural Cooperative of Tomé-Açu – in 1939 to support producers living challenges related to the biome and the location: hot and humid climate, logistical and commercial barriers, lack of technical assistance in tropical agriculture, and sickness.

After these three major economic crises mainly cause by plagues attack and production losses, producers started to question their mono-production methods and the associated high risk of shortfalls. To support the group, a cooperative started to encourage the diversity of crops through the consorting of fruit trees (cocoa, passion fruit, açai, banana, etc.) inside the areas of declining production of pepper.

There was a high acceptance of this consorted system as it provided revenue to producers in the short, medium, and long-term. This integrated system was adapted to the Amazon biome and named SAFTA, which is an acronym in Brazilian-Portuguese standing for “Agroforestry System of Tomé-Açu” (“Sistema Agrofloresta Tomé-Açu”).

CAMTA was a kind of fortress for producers during the times of crises, as the group provided a strong network for knowledge exchange further than assistance to commercial activities. In the first years, the Japan International Cooperation Agency (JICA) supported the group through technical assistance and grants of approximately USD 45 million throughout a period of 20 years to be invested in roads, electricity infrastructure and the cooperative organization. At the production sites, through SAFTA’s high labour use, an increased rural employment per hectare is generated – in comparison to average employment for pasture land use.

# CAMTA Value Chain and Financial Capital Flow



The oil and butter processing plant apply the circular economy when handling the passion fruit and cupuaçu seeds that initially were residues of the agroindustry which are sold to the Brazilian cosmetic industry.

JICA also supported the development of the agroindustry to support the products commercialization. Nowadays, this industry is a profitable business which contributes to almost 57% of cooperatives revenue and often receives reinvestments to operations expansion. In 2017, CAMTAs' total revenue was USD 15.3 million. Overall, the group is indirectly responsible for 10,000 jobs or approximately 30% of employment in the area. Only in 2017, the cooperative generated 210 direct jobs – an increase of 26 positions if compared to 2016.

The performance of the cooperative is the result of the social capital, group-shared values and bounded solidarity that is sometimes closed to outsiders. The integration of external producers started through the development of CAMTA's socioenvironmental project to implement the SAFTA in other local farms. The success of the project turned SAFTA into a social technology. The impacts of the group work brought resilience to producers and spread the benefits to the community.

## Near Future Plans

The cooperative has a wide range of opportunities concerning the existing structures and new environmental services opportunities. The fruit pulps are mainly sold in the regional

market, accounting for sales of USD 5.2 million in the last year, while total sales of fruit pulps in the entire Brazilian market amounted to USD 8.2 million (2017).

There is an untapped potential of expansion to other countries, as so far, products are exported exclusively to Japan and these sales are responsible for USD 560 thousand. In 2017, CAMTA accessed a financing of USD 780 thousand from the Northern Constitutional Financing Fund (FNO) in order to reinvest in this industrial plant.

The majority of the oils and butters are sold to a Brazilian cosmetic company, which incremented the demand by 49% resulting in an increase of sales of USD 125 thousand from 2016 to 2017. There are perspectives in the growth of andiroba oil production. There is an unexplored potential due to the existence of forestry structures as carbon collectors. Although the mechanisms to measure the carbon fixation in agroforestry are onerous and not yet commonly valued by the market. Results show that they are a viable and relevant component to increase carbon stocks and hence contribute to the CO<sub>2</sub> sequestration. The approach further adds value when considering the environmental sustainability in the "social carbon" context.

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## ECOENTERPRISES FUND

### AND SAMBAZON: A sustainable açai journey from the brazilian amazon to the world and market-driven adaptation



The Amazon is known to be one of the world's most important ecosystems, stabilizing both weather and climate conditions and being home to a tenth of the planet's known species. It is however also a place where more than 30 million people live. Most of those inhabiting the forest area, which spreads over nine countries, rely on agriculture and forestry to earn their income and produce their food. However, the economic development of the region is highly dependent on a working infrastructure, in terms of logistics, energy, and communication.

Outside the urban areas, where remote farms are oftentimes several days by boat away from a larger market or a wholesaler, it can be difficult to make a living, especially with perishable agricultural goods such as raw Açai fruits. The fruit has to be either consumed or processed within 36 hours of its harvest, especially in the rainforest's climate.

