JOBS AND EMPLOYMENT
IN THE PLANTED TREE SECTOR

ibá
brazilian tree industry

TABLE OF CONTENTS

Photos Cover:

2. Klabin
3. Suzano
4. Gleison Rezende (Bracell)
5. Ibá
6. Cenibra

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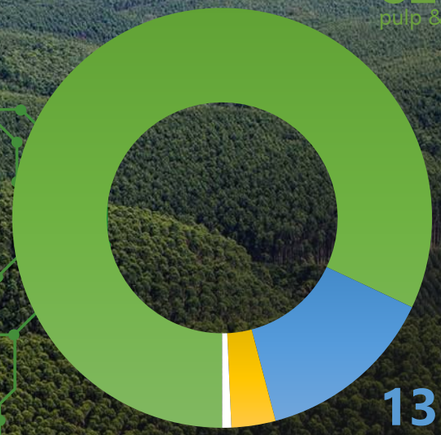
INTRODUCTION

To estimate the direct effects (activities by the sectors represented by Ibá), indirect effects (by suppliers and immediate clients), and induced effects (spending by everyone who benefits from the direct and indirect effects) of the planted tree industry, particularly with regard to generating jobs and income, FGV-IBRE conducted an exclusive survey that highlights the economic relevance of the production chains that are founded upon trees cultivated for industrial purposes. The scale of production multipliers, income (value), and employment reveals the economic leverage of this industrial segment.

The objective of the survey was to look beyond mapping the direct activities of a certain sector, using estimates related to variables such as production, employment, and income generated (GDP in the sector). The estimated results of the production by Brazil's planted tree industry are one of the strengths of this work, which uses methodology from the Brazilian input/output matrix estimated for 2017 (the most recent version available from IBGE data).

This data was then updated for 2020 based on monthly surveys of physical production from this industry (always conducted by IBGE) combined with price indicators from FGV's own databases, most notably the Broad Producer Price Index (IPA). For the estimates included here, we opted to use primary databases from IBGE, RAIS-CAGED, and FGV itself, which were all discussed and validated with Ibá's technical team.

Relative composition of the planted tree sector, by major segments. (2020)



Source: FGV-IBRE.

Photo: Klabin

POSITIVE
IMPACTS OF THIS CHAIN

EMPLOYMENT

With a presence in over 1,000 municipalities throughout Brazil, the planted tree sector brings with it employment and income, especially to locations that are far from large cities.

This is an industry that has evolved over the years, and its impacts on employment and income are counted not in the thousands, but in the millions.

The presence of forest-based industry in remote regions has a positive effect. When the sector arrives or expands in a certain region, it drives activities and services and spurs the creation of new business to meet demand from workers who move to these cities; this is part of the induced effect. One example is the money spent by people who work directly cultivating planted trees, as they purchase goods and pay for services in the cities where they live and work. And because they are far from the big cities, the planted forests become an essential and dynamic driver for local economies in various regions of the country. When the jobs generated by this agricultural industry (direct, indirect, and induced jobs) are totaled, 2.8 million men and women throughout Brazil are employed as the result of investments and advancement by forest-based companies.

Between direct and indirect jobs and the induced effect, these 2.8 million people generate total income of R$ 122.7 billion.

Direct, indirect, and induced effects of activities in the planted tree sector.
(2020)

2.8 MILLION
JOBS CREATED BY THE PLANTED TREE SECTOR

R$122.7 BILLION
IN INCOME

Total value generated in 2020, between direct and indirect jobs and the induced effect.

Source: FGV-IBRE.

Photo: Suzano

A GREAT BIOECONOMY

These 2.8 million people are responsible for making bioproducts that are essential for our everyday life, providing a variety of services and generating revenue for various links in the chain.

R$116.8 BILLION

Production by forest-based industry in 2020; a record for the sector.

R$181.8 BILLION

Indirect production, by suppliers and immediate customers.

R$90.2 BILLION

Induced production, in other words goods and services that supply demand from people who work in the sector.

R$388.8 BILLION

Revenue for the entire expanded forest-based production chain from production in 2020, despite the uncertain economic situation in the country.

