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## A year to go down in the history

We present below the main facts and data that evidence Aperam's actions in Brazil in the field of sustainability in 2019. At the time we prepare this report, we are so mobilized by the local and global effects of the Covid-19 pandemic, that the challenges and achievements of 2019 may seem pale in the distance. They were not, however.

Guided by our principles - leadership, agility and innovation - we faced a year marked by growing external polarization and protectionism, geopolitical tensions, and by internal political instability, with significant impacts for the medium and long term planning of our economy, in whose panorama only a single structural advance was inscribed: the pension reform.

Internally, in 2019, we celebrated three extremely important dates for our history and for those who write it every day: the 75 years of the Timóteo Plant, 25 years of the Aperam Acesita Foundation and 45 years of Aperam BioEnergia. More than numbers on paper, these milestones are emblematic of our commitment to sustainability on all of our fronts, from the production of special steel for decisive segments for the country's economy, to the improvement of the quality of life of the communities that serve us, and finally our BioEnergia FSC-certified forests, which enable us to produce charcoal which gives our steel products the title of "green steel".

It is also essential to note that our investment in people has once again been recognized nationally. In 2019, Aperam BioEnergia and Aperam South America won second and third places, respectively, in the annual ranking published by Exame magazine, Guia Você SA, The 150 best companies to work for. This is an achievement that highlights the consistency of our people management practices.

Our HR team continued to work closely with the business, especially for the creation of working groups aimed at promoting the internal climate, the Leadership Academy, among which we can highlight two main fronts - the "Leader Coach" and the "Mentoring Program" and the inclusion of all hierarchical strata in the performance evaluation system, with clear individual objectives, linked to the organization's global objectives.

For all these reasons, we are pleased to report below our main challenges in the past year - there were many - and the responses we gave them, inspired by our Vision to be the company that constantly challenges the status quo to reshape the future of stainless and special steels.



### 8 units in Brazil

Timóteo (MG)\*  
Vale do Jequitinhonha (MG)  
Campinas (SP)\*  
Caxias do Sul (RS)\*  
Ribeirão Pires (SP)  
Viracopos (SP)  
Belo Horizonte (MG)  
São Paulo (SP)

- > SP: São Paulo state
- > MG: Minas Gerais state
- > RS: Rio Grande do Sul state

### The main challenges for 2020 will be:

- > Return to operational normality altered by the Covid -19 pandemic .
- > Recover our historical levels of safety and absenteeism.
- > Continue training and retaining the best talent.

*"All of us who build our professional trajectory here witness daily the practice of commitment with the utmost respect in all relationships. This aspect of the Aperam "way of being" is a source of pride for us and results in a stimulating and profitable work environment . And this is not only for us who work here, but also for those with whom we relate, such as the communities that welcome us, the suppliers that integrate our business chain and the customers that receive our steel produced by people engaged and committed to steelmaking best practices. "*



**Raquel Faria,**  
Communications Manager at  
Aperam South America and BioEnergia



Timóteo



Campinas



Ribeirão Pires



BioEnergia

## Our People

Our main priority is the health and safety of our people. Our actions are guided to guarantee the well-being and safety of all, in addition to devoting a lot of energy to the development of employees and ensuring that they are prepared to face the challenges of today - and tomorrow.

### Health & Safety

Health and Safety are our priority at Aperam and that is why they are addressed in everything we do in our daily lives. Although our accident frequency rate increased in 2019, 0.42 (30% higher than in 2018) a 50% reduction in the severity rate of events was observed.

The Internal Week for the Prevention of Occupational Accidents is already part of Aperam's annual Health and Safety agenda. In 2019, the theme at Aperam South America and BioEnergia was "Always Alert", with the aim of encouraging employees to reflect on what they are doing actively to eliminate dangers and ensure a safe return to their home, together with their families. A challenge was launched and employees who presented the best ideas for accident prevention were recognized and awarded.

The Aperam Tubes Brazil team opted for an interactive environment, with playful and dynamic activities, lectures, testimonials, a play set up by the employees themselves and the presentation of a music band, in order to emphasize and raise awareness about the importance of safety, health and environment in our lives.