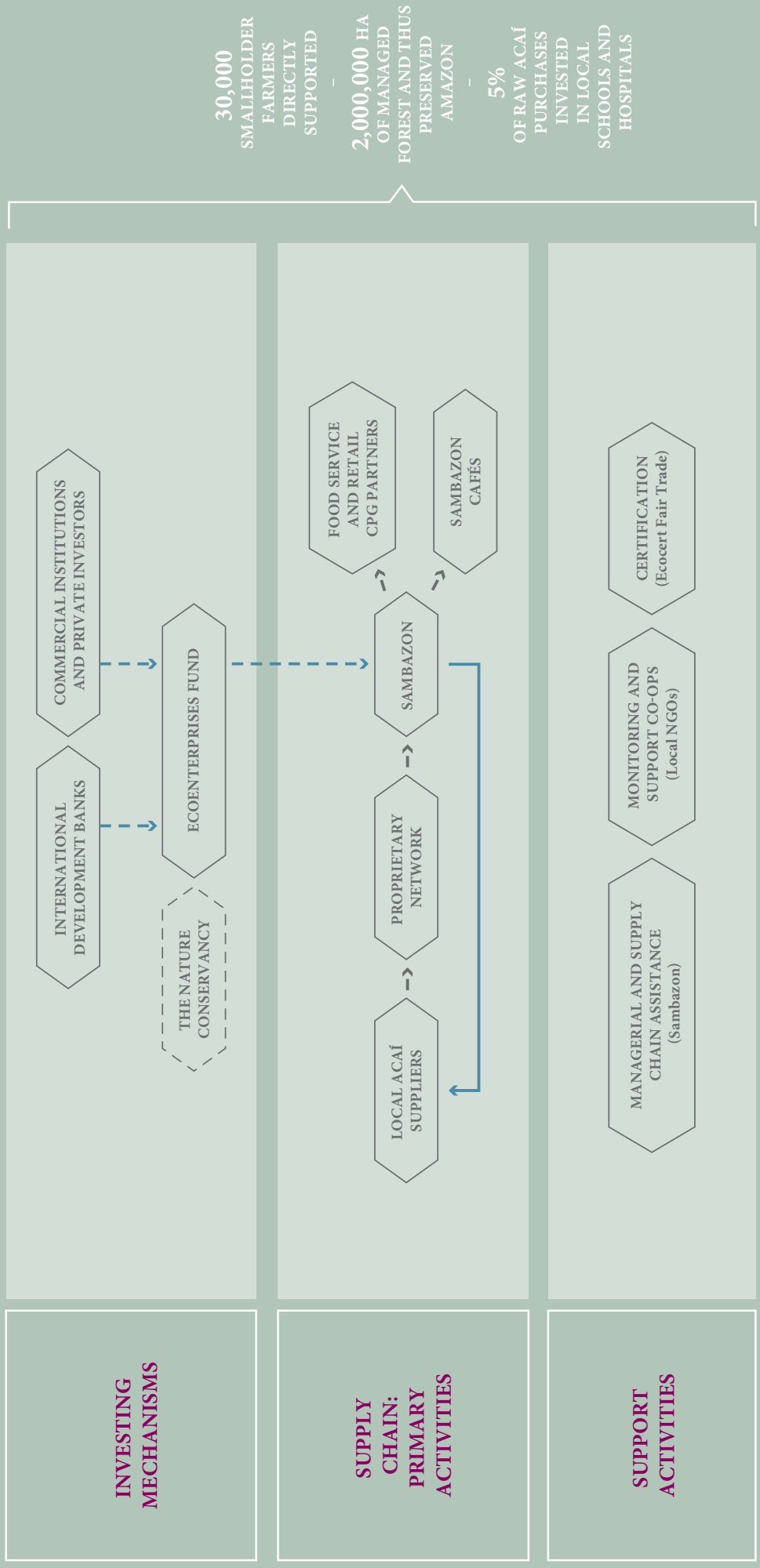
What sets Sambazon apart from other businesses? Sambazon was the first business in the Açai market that sourced exclusively fair trade, certified organic, non-GMO products in the Brazilian Amazon.

Today, Sambazon's large market share can be at least partly attributed to having a clear first-mover advantage. However, its differentiation strategy relies on direct and efficient product sourcing. Having set up a reliable and controllable supply chain, the company does not buy the Açai in the open market but through a proprietary network directly from their certified farmers.

Sambazon's local supply chain team additionally takes care of ensuring a continuous flow of high-quality products, so that the rates of perished fruits and periods of insufficient supplies are kept as low as possible.



# EcoEnterprises Fund and Sambazon Value Chain and Financial Capital Flow



\$ - - - - ->

Training & Certification >

Source: Alimi Impact Ventures, 2018



The local, on-the-ground team further includes three agronomists who work full-time on three main tasks. They are responsible for certifying new farmers according to the requirements, for providing technical training on sustainable farming practices and documentation for new and established farmers, and, lastly, for auditing and monitoring local suppliers in order to ensure that the company's standards are constantly met.