Photo: Suzano

Photo: Duratex

Photo: Klabin

Photo: Gleison Rezende (Bracell)

Photo: Klabin

ADDED VALUE

Forest-based industry helped support millions of families throughout Brazil during this very difficult time.

To illustrate the scale, the income generated is equivalent to 28% of GDP from agriculture and ranching, and 1.9% of Brazil's total GDP. This demonstrates the importance of this activity for all of society.

This responsible work goes beyond the company's gates and generates shared value, extending its positive impacts to everyone who has a relationship with the sector.

This sector has many connections that create wealth and added value for the GDP. Production by the planted tree sector has a multiplying effect on the domestic economy. For each R$ 1 million it produces, twice that amount is added to the GDP.

FOR EACH R$ 1 MILLION of production by the planted tree industry.

ANOTHER R$ 1,05 MILLION was generated in indirect and induced income

DOUBLING The value added to the **GDP**

Revenue (GDP), employment, and taxes generated for every R$ 1 million of production by the planted tree sector.
(2020)

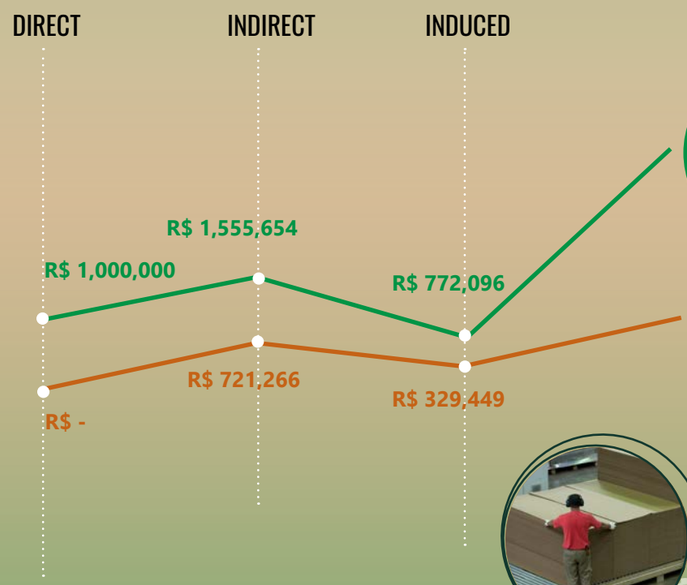


Photo: Klabin

Photo: Berneck

A CASCADE OF
POSITIVE EFFECTS

As a result of investments, advances, and consolidation in various regions of the country, the planted tree sector is an important catalyst for local businesses.

We can see that wholesale and retail trade is the segment that concentrates the largest share of total effects in terms of indirect and induced production from the activities of Ibá's member companies. Production by this segment alone totaled R$ 44.3 billion in areas far from major urban centers where these companies operate.

In at least 60 segments, a direct effect on business generation due to the presence of forest-based companies can be identified. Transportation, food, private healthcare, private schools, legal, and real estate are just some examples of activities driven by the sector's activities.

This survey excluded activities directly related to cultivation of trees for industrial purposes, which is typical for manufacturing of pulp and paper and wood products; production of these goods was included in the direct effects, estimated at R$ 116.8 billion.

Disseminating the impact of the Brazilian planted tree industry into other sectors and activities (2020)

R$128.3 BILLION

Commerce; financial intermediation; insurance and supplementary pensions; petroleum refining; transport.

R$127.6 BILLION

Real estate; chemical manufacturing; agriculture; legal activities; accounting; food; oil and gas; telecommunications; warehousing; manufacture of agricultural chemicals, disinfectants, paints, and various chemicals.

R$132.9 BILLION

Private healthcare; machinery/equipment maintenance; car/truck/bus manufacturing; apparel and accessories; furniture manufacturing; private education; pharmochemical and pharmaceutical products; water transport; water, sewage treatment, and waste management; air transport; construction; others.

Source: FGV-IBRE.