Shop floor audits are a good practice already adopted by our plants to monitor the application and compliance with the main procedures. In our service centers in Campinas and Caxias do Sul, the Trevo Program was created, combining concepts of Health and Safety auditing, including organization, standardization, cleanliness, self-discipline and sustainability. Audits are carried out every fifteen days by different groups of auditors, which include directors, managers and health and safety technicians, and use a specific checklist. Based on the results, an action plan is defined, implemented and monitored. In 2019, 1850 shop floor audits were carried out - of course, more will happen in 2020.

**Focusing on Health...** in 2019, an increasing number of accidents occurring outside the

company, along with many employees diagnosed with musculoskeletal diseases or cancer, led BioEnergia to take a new approach in its absenteeism committee. In this new context, they reshaped its multidisciplinary committee now consisting of medical, nursing staff, ergonomists and psychologists. They meet periodically to assess all absences and critical cases, totaling 142 medical certificates analyzed in 2019. The objective is to monitor and prevent absenteeism, adopting specific actions for each situation, corrective or preventive, deepening the knowledge of the cases to more assertive actions. The absenteeism rate in 2018 was 0.85, for a target of 0.92. In 2019, the rate was 1.07, above the target of 0.90. The events that impacted the results were analyzed and actions, such as the incentive to practice physical activities, are being implemented to return to the best results.

**Focusing on Safety ...** Aperam South America used a program already established in the company, the CCQ (Quality Control Circle), to enhance the identification and elimination of gray areas. From May 2017 to May 2019, 106 groups participated in the dispute. In total, 745 improvements were made. All projects were evaluated by the Health and Safety team and an action plan was put in place. The great involvement of the leadership and the shop floor was essential for the success of the Program. In addition, the good application of the preliminary risk analysis, carried out by the operators, allowed the elimination of more than 50 grey zones in 2019. The objective is to reduce another 60 in 2020.

### Climate group

The launch of the program, which began in 2019 at BioEnergia and Aperam South America, was divided into three major themes - Quality of Life, Leadership and Recognition and Reward, each conducted by a group.

To improve the Quality of Life, the starting point was a survey of employees with different profiles, seeking to understand what opportunities could be explored. As an example of this group's actions, the partnership with gyms through the Gympass platform stands out.



## People Management

Indicator	2019	2018	2017
Safety Frequency <sup>1</sup> rate	0.42	0.33	0.48
Safety Severity <sup>1</sup> rate	0.02	0.04	0.04
Absenteeism (%)	1.40	0.97	1.05
Training (hours)	143,664	126,650	176,24

GRI-G4<sup>2</sup>-LA6/LA9

<sup>1</sup> Aperam employees, interim and subcontractors

<sup>2</sup> GRI: Global Reporting Initiative, an international standard for sustainability reporting (4<sup>th</sup> version)



Ribeirão Pires team during the SIPAT



Training of brigade members in Ribeirão Pires



Our constant and systematic investment in the well-being of our people was once again recognized and rewarded. In 2019, BioEnergia and Timoteo were awarded second and third places, respectively, by Guia Você - Revista Exame, in the Steelmaking category, as one of the 150 best companies to work for.



On another front, with a focus on Leadership, the goal is to develop managers to be sources of trust, inspiration and reference for their teams. "Among the actions, we highlight the review of the Company's policies, the awareness of senior leadership, the training of current leaders and the training of new leaders", highlights Humberto Marin, executive manager of the melting shop.

In the area of Recognition and Reward, the first step was to understand the perception of employees about existing initiatives. The proposal is to identify what is most valued and define actions that reinforce what already works well.

The success of climate groups has been so great that, in 2020, they will be redesigned to address more topics, such as diversity in a diversity in all its dimensions sense, for example.

### Diversity

In 2019 we launched the Gender Diversity Charter globally, a new program to increase our diversity and women's representation. Despite the actions that were already carried out for this purpose, new actions were put into practice, such as the use of social networks for the dissemination of the videos "Women of Steel" on the websites of BioEnergia, Timoteo and Campinas, to improve the perception of our industry with the candidates. As a result, 66% of all job candidates are now women (for BioEnergia) and 15% of all new hires from Timoteo last year were women (compared to 10% in 2018). For trainees, the percentage is 50% in Timóteo. Also, audits and improvements in infrastructure are being carried out to allow the increase of women working throughout the plant. This number is expected to increase further in 2020. In Campinas, women represent already 21% of the workforce, and 16%, in different roles, in the operational area. The below table provides the breakdown of Aperam's employees by gender, permanent or fixed

term contract, and by non-exempt or exempt category.