The investment that was made in debt and equity installments and the support of the EcoEnterprises Fund were fundamental to put in practice such a distinct business model. Sambazon's approach fitted all the criteria of the fund from the beginning: the company operates in the Brazilian Amazonas, a vulnerable though highly valuable ecosystem, and it is located in a country with a developing economy that could sufficiently support a start-up which generates socio-environmental, and financial returns.

By tackling some of the greatest risk factors in the Amazon from the beginning, Sambazon was able to transform threats into opportunities. Large investments of time, efforts, and capital into the development of a working supply chain, of a Brazilian management team, and of long-term relationships with local farmers are the key success factors for the company.

## Near Future Plans

Sambazon and the EcoEnterprises Fund are already working on the next steps, both for the long-term as well as the short-term future.

Sambazon is currently raising funds in order to finance its 2nd processing plant in Brazil to in response to the increasing sales, both in US and International markets. The construction broke ground in May and is expected to be completed by the end of 2018.

The EcoEnterprises Fund, in turn, is on the verge of launching Fund 3. The fund will again be a closed-end, ten-year fund, which is aimed at market rate returns as well as having social and environmental impacts. While setting up this third fund, interestingly, the EcoEnterprises Fund has noticed a shift from the main investors being those such as development banks and generally mission-driven investors to a more commercial set of investors, such as conventional banks and insurance asset managers. Such a growing interest is partly attributable to the growing pressure of the institutions' clients. However, it might

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## CHAPTER 7 / Cerrado Biome / Case Study 4

# APOMS: An agroecology network of smallholder farmers in the Brazilian savannah (Cerrado)

Founded in the year 2000, in the city of Glória de Dourados, APOMS (Associação de Produtores Orgânicos do Mato Grosso do Sul) is an association of smallholder farmers that share a common belief of producing better and healthier food through sustainable agriculture.

The Association's mission is to seek mutual collaboration in converting the food crops produced by smallholder farmers in the area from traditional to organic. After a few years of operating, APOMS became well known for its leading position and expertise in sustainable agriculture amongst smallholder farmers. This recognition promoted the creation of the APOMS Agroecology Network, which was based on the Association's social capital.

Essentially, the Network formed a cluster composed of smallholder and family farmers, including agrarian reform settlers, indigenous populations, quilombolas<sup>1</sup>, and rural youth to produce and sell agricultural products under the principles of agroecology, organic crops, and fair trade. The Network is an organizational arrangement based on social relationships between nearly 160 families spread across 12 municipalities in Greater Dourados and surrounding municipalities.

APOMS deploys a set of agents and firms to help smallholder farmers to solve three main problems that particularly affect them: (1) a lack of technical assistance; (2) barriers to access credit lines; and (3) the creation of distribution channels.