Photo: Suzano

OUR PEOPLE

SUPPORTING ENTREPRENEURS

ECONOMIC, SOCIAL, AND CULTURAL EMPOWERMENT

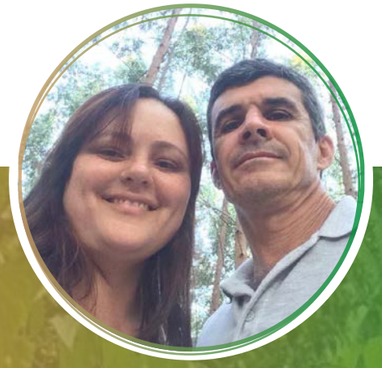
"Participating in this project is a great experience, personally and professionally. We worked on my brand's visual identity to reformulate the logo and created a professional Instagram account to publicize my products, which led to higher sales. I was also able to learn about price management and projecting opportunities. Without a doubt, this was a watershed moment for my company."

Maria Izabel Caetano (Bel) – Entrepreneur

When a manufacturer that works on local as well as global scales arrives and establishes itself in a new region, it impacts the movement of wealth, stimulating trade and even tourism in the surrounding area.

Maria Izabel Caetano (better known as Bel) understood the market potential of this new movement by people and tourists curious about the local culture who wanted to try local delicacies, and founded her own company. She makes her products at home and sells them in Ipaba, in the Rio Doce Valley region of Minas Gerais. Her company, Quitutes da Bel, offers coffee and sweets to tourists who visit the local sights.

Her cakes and cookies preserve local culinary traditions and supplement her family income. Bel is part of the Rotas do Mutum program, an effort by local companies and SEBRAE (The Brazilian Small Business Support Service) to support local entrepreneurs with courses and sharing their experiences.



BEEKEEPING

Any basic economics textbook introduces the concept of externality, the positive or negative effects caused by an economic agent's activity. Pollution from motor vehicles is a classic example of a negative externality. On the positive side, the relationship between beekeeping and planted trees is often frequently mentioned, since it can simultaneously benefit both activities.

To a large extent, this is the case with beekeeper Roberto Carlos Alves and Cenibra's plantations of trees for industrial purposes. Roberto is a teacher with a degree in Portuguese as well as a master's; he is completing his doctorate on topics related to the rural world and has been working with bees for 35 years. He began with 15 hives, which then grew to 40. In 2001, with the partnership (with forest-based companies in the region) between the Sabinópolis Association of Beekeepers and Cenibra, this number jumped to 250 hives; today, he has 500.

The partnership ensures that Roberto's bees have better quality food sources and hives in safe, easy-access sites. This, along with his work to select bees that involves significant study and science, has allowed the project to generate an average of 40 kilograms of honey per hive per year, and even reach 60: a remarkable level of productivity.

Beekeeping is not Roberto's only source of income, but he says that the partnership with Cenibra (and APERAM) has helped him improve his life, put more food on his table, and provide dignified work as well as many other achievements that "money can't buy," such as university education for himself, his wife, and their children; one graduated in forest engineering and another is studying psychology.

Roberto is thinking about perpetuating beekeeping knowledge, and already sees an age gap among beekeepers. His own survey of 60 beekeepers found that their average age was 48.5, suggesting that new generations of people who appreciate this art need to be cultivated. To this end, he works to teach development and management techniques in honey production.

PROJECT PAIS:
ENGAGEMENT AND SOCIAL AND ECONOMIC DEVELOPMENT IN COMMUNITIES

"50 lime trees will be donated to each family, along with all the structure needed to irrigate the orchard, which will have a total of 500 trees for all the farmers. Here in this region there are not many lime orchards, which will add value to our production."