Keeping the focus on diversity, on our website of Timoteo, which has the largest volume of all hiring sites, we began to actively recruit employees with disabilities (85 employees with disabilities working in 2019, +14 vs. 2018).

### Leadership Development

Using the 8 Aperam's competencies, fundamental leadership skills and a variety of technical and business skills, that are vital to the future development of Aperam, the Campinas team focused on the development of 100% of the Commercial Management. In order to promote a vision of the role of each in relation to the objectives and challenges of the area and how their behavioral profile is influencing positively or negatively on the results, in addition to facilitating the integration of the strengths of these managers to improve the relationship, performance and results of the plant.

### Attracting talent to the industry

In addition to regular visits to schools and universities to introduce students to our training programs, we also participate in major events in Brazil, such as Forestry Talent, reserved exclusively for the best forest engineering students in Brazil. Students from the 25 universities with the highest rating on a national test are selected for the program.

We are also partners with institutions, such as CAMP, in Ribeirão Pires, an initiative of the São Paulo Commercial Association for low-income students. The program helps to open the door to new opportunities for these young participants. In 2019, 3 out of 5 apprentices were hired for specific projects at Aperam.

### Aperam Employees in Brazil

Type	Gender	Permanent	Fixed-term	TOTAL	Non-exempt	Exempt
Blue Collars	Female	102	0	102	102	0
	Male	2.613	0	2.613	2.612	1
White Collars	Female	162	0	162	162	0
	Male	544	1	544	543	1
Exempts	Female	22	0	22	22	0
	Male	142	0	142	142	0
<b>TOTAL</b>		<b>3.585</b>	<b>1</b>	<b>3.585</b>	<b>3.583</b>	<b>2</b>

Aperam Stainless Brazil, Total of Full Time Equivalent, as of 31/12/2019. (GRI -102-8).



BioEnergia employee Edgar who, with only one hand, built a boat alone and now intends to build one to sail in the sea!



Aperam's 8 competencies



Competence Center Seminar in Viracopos

### Improved safety and well-being thanks to new technologies

When it comes to productivity, the industry has increasingly chosen to develop alternatives that use technology to mechanize, qualify or accelerate internal processes. At Aperam, this journey is already a reality. The difference is that, in the Company, one of the main focuses is to ensure more safety and well-being for employees.



New hot strip lamination control cabin

## Stakeholders

Between wages and benefits, the Aperam injected into local economies of their area in Brazil a total of 387 MR \$ in 2019. In addition, the payment of taxes, which adds R\$164 M in Brazil, represents a large portion of the contribution of most of the municipalities in which Aperam operates.

For social development in its area of operation, Aperam has the **Aperam Acesita Foundation** in the Steel Valley, which celebrated its Silver Jubilee in 2019. Over these 25 years, several initiatives and continuous investments in social development programs have been carried out. These actions are in line with the interests of the communities where the company operates, whether in Vale do Aço, where our plant is located, or in Jequitinhonha Valley, where our renewable eucalyptus forests are located for the production of charcoal. In 2019, we implemented many projects, all focused on improving the quality of education (29%), strengthening local culture (23%), social development (31%) and caring for the environment (14%).

Together, our actions represent a total investment of R\$3.2 million and directly benefited more than 65,000 people. Some examples of our successes include:

### Continuing Training of Educators

The foundation offers training opportunities for educators, developing technical and pedagogical skills and competences, making them aware of their professional responsibilities. In partnership with the cities where Aperam operates, the training was focused on local and national standards. With almost 1,000 professionals participating in more than 6,000 hours of training, the program has contributed to improving the quality of teaching in schools.

### School Complementation Projects

Traffic education: in partnership with other entities, this year the program involved 32 schools and benefited 1,882 students. Drug resistance education: carried out in partnership with the Military Police, this program teaches students the skills to make good decisions, have a safe and healthy life and avoid negative influences related to drugs and violence. The program benefited 1,084 5th grade students from schools in Timóteo.