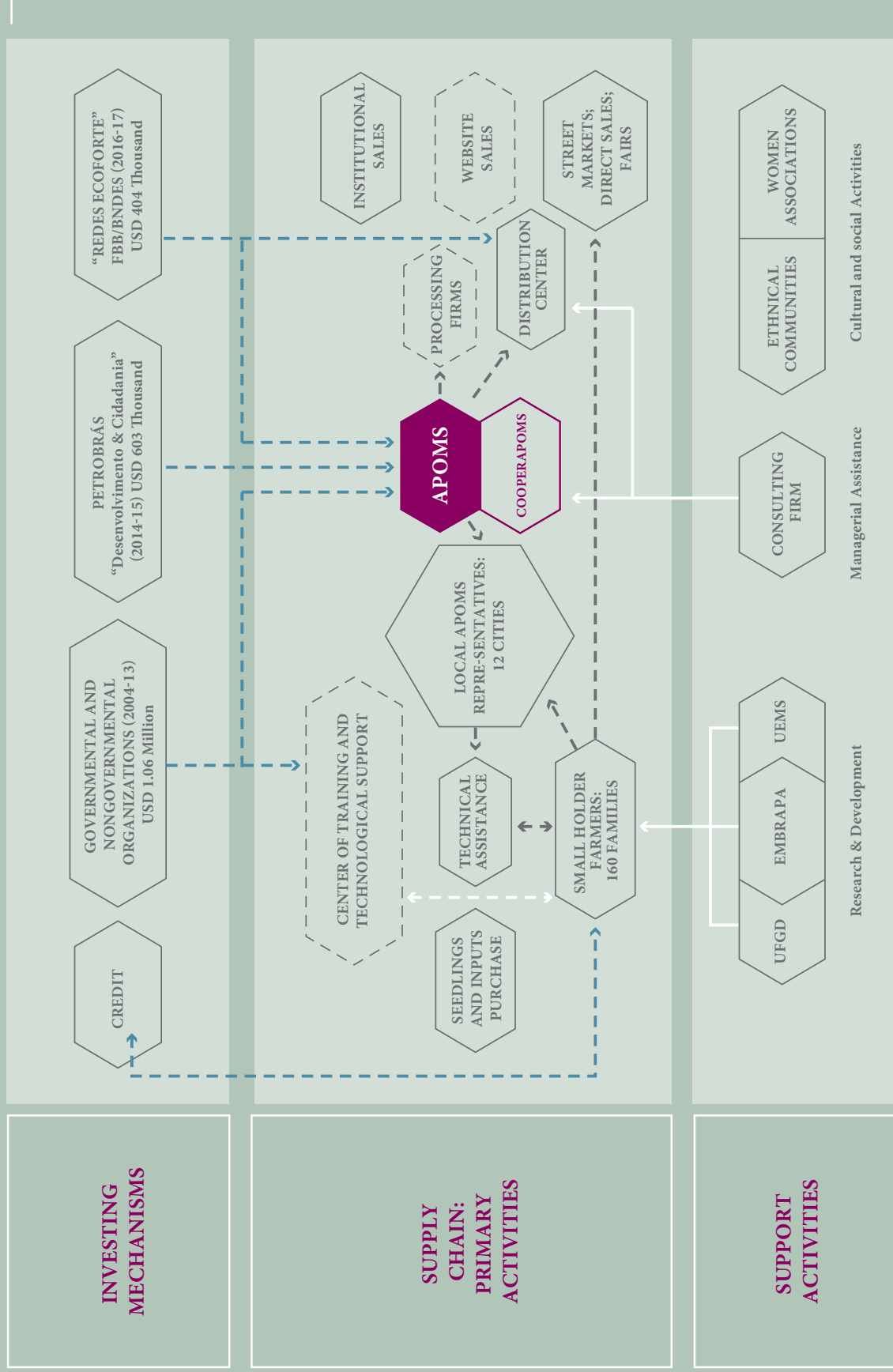
In these lines, one of their activities include the development and implementation of an organic production system for small farms in Greater Dourados. The support activities also include the training of technical staff and expert producers in the cluster.

The dissemination of a sustainable and specialized organic production system for small farms induces investments in the farms' economic activities. The introduction of a reliable production system and more effective technical assistance decreases the risks associated with agricultural activities. The demand for loans attracts rural credit finance organizations to the Greater Dourados region.

In order to organize a centralized sales and distribution system, APOMS supported the development of a cooperative to be responsible for these commercial activities – the COOPERAPOMS.



# APOMS Network Value Chain and Financial Capital Flow



## APOMS' Network Operational Model

Regarding the value-chain governance structure, APOMS plays a central role. The value chain begins with the seedlings, serving as inputs for the later stages of the production process. In order to make their operational model work, APOMS counts on representatives in different strategic locations. These representatives provide technical assistance in the form of peer-to-peer visits, and these are core elements of the APOMS management model.

At the other end of the value chain, the APOMS Network supports the selling process. Before the formation of the Network, smallholder farmers used to sell their products at weekly street markets and through direct door-to-door sales.

The COOPERAPOMS, a cooperative created inside the APOMS Network is responsible for the development of the distribution channels. Based on a government policy promoting local purchases in governmental organizations, COOPERAPOMS negotiated contracts already securing approximately USD 490 thousand of sales for the year 20182.

The logistics involved in the operation of the distribution center poses complex challenges. Each week, the cooperative checks the quantity and quality of the weekly delivery to schools and military bases. One of the main

challenges is to coordinate the transport of the products, which entails vehicles taking four routes and a total distance of 1.9 thousand kilometers.

After all the products have been collected in the distribution center, which is a facility of 450 m<sup>2</sup>, they are weighed and separated according to their destinations. Finally, the trucks deliver the fresh food to the schools and military bases.

## Near Future Plans

Clustering smallholder farmers with support organizations is the underlying principle for APOMS' successful business solutions. Nevertheless, the Network is still struggling to coordinate the farmers on standardized product quality and to extend the distribution channels. In these efforts, COOPERAPOMS is working on initial ideas for turning part of the distribution center into a direct-to-consumer sales store, and the development of an organic products e-commerce platform.

Other challenges relate to capacity building, the consolidation of a permanent technical staff, and the engagement of the next generation of family farming. APOMS has started to tackle these challenges by building a Center for Agroecological Training in the city of Glória de Dourados and the next step involves finding a sustainable business model for its operation.