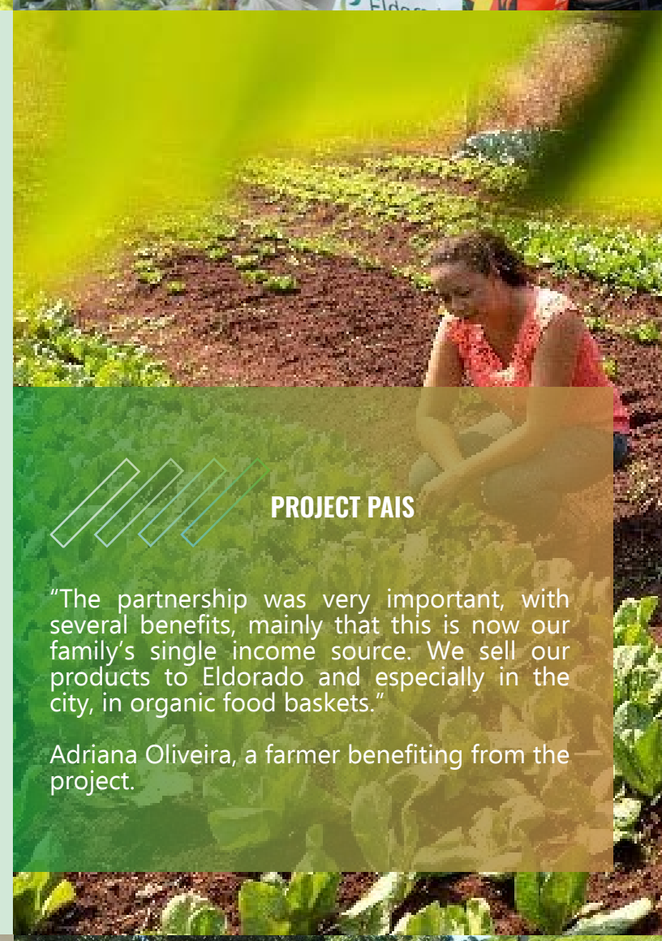
Jair Pinto, a farmer benefiting from the project.

Eldorado's Project PAIS (for Integrated and Sustainable Agroecological Production) is defined as social technology that encourages small rural producers to practice organic farming for food security and economic development. In a partnership with SEBRAE (the Brazilian Small Business Support Service), Eldorado established 45 of these projects in 2013: 44 of them in Três Lagoas and Selvíria and 1 in Aparecida do Taboado, all in Mato Grosso do Sul.

The main objective of this project is to generate jobs and income in family farming, strengthening local potential and providing better conditions for nutrition and access to consumer markets. The objectives defined at the beginning of the project were met: diversified production, access to various markets, and better nutrition for all the families involved. But especially notable is the engagement between these families and Eldorado and its staff, particularly in the Pontal do Faia settlement, where the partnership remains strong with the very real possibility that the products acquired by the project will triple by the end of 2021.

Adriana Oliveira joined the project relatively recently, 3 years ago, since she went to live with her mother after her father died. At age 51, she is learning the difficult art of organic farming. Today this is her family's main source of income; it went from one of the smallest gardens in the settlement to one of the largest, and there are plans to expand even more. They are investing in fruit and vegetables. Adriana sells directly to Eldorado, but since the beginning of the pandemic she developed a new product, a basket containing a bit of the organic produce from her vegetable garden.

Jair Pinto, one of the leaders of the settlement, says that few people joined at the beginning of the project because they thought vegetable gardens did not generate income. "Today, I live from my vegetable garden alone. And this project has made it possible to generate income for my family," he said. First there were 3 vegetable gardens; as the results began to appear more families joined, and now there are 14 vegetable gardens in the community. The project has helped secure the family in the countryside, Jair says, with his daughter returning from the city to stay with them and help with production. The next step for him, his family, and the community is to start a lime orchard, a project carried out in partnership with Eldorado Brazil to diversify and increase the families' incomes.



PROJECT PAIS

"The partnership was very important, with several benefits, mainly that this is now our family's single income source. We sell our products to Eldorado and especially in the city, in organic food baskets."

Adriana Oliveira, a farmer benefiting from the project.

GROWING TOGETHER

The forest-based sector operates in regions outside Brazil's main economic centers. Traditionally, these regions contain cities with depressed economies that have grown to surpass the Brazilian average for many quality of life indicators as industrial production evolves: one result of the sector's regional influence.

In this process, it is always important to create jobs and empower the population for management and highly skilled opportunities. At Ibema, Gerson Nestor de Souza is a good example of this. Today he is the industrial manager of the Embu das Artes unit in greater Sao Paulo, but his history with the company began when he was still a child and saw his parents go to work at the company's factory in rural Paraná.

He started working in the administrative area of Ibema through the young apprentice program in Turvo, and never left.

When he was given the chance to pursue technical education in pulp and paper in 2001, he didn't hesitate; after graduating, he entered manufacturing and was part of the project to implement a new paper machine, which provided additional opportunities to learn and evolve within the company.