### Building Know - Literacy for the Elderly

Another workstream promotes the literacy and socialization of the elderly, stimulating affective and social learning through a process of permanent education that takes into account human dignity, experience and the pursuit of happiness. It takes place through lectures and visits to, for example, museums, companies and bank branches, among others. All educators are volunteers. In 2019, 49 elderly people aged 55 to 80 participated in regular classes twice a week.

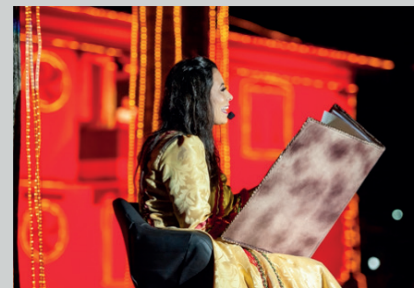
### Training and qualification

The Aperam Acesita Foundation and the Association of Retired Persons of Timóteo, through the Stainless Steel Institute, seek to foster the local economy through the qualification of people from the community and, consequently, encourage the creation of small businesses focused on the transformation of stainless steel. In 2019, totaled 14,288 hours of training, training 201 people.

The Rural Professional Qualification Program, organized in partnership with the SENAR (National Rural Apprenticeship System) and the Rural Unions, aims to prepare people for the rural labor market and improve their general quality of life, by teaching them about technology and work management. In 2019, 28 courses were held in the Steel Valley region with 301 participants, generating 6,904 qualifying hours. In the Jequitinhonha Valley, there were 34 courses with 420 participants, totaling 1,016 hours.

We also opened our doors so that people can learn about Aperam BioEnergia's forest management, health and safety, social and environmental projects. In 2019, about 182 people participated, including students and teachers from different schools in neighboring cities in the Jequitinhonha Valley.

Holding cultural events is also on the agenda. By providing cultural moments and cultural artistic training for the community, there is a promotion of regional artists and the guarantee of immediate access by the population to cultural and artistic opportunities. 87 different cultural events were held, including children's and adult theater, musical and dance shows, various exhibitions and cultural training workshops. A total of 623 local artists were involved.



Cultural Presentation in Timóteo



Food handling practices course for Agape Coopermassas, in Jequitinhonha Valley



Solidary Christmas in Timóteo



Getting to know BioEnergia Program

Our traditional Christmas Cantata, Santa Claus House, Christmas decorations and Solidarity Christmas were once again a success. Approximately 10,000 people attended the Cantata and enjoyed a performance by the children's choir Aperam. Our Casa do Papai Noel received more than 12,000 visitors during the month of December and 1,300 children from all daycare centers in Timóteo benefited from Christmas Solidarity, which counted on more than 100 Aperam volunteers.

### Business ethics

#### Code of conduct

In 2019, the Aperam group updated its Code of Conduct with a view to greater openness and clarification of points shared by our various stakeholders, in addition to reinforcing the international references that support our internal rules. We also revised the structure and simplified its language to not only facilitate the understanding of its content by our employees and collaborators, but also to reinforce our most absolute commitment to the ethical values that guide our activities. Our Code brings to our business partners the certainty that they are relating to a serious company, with solid ethical values and committed to the best practices of compliance.

#### Preventing conflicts of Interest

Annually, the Aperam group calls globally its exempt level employees to fulfill their respective Declaration of Conflicts of Interest. In Brazil, this scope has been expanded to also include non-exempt employees with responsibilities or decision-making power in sensitive areas, such as Supplies and Commercial. The actions taken to prevent these possible conflicts of interest from materializing vary according to the role of the person, department and type of conflict, and are validated by the local Compliance Committee on behalf of the central team, in addition to consultations with the Internal Audit team.

#### Anti-fraud week

In November 2019, Aperam held globally its first Anti-Fraud Week. Through a series

of daily communications (emails, videos, reminders, articles, posters of the new Code of Conduct, etc.), we called attention to the versatility of fraud and the need for greater vigilance. We also took the opportunity to remind everyone of our zero gifts policy (part of our anti-corruption toolkit) and to communicate about our updated reporting system. In Brazil, more than 200 people participated in gamified workshops and discussions on the topic. The feedback from all participants was super positive and the goal now is to expand training for all employees.

The ethical culture is also continuously strengthened, in 2019 through the change of the Company screensavers using our Code's visual identity and stickers added to meeting rooms to recall our alerting lines.