## FLORESTA VIVA AND MORINGA FUND: Impact investing in integrated crops and forestry systems in the atlantic forest



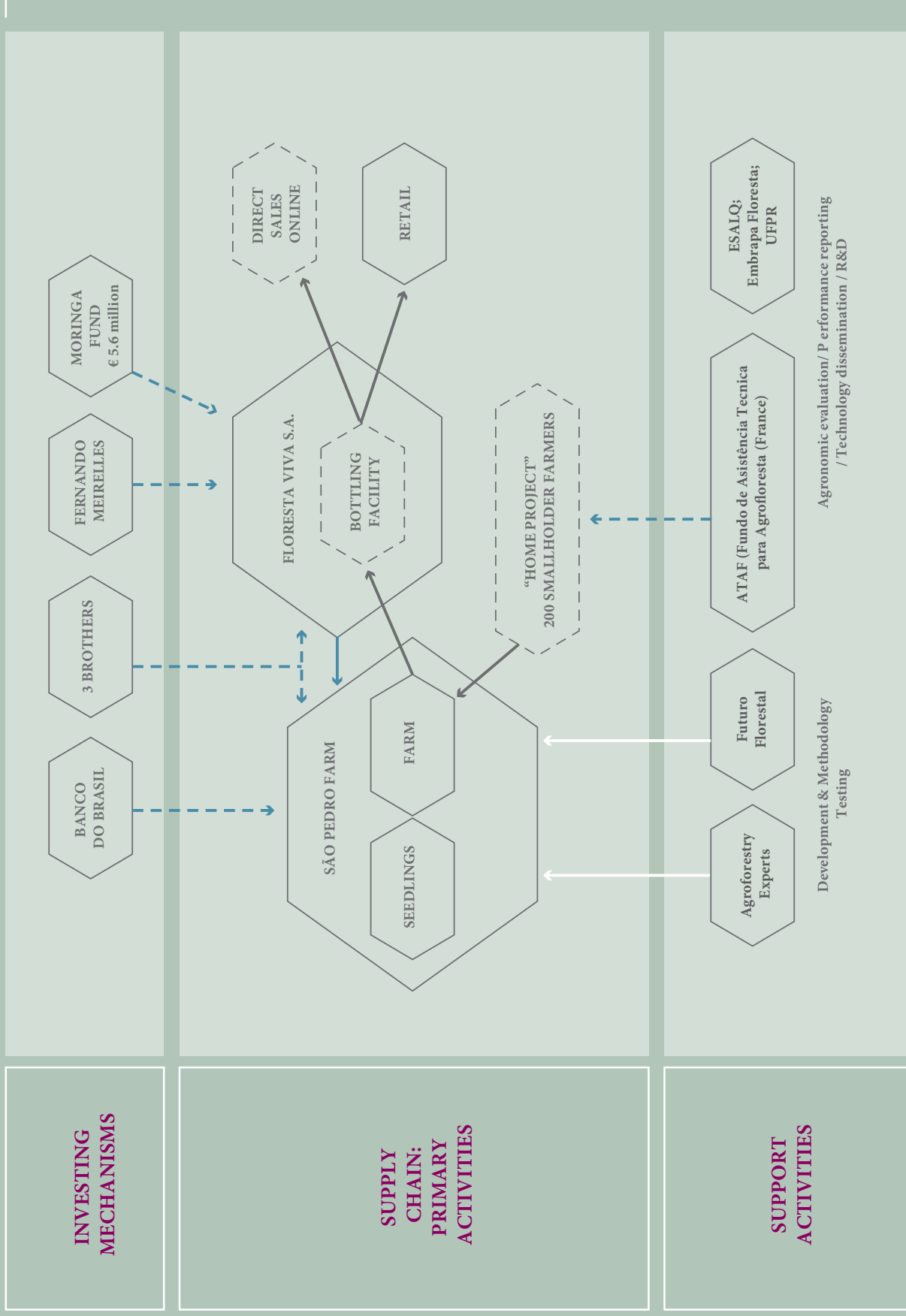
Located on the southern seacoast of São Paulo state, the Ribeira Valley has the largest continuous area of Atlantic Forest in Brazil. The biodiversity and cultural richness of the region means that its economic activities are marked by idiosyncrasies. Tourism is an important source of income for local inhabitants, however, only for those living in a small number of cities. While there is a synergy between tourism and forest preservation, the legal framework imposes specific challenges for agricultural activities. Environmental-friendly agricultural practices are potentially key drivers for social and economic development in the area.

Floresta Viva is a Brazilian company producing food and timber products following syntrophic and ecosystem-revitalizing agriculture principles. The company was founded through the investment of Brazilian private

investors – mainly the Pini Brothers and Fernando Meirelles – and the French impact investing fund, Moringa. Floresta Viva's vision is to become a leading brand of organic and agroforestry Pupunha heart of palm, and also nurture a network of smallholder farmers in its surrounding areas.