After he took over as production supervisor in Turvo, he had the chance to move to the Embu das Artes unit as a production supervisor in 2016. He didn't think twice: the whole family moved to Sao Paulo to accept the challenge. Becoming production manager and then factory manager was the consequence of Gerson's hard work and dedication.

"My dream to get into, work at, and have a career at Ibema became a reality, and today my two children, aged 9 and 6, say they will study to work at Ibema. They want to be engineers and work just like their dad," says Gerson.

GERSON NESTOR DE SOUZA

BEING PART OF
NEIGHBORING COMMUNITIES

Melhoramentos

PROJECT CATA DO PINHÃO
5 YEARS OF HISTORY

Melhoramentos runs the Cata do Pinhão project on the Levantina Farm, one of its properties in the Monte Verde region of southern Minas Gerais state, where it has brought together dozens of families for sustainable araucaria tree management.

Besides planting eucalyptus trees, Melhoramentos is involved in the preservation of more than 7,900 hectares (nearly 80 million m2) that are full of pine nuts in the months of May and June.

For this reason, in an effort to work together with the surrounding communities, Melhoramentos authorizes pine nut gatherers over 18 years of age to enter the company's property to collect pine nuts.

Maria Vanda Maciel is one of these people. At the age of 67, she says that this partnership has generated extra income, helping her build her own house and guarantee food for her family. Besides expanding the possibilities for generating income for rural families, this project is even more relevant right now during this time of crisis, since it is associated with food security.

PROJECT AFLORAR: PLANTING HOPE AND CULTIVATING TIES BETWEEN THE COMPANY AND THE COMMUNITY

"Thank goodness, everyone planted, everyone sold their produce, everyone is happy."

Maria Pereira Santos – homemaker, Padre Carvalho (MG)

Human beings form living groups in which each person's history unfolds, the meaning of community. Companies in the planted tree sector understand this; it is the vision that led Norflor's Project Aflorar to serve more than 100 vulnerable families in the Jequitinhonha Valley (MG).

This population receives instruction and assistance in planting organic gardens and agroforestry system ("forest yards"). The main objective is to improve the quality of life for these families, with an emphasis on food security and augmented income. At the same time, this initiative values the community's knowledge and artisanal practices, without neglecting the goal of impactful economic impacts.

In communities that were previously selected, family farmers were seen to lack viable and safe opportunities, which was discouraging, especially for younger people. Many male farmers moved to large cities in search of seasonal jobs, while women took responsibility for caring for their homes and children. The main outcomes of the Aflorar Project were: engaging participants in continuing the project and providing autonomy for them to replicate it; adding healthy foods into participants' daily diets, improving food quality for over 500 people who are directly affected by the project; refining knowledge and including new cultivation techniques through workshops; regularizing farmers in business terms so they can participate in bid/purchase projects; boosting family income by door-to-door sales to restaurants that supply Norflor as well as farmers' markets; paid employment for women (since employment opportunities are scarce in the region); improved relationship and dialog between Norflor and local communities, which boosted positive perception of management to 89% in 2019.

In most cases, the participants' backyards were dry, eroded, and had no shade. In this sense, the project was responsible not only for human development as a source of food and income, but also recovery of visibly degraded areas.

PROJECT AFLORAR

"I am very grateful. If the company hadn't helped us, we would not have this garden and we would not have harvested so many vegetables."

José Aparecido Franco – plumber, Padre Carvalho (MG)

SHARE
KNOWLEDGE AND PRODUCE
SUSTAINABLY

FROM CONFLICT TO PARTNERSHIP

Since Suzano defined its social strategy, the qualified income generation process has grown stronger every year. The company does significant work in the area of ESG (environmental, social, and governance) and has established a new level of social performance that requires expansions in scale and scope.

The Rural Land Development Program (PDRT) partners with the community to produce healthy foods for family consumption as well as sale, based on sustainable use of natural resources. The project also creates networks for the exchange of knowledge and work, generating employment and income for families, activating the economy, and boosting the sustainability of Suzano's business.
The program started in 2011 with 200 families; in 2021 it had 3,524, with over 18,000 people benefiting in 235 associations operating in 30 municipalities across seven states. The production volume traded in the regions where the program operated totaled R$ 52,417,261.53 in 2021, along with 30,000 tons of food.