### Supplies

#### Suppliers evaluation

To become a supplier for Aperam, you must meet a number of essential requirements, such as compliance with all applicable laws and regulations, as well as good practices on health and safety, environment and ethics, including human rights. In 2019, a new methodology was used in our annual assessment of our suppliers' compliance, using a self-assessment tool. In total, 24 critical suppliers were evaluated and an action plan, in conjunction with the Corporate Excellence Center, was put into practice. The goal is to expand the scope of evaluation in 2020.

#### Local spend

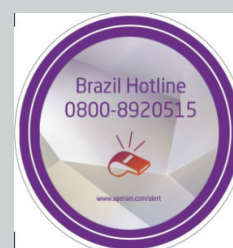
In addition to paying salaries, benefits and taxes, Aperam also contributes to the local economy through its purchases. In 2019, 29% of all purchases in the Aperam South America supply area were made in the Steel Valley region itself. Despite local spending having decreased in 2019 in view of the inclusion of new suppliers nationwide, our team continues seeking to strengthen and develop the local supply chain through actions of continuous consultation with the local market for new business and technical visits to companies.



Training at Instituto Inox



Aperam's Code of Conduct visuals used as screensaver in Brazil.



Stickers communicating about the hotline in Brazil.



Contemporary piece of art at Inhotim Institute (Brazil) made with stainless steel donated by Aperam South America

### Aperam contribution to local economy

Indicators/Year	2019	2018	2017
Employees: Wages and Benefits (mR\$)	387	401	351
Total tax contribution (R\$ M) *	164	207	164
Spent of main sites in Vale do Aço (excl. Raw Materials) (%)	29	32**	35**

\* Sum of all the amounts levied with respect to Corporate tax, other taxes (taxes on assets, environmental tax, etc.), including social contributions (employer and employee share), the latter being also included within Employee Wages & Benefits (GRI-204-1)



## Environment

In 2019, Aperam released its environmental objectives for 2030, in addition to specific objectives for the main plants of the group, including Timoteo and BioEnergia. We have a big challenge ahead of us, but we believe in the efforts and improvements in our equipment and processes to achieve our goals.

### Our excellent carbon footprint

Our Brazilian blast furnaces use charcoal instead of extractive mineral coke, which reduces our scope 1 emissions. In addition to the use of scrap, low energy consumption and a low carbon energy mix impact downward our scope 2 emissions.

When we use as a basis studies that consider the exact carbon retention of eucalyptus and the specific CO<sub>2</sub> emission of charcoal, in fact, we improve by at least 10% the carbon footprint of the steel products we manufacture in Brazil. In addition, we must consider that, with our well-managed forests, we stock four times more CO<sub>2</sub> than what we generally emit annually throughout the company. We are very proud of our excellent "carbon footprint"

**With regard to energy,** Timoteo's loss-fighting project is a typical example of general process optimization. The objective is not only to identify and block energy losses, the most important thing is to change people's mentality so as not to allow losses. As a result of this initiative, Aperam Timóteo avoided 14,198 GJ of energy losses in 2019. The project continues in 2020, with the objective of being launched in all areas of the plant.

In parallel with this launch, tools and controls are being improved to quickly detect and alert losses and thus offer better support to those who work to block them.

Through the projects of the Alliance Program, a voluntary partnership between the Brazilian industrial sector, the CNI (National Confederation of Industry) and government agencies, in 2019, we had a benefit of 17,565

Despite this, our consumption per ton of slabs increased in 2019, basically due to two main factors, lower production and higher consumption of charcoal related to a drop in the quality of the raw material (iron ore).

**With respect to waste...** As we intend to become a zero waste company (for landfills), we go beyond what is simply necessary. We have adopted metallurgy as a recycling channel and the recycling of by products the two main aspects of our responsibility in this matter. For example, in addition to the standard actions that all companies carry out to classify normal waste (bottles, cans, etc.), our Ribeirão Pires plant also offers a specific trash can for collecting used cooking oil, in addition to batteries that are collected once a year.

**With regard to dust emissions,** we can see a significant improvement in our result in 2019, -18% compared to 2018. This improvement is due to the investments made in the previous years, where about 10MR\$ were invested in environmental control and to the multi-year program set up by the Timoteo team. In addition, the internal environmental management process was changed in order to improve the effectiveness of controls and actions to mitigate the impacts of our operations. The average emissions of the plant in 2019, all chimneys and measures taken into account (even during temporary dysfunctioning), did not exceed 20% of the total authorized volume limit.