Floresta Viva delivers timber and organic pupunha heart of palm on an industrial scale through a sustainable organic agroforestry system. Based on syntrophic and ecosystem-revitalizing agriculture principles, the system mimics nature by creating a cycle where the farm's own residuals fertilize the soil and form natural barriers against diseases and pests. The expected end result of this groundbreaking production technique is a self-sustaining system, where fertilizers and pest controls are naturally produced from the organic matter generated by the farm's activities.

# Floresta Viva's Value Chain and Financial Capital Flow



One of the challenges relates to the implementation of a specific kind of agroforestry system (originally conceived for small areas) in 220 hectares, in order to produce around 1.5 million stalks of Pupunha heart of palms per year using over 800 thousand palm trees. In other words, the farm has to deliver agrochemicals-free stalks to the bottling facility in an industrial scale, through an organic agroforestry system. This task demands an intensive investment in agronomic knowledge, in machinery adaptations, and in the farming model.

As the success of Floresta Viva's strategy relies on the quality of its agricultural products, the supply chain is based on close vertical coordination. In effect, the high investments in the production inside the farm need to be followed carefully by investments at the industrial stage, in order to maintain organic certification. Currently, food processing activities take place in a leased facility, whilst Floresta Viva is building its own production site. Such bottling facility is scheduled to start producing in 2019. This means that the entire value chain will be led by the same management.

## Near Future Plans

Floresta Viva is making efforts to create a network of smallholder farmers, with knowledge of, and the capacity for, organic and agroforestry production. In line with these efforts, the H.O.M.E. (Heart of the Mata Atlântica Ecosystem) project was created. The H.O.M.E project aims to approach the main idiosyncrasies of Ribeira Valley by reconciling labor-intensive agriculture and forest preservation. In this respect, the project is a social impact program through the financing and implementation of agroforest system in small farms.

As a result, the project creates new opportunities to local family farmers. At the same time, it offers valuable benefits to Floresta Viva. The initial stage of the project is the design and testing of an agroforestry system in a small plot of 500 m<sup>2</sup>, very similar to the system adopted at São Pedro Farm. This pilot is currently in its final phase. Subsequently, the aim is to implement the agroforestry system for 50 families of smallholder farmers in the surroundings of São Pedro Farm.

(box) Moringa Fund. Founded in 2010 through a partnership between Edmond de Rothschild Private Equity, a subsidiary of the Edmond de Rothschild Group and general partner of the Moringa Fund, and ONF

International, a subsidiary of the French Office National des Forêts, Moringa is a private equity fund for sustainable agroforestry. The investment target is dedicated to businesses in Latin America and Sub-Saharan Africa. In its first fund, Moringa manages € 84 million in committed capital targeting profitable large-scale agroforestry projects with high environmental and social impacts.

Floresta Viva. The company is a private corporation with three main founding partners. The committed capital from all the shareholders in Floresta Viva totals € 8 million to be invested in a two-year time period. The purpose of the investment is to scale sustainable pupunha heart of palm production at the São Pedro Farm and to construct and implement a bottling industry. Together, the shareholders invested € 1.5 million in a bottling facility, which is currently under construction, and also supported the development and implementation of the new organic and agroforestry system in São Pedro Farm by another € 6.5 million.

São Pedro Farm is a rural property owned by the Pini brothers. The costs of the agroforestry system design and the operation of the farming activities have been covered by a set of loans from Banco do Brasil, and the financing from the Moringa Fund. The farm itself is not an asset of Floresta Viva; however, it serves as the base for technology development, and as a pilot and primary supplier for the bottling facility.



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## CHAPTER 7 / Atlantic Forest Biome / Case Study 6

# ECOAXIAL AND INSTITUTO ESTRELA: Iguaranteed purchase and short-term cycle micro-credit as tools for regional economic development



In Brazil, two of the main challenges related to providing micro-credit to small-holder farmers have to do with the borrowers' capacity to provide the required collaterals to the lender – as for instance the proof of a land title or a constant family income flow – and their repayment capacity as this depends on a reliable access to consumer markets.

There are several attractive credit lines for family farming in Brazil which are made available by BNDES (Brazilian Development Bank) through multiple intermediaries – from state-owned banks to credit cooperatives. The average interest rate for these lines lies at 2% per year, which for a country with an official Governmental interest rate of 6.4% per year, can be an attractive rate.

Nevertheless, the number of small-holder producers accessing these credit lines is still low. The reasons are manifold and range from lacking awareness, inability to offer the needed collaterals, to a high financial illiteracy and according difficulties in understanding the lending contract terms.