Claudio Olímpio, who is married to Jocileua, is proud to call himself a farmer, but he is also a health worker. He was born 39 years ago in Nova Esperança, a district in the town of Caravelas in the southern tip of Bahia state, and never left. "The project works with agroforestry farms: coffee is the pioneer, and is already stable, but we also have bananas, oranges, cassava, avocado, vegetables, a variety of products that ensure we can stay in the rural area and guarantee food security for us, unlike people who live in urban areas and need to pay their rent and also buy their food."

Before participating in the PDRT project, Claudio's subsistence involved illegal logging to make charcoal. The shift from charcoal to farming has brought results such as income, stability, and a significant difference in quality of life.
According to Claudio, the PDRT project represented "a significant improvement; within the association there are families that make their living from farming alone. And with this they can pay their electric bills, buy furniture, build a house, buy a motorcycle. So for us it is a major achievement to see people in our association who already have this significant independence. They can even pay for cable TV, all through farming."

HAND IN HAND FOR PRESERVATION

PROJECT RAÍZES DO MOGI GUAÇU
REFORESTING TOGETHER WITH NEIGHBORS

Preserving springs often depends on a joint strategy that involves the community to cover a broad landscape. To care for the springs that supply the Mogi Guaçu River, WWF Brazil and Sylvamo created the Raizes do Iguaçu ("Roots of the Iguaçu") project, which together with Copaíba will restore 100 hectares of riparian vegetation and forests in the Mogi Guaçu River basin and along its tributaries by 2022, focusing on conserving water for everyone in the region. Through local partnerships, this program mobilizes and supports landowners in these areas as they together restore springs and streams, regardless of whether they are linked to the sector.

Copaíba runs the program in the Peixe River, which is included in the river basin. Trees are being planted on properties in the towns of Socorro (SP), Lindóia (SP), and Bueno Brandão (MG), where the partnering owners receive free technical support, young Atlantic Forest plants grown by Copaíba, planting assistance, the first two rounds of maintenance, as well as inputs and fencing for the area.

Mariana Mota and Paulo de Araujo participate in the Raizes do Mogi Guaçu project in the town of Monte Sião. They have been producing specialty coffee in an agroforestry system for roughly three years; this initiative won the New Agro Award from Santander Bank and ESALQ/USP. The site is also a field research post for the Federal Institute of Southern Minas, with a focus on regenerative activities. Mariana and Paulo saw in a chance to expand biodiversity and strengthen their local activities in the program that is based on environmental education, research, and fair trade. They sell their coffee through their company, Café dos Contos, on an online platform, direct from the producer to the consumer.

MAIN ACTIVITIES AND RESULTS

13.51 hectares of forests established

6 partnering landowners

21,300 seedlings planted

12.46 hectares em processo de restauração

13 springs protected

1.3 km of stream banks protected

1,876 meters of fencing installeds

REUSING WASTE TO
REGENERATE THE SOIL

THE CIRCULAR ECONOMY, SUSTAINABILITY, AND INCOME GENERATION

At WestRock, organic waste from paper production such as boiler ash and sludge from wastewater treatment is composted to generate a nutrient-rich soil conditioner that is ideal for agriculture, since it helps regenerate the soil.
This organic compost is donated to farmers in Santa Catarina like António Ranthum and Pedro de Oliveira. In addition to more sustainable and regenerative crop production, rural producers increase their incomes by providing food that is used in WestRock's cafeteria, which in turn provides fresh and healthy food for its employees.

"[Compost] helps with growth, it holds a lot of moisture as well and the plant develops more quickly. Now production has increased and more money is coming in. We also deliver to some markets and restaurants, which helps financially."

Antonio Ranthum – farmer

"This partnership was very good for us, because besides productivity, income also improved. The quality of production is very important to us, because people always say that they can use 100% of our vegetables. There's no loss, so it's 100% usable."

Pedro de Oliveira – farmer

NOTES

This material is part of a partnership between the Brazilian Tree Industry (Ibá) and FGV-IBRE; it is intended to help map production chains that are linked to planted forests, highlighting the scale, relevance, and impacts on production, employment, and income generation of this activity.

The partnership between Ibá and FGV-IBRE is important because of the need to emphasize the economic importance of a group of production chains that start with planted trees, whose products are present in the everyday routines of companies and families but are not always obvious.