**Regarding water,** the Timóteo plant accounts for more than 70% of Aperam group's total water consumption and registers a 4% increase in the absolute value consumed from 2018 to 2019 (including rainwater). Inside the plant, measurements by equipment are not yet available, so monitoring is still deficient and only the main leaks can be identified. An action plan to solve this problem was created, including an improvement in the control of fuel in the annealing furnace RB1 and EAF door burners. The program is still ongoing and should bring at least 29,235 GJ in benefits in 2020, thanks to a variety of optimization projects, in addition to installing more VSDs and LED lights across the plant, other local optimization projects will produce substantial savings.

Water consumption at BioEnergia reached 231,571.40 m<sup>3</sup> in 2019. Of this total, 226,169.40 m<sup>3</sup> were collected from several dams designed to store rainwater.

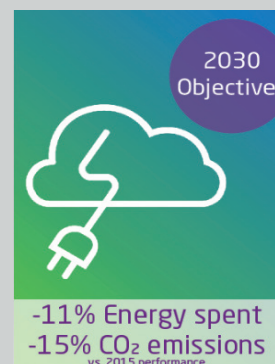
In Ribeirão Pires 75% of the total water consumption (12,645 m<sup>3</sup>) in 2019 was used as an artesian well.



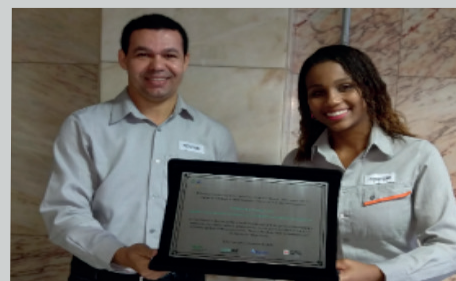
New LED-lighted hall at Timoteo.



Dumps for proper disposal of waste in Ribeirão Pires.



Recognition in environmental management  
Aperam BioEnergia



Aperam BioEnergia received the award for Good Environmental Practices from the State System of Environment and Water Resources in Minas Gerais. In particular, the award, which is now in its third edition, recognized the Aperam BioEnergia project "Recovery of areas with increased organic waste". By adding new plantings of native species to the areas, the project aims to recover the soil and make better use of organic waste, such as wood bark and leaves, which is not used in the charcoal production process. Since 2006, about 200 hectares have been recovered in 77 recovered degraded areas.

**Biodiversity.** The Company's relationship with forest preservation is a hallmark of respect and sustainability.

In addition to its plantations of renewable eucalyptus forests, BioEnergia has important conservation / protection areas, among which the ecological corridors that allow the flow of fauna stand out.

The BioEnergia's forests are part of the productive process of Aperam Green Steel, as power supply is 100% clean, sustainable and renewable. At all stages, responsibility and commitment are maintained: with the environment and with current and future generations. In addition, our forests are integrated with local communities, guaranteeing the means for the generation of jobs and income, and the development of the surrounding municipalities. Among the environmental projects, the following stand out:

➤ **Biological pest control:** eucalyptus crops, as well as other agricultural and forest crops, are affected by pests and diseases. In most cases, they are combated with chemical pesticides, which can cause other environmental problems. In BioEnergia, the opposite occurs. In order to reduce the use of chemicals, the site uses one of the largest breeds of insects that attack pests, its so-called natural enemies. A natural solution for pest control!

➤ **Fire prevention:** Every year, during the dry season, we see an increased risk of forest fires. To minimize the risk, we use surveillance towers equipped with cameras, motorized lookouts in the area, appropriately equipped and trained forest workers with a total cost of R\$ 2.5 million. Part of the project is to reduce the site's water intake by 40% by 2023, compared to 2018. Some technical problems had to be solved in 2019, and points of attention were identified in order to be able to completely solve the problem.

In vehicles prepared for combat, water trucks strategically distributed, supervi-

sion 24/7 and weekly meetings to update the distribution of resources.