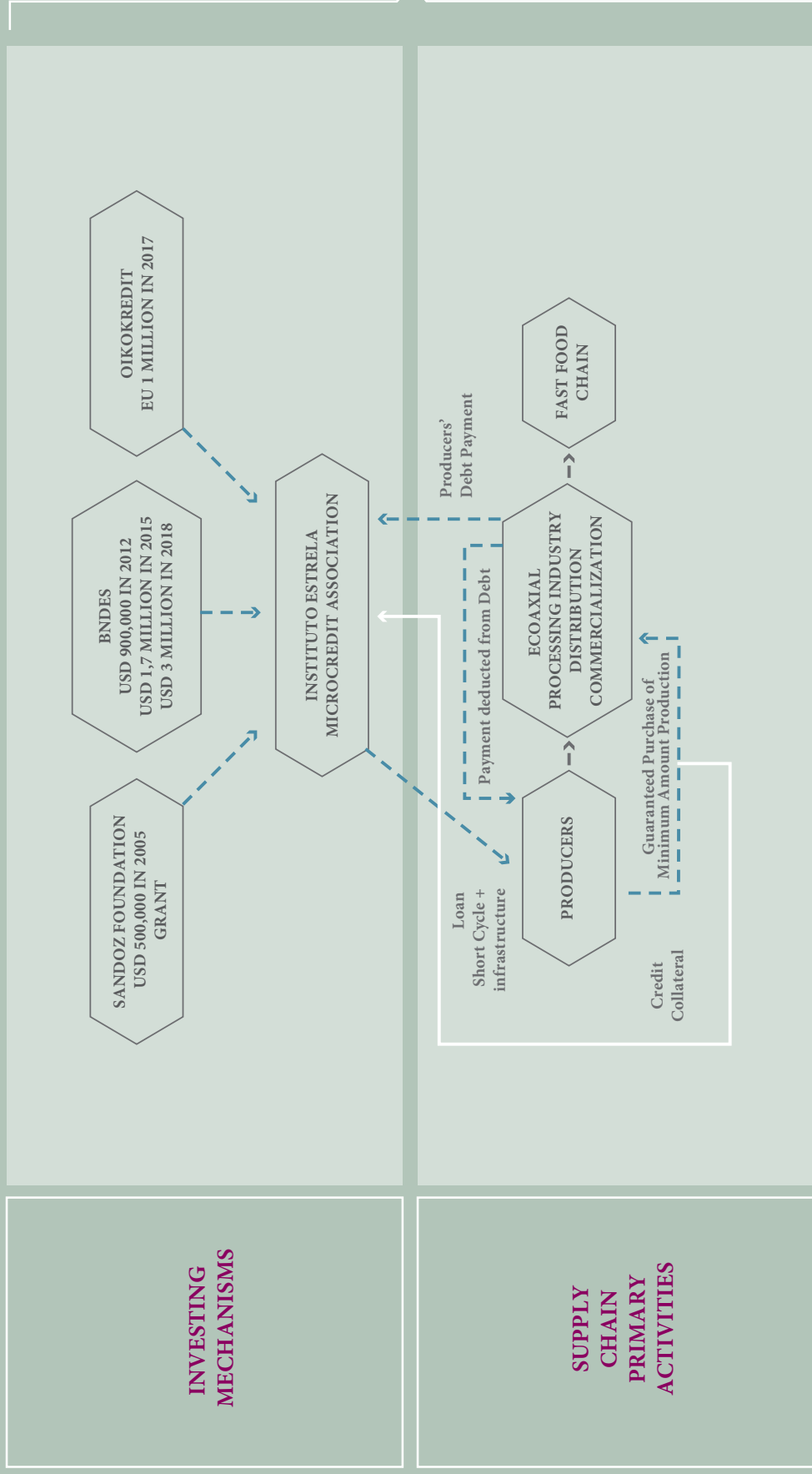
In terms of agricultural activity, the North-Eastern region

of Brazil is well known for its semi-arid climate. There, the pressure on land use is not caused by large scale agricultural production and deforestation, but it is rather related to a challenging access to water with predominant and historic subsistence agriculture. Hence, most of the food, specially vegetables and lettuce, are imported from other regions of Brazil.

However, one can find green oases in the middle of the semi-arid region, which are biome transition zones in higher altitude areas. The city of Bonito (translation is 'beautiful') in the mainland of Pernambuco State is located in such an area.

Due to historic reasons, smallholder farmers in that region are not aware of the fact that they could be business owners of their own plantations. A cultural and socioeconomic mindset shift is therefore what Eco-Axial, a food company, and Instituto Estrela, a micro-credit association, are promoting in the city of Bonito and its surrounding area. The partnership between these two organizations, both part of the portfolio of Axial Holdings, a private equity company, is providing the basis for an economic activity for local producers.