When people see a building under construction, buy a car, or receive packages in the mail they are likely to associate these products and services with the most immediate activities: the construction sector, the automobile industry, and logistics services. But each of these activities (and many more) involve a significant amount of wood from trees planted for industrial purposes. The evidence of this importance is seen in the quantity of jobs and taxes generated by the sector, and its share in the agricultural GDP and Brazilian GDP as a whole.

By estimating the direct, indirect, and induced jobs that are maintained thanks to the Brazilian planted tree industry (among other indicators), this study is intended to help estimate rigorous indicators developed using internationally recognized methodologies as well as to recognize this sector that involves characteristics that extend beyond economic significance, such as its commitment to sustainability and generating income opportunities in far-flung regions of the country.

The cases presented above show social and economic sides of the planted tree sector that are not well known. These are examples of positive externalities, the circular economy, and sustainable practices that benefit directly (and, in some cases, essentially) from the production flows, employment, and income generated by Ibá's member companies.

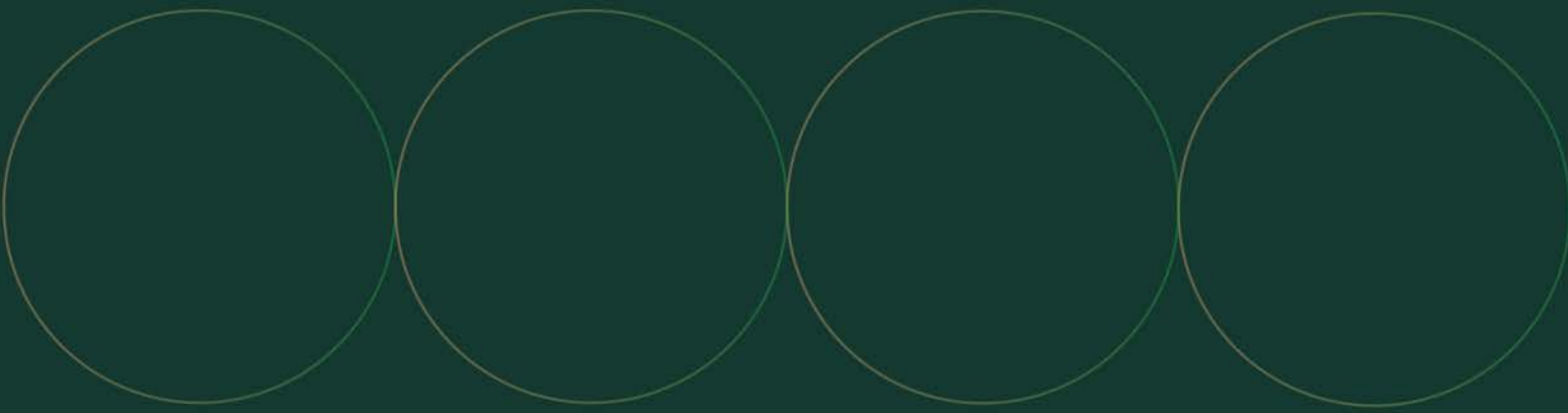
METHODOLOGICAL NOTES

1- THE INPUT/OUTPUT MATRIX

The input/output matrix is an analytical tool built from structural data for a given economy which represents the relationships between its various sectors through flows of goods and services. This tool makes it possible to quantify the intersectoral relations that occur at a given point of time and in a given territory (country or state, for example). Among other uses, the matrix is used to estimate the impact on production, employment, tax collection, and income generation from a certain economic activity. In this way, it makes it possible to determine what portion of each of these variables is generated from each job or each monetary unit produced in a particular sector, for example.

The results of these estimates can be divided into three categories: direct effects (indicators for the sector itself), indirect effects (for suppliers and direct clients), and induced effects (income generated directly and indirectly).

2- Specifically for the approach based on the input/output matrix, activities with CNAE codes (the Brazilian National Classification for Economic Activities) were used in the section "Disseminating the impact of the Brazilian planted tree industry into other sectors and activities" (p. 10), as well as weighting factors included in the same section in order to provide an idea of the planted tree sector's participation in each activity.



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