# EcoAxial & Instituto Estrela Value Chain and Financial Capital Flow



On one side, Instituto Estrela provides a short-cycle micro-credit line for smallholder farmers connected to guaranteed sales to EcoAxial on the other side.

Together with Instituto Estrela, EcoAxial organized two credit lines for smallholder farmers as part of their fresh vegetables supply chain program.

The first one is designed for the initial infrastructure set-up and encompasses a 10 months' credit with a grace period of 100 days. The second one is used for working capital, which is aligned with the crop plantation cycle and associated with the product delivery to EcoAxial.

The loan size for both the infrastructure set-up and the working capital equals USD 2,800 each and the borrowers can only apply for the next round of working capital credit once one of these two has been repaid.

The agreed guaranteed purchase by Eco Axial totals 200 boxes of lettuce per week. Overproduction is also purchased by the company, providing producers with a real entrepreneurial experience: if they invest in infrastructure and technical support, the produce volume will be higher, and for that overproduction there is a guaranteed purchase.

This connects to one of the intended positive impacts of Instituto Estrela, which is to encourage a financial discipline culture associated to an entrepreneurial mind-set, leading to producers being free of the centenary socioeconomic structures of the sugar cane lords in the region.

Another important social impact is related to a rural exodus reduction. From the environmental perspective, the program supports a consciousness about the sustainable use of water resources and river basin maintenance.

Both Instituto Estrela and EcoAxial are portfolio companies of Axial Holdings, a private equity fund with an impact investing mind-set. This ownership is certainly the key success factor of the tripod Eco Axial – Instituto Estrela - smallholder farmers' set-up in the city of Bonito, a green oasis in the middle of the semi-arid mainland of Pernambuco State.

## Near Future Plans

Next steps in both the medium-term and the long-term future involve expanding and introducing the model to a larger number of farmers. Firstly, if the demand continues to grow, about seven new conventional farmers are expected to enter the cooperation, so that in the next 12 months a total number of 15 conventional farmers will be working with EcoAxial and Instituto Estrela. Secondly, it is planned to apply the approach to organic farmers of the Bonito region as well in order to extend Eco-Axial's product portfolio.

Instituto Estrela is a micro-credit association with the recognition of the Organization of the Civil Society in the Public Interest (OSCIP). It was founded in 2005 with the mission to overcome the barriers that small businesses in the Brazilian semi-arid region face when trying to access working-capital credit. The micro-credit association started with an initial grant of the Sandoz Foundation to begin their operations in the municipality of Sousa, in the State of Paraiba.

To date, Instituto Estrela has established a portfolio of 9,000 customers and has collected a committed capital of USD 5 million formed by the Institute's own financial assets and capital allocations by BNDES and Oikokredit. With branches in 4 municipalities in the State of Paraiba, Instituto Estrela's main lines of credit focus on regional trade activities, regarding both products and services. The average credit size ranges between USD 280 and USD 6,000, which is the amount per person that is ruled by the Brazilian Government for OSCIP micro-credit organizations.

EcoAxial is a food company with its own brand in the market selling both organic and conventional vegetables, and animal protein to grocery stores and retail shops, as well as fast food chains. The company was founded in (2015) and its key value is the engagement of smallholder farmers. In 2017, Eco-Axial's product portfolio included goods ranging from organic tomatoes and different sorts of lettuce to cassava flour. Organic products account for 31% of their current product line going mainly to grocery stores (34% of the total volume) and food services (66% of the total volume).

**A complete case reporting including a visiting experience is available at:**  
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## About Alimi Impact Ventures

Alimi Impact Ventures is an advisory firm that assists companies, foundations, investors, and fund managers seeking solutions – business modeling, strategic financial options, value chain analysis, new deals search and set-up, market studies and co-related training – to scale up sustainable investing in Latin America. Our core areas of expertise are: Climate-Smart Agriculture and Access to Healthcare. We also support and promote the Transformation Leaders Network, a forum for impact investors in climate-smart agriculture in Brazil.

## About Rabobank Foundation

Rabobank Foundation is the social fund of Rabobank. Rabobank Foundation has been investing since 1974 in the self-sufficiency of disadvantaged and disadvantaged groups. Rabobank Foundation uses its cooperative roots to promote and support agricultural cooperatives. We give these cooperatives and their smallholder farmers access to finance, knowledge and networks. Rabobank Foundation is active in 22 countries in Africa, Asia and Latin America. In 2017 they supported 288 projects abroad and reached 4,886,869 small farmers. Rabobank Foundation is also active in the Netherlands to increase the self-sufficiency of vulnerable people.

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