Furthermore, in 2020, we intend to take it a step further, planting only on rainy days. At BioEnergia since 2006, we also count on the Fauna Monitoring Program, which registered a significant richness in the diversity of species. So far, 250 bird species have been identified, three of which are endangered and 21 endemic, and 33 species of medium and large mammals, seven of which are threatened with extinction and two endemic.

All of our operations in Minas Gerais are carried out in order to protect and promote local biodiversity.

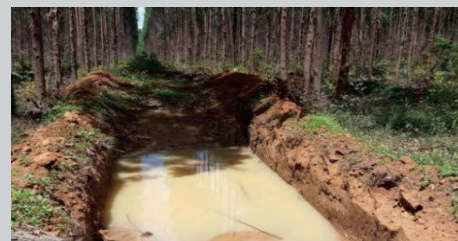
Planting during the rainy season is the key to BioEnergia's sustainable forestry activities. In the last few years, we stopped all planting during the dry season, thus eliminating the use of water from the springs. In order to be successful, good planning is essential, such as preparing the area and the subsoil before the days when high rainfall is expected. It also requires good synergy between different departments to ensure that the necessary manpower is available when needed. By planting only on rainy days, we will benefit from economic, environmental and social gains.

In order to obtain the water needed for the other stages of the charcoal production process, several dams were built in our area to capture rainwater. Now, 100% of the water used in our production comes from these types of reservoirs.

In addition, to mobilize communities, the Company created the Água Nossa de Cada Dia program, which aims to raise awareness about the importance and value of preserving the areas in which the water courses run, in addition to encouraging the maintenance and increasing the volume of this water resource, defining everyone's responsibilities.

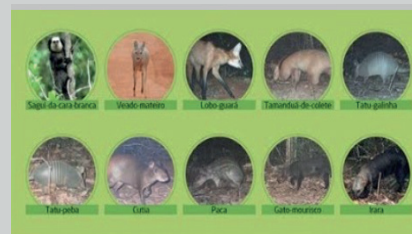


Eucalyptus and water



Like all vegetation, eucalyptus requires water and nutrients to grow and survive. However, the forests at our charcoal producing unit in Brazil (BioEnergia) are grown using carefully selected cloned saplings. Comprised of a variety of eucalyptus species, these saplings require less water and nutrients and are thus particularly well suited to the unique environmental conditions of Vale do Jequitinhonha. Specially, the use of cloned eucalyptus trees is the best choice for us because:

- The selection process deprives them of the so-called pivoting roots that grow deep underground to reach water tables. Instead, our forests rely on superficial layers of water for a fully sustainable use of local resources that does not deplete deep reserves.
- Our trees are more biologically efficient than other agricultural cultivations, producing more mass from less resources. For example, it takes 2,000 L of water to produce 1 kg of potatoes, but only 350 L to produce the same mass of eucalyptus wood.
- They produce more timber from less resources. For example, it requires 1,000 L of water to get 400 g of cerrado wood, whereas that same amount of water will result in almost 2.9 kg of eucalypt wood.
- Whereas 1.7m<sup>3</sup> of water is needed to produce one ton of coke, only 0.6m<sup>3</sup> of water is needed per ton of eucalyptus-based charcoal (not counting rainwater falling in the forest).



Fauna monitoring at BioEnergia.

### Our industrial impact

Indicator	2019	2018	2017
GHG <sup>3</sup> emission intensity (tCO <sub>2</sub> /t. of crude steel, scope 1 and 2)	0.40	0.43	0.42
Energy intensity (GJ/t. of crude steel)	21.8	21.5	20.6
Landfilled residues (tonnes)	51.4	63.0	55.0
Water consumption in closed circuits (%)	93.4	93.6	93.7
Dust emissions (t)	134	164	304

<sup>3</sup> GHG Green House Gas, here Carbon Dioxide (CO<sub>2</sub>)

## Innovation

In August 2019, an extremely innovative product was launched that combines the benefits of high-strength steel and the corrosion resistance already known worldwide for stainless steels. ENDUR is a stainless steel of high mechanical resistance and is intended for applications subject to wear and, mainly, to the combined effect of abrasion and corrosion. It offers gains in productivity and profitability. One of several possible applications is in concrete mixer trucks, as shown below.

### Stainless steel concrete mixer truck

Concrete is a highly abrasive material. In humid environments, which cause corrosion, wear becomes much worse. Imagine it spinning inside a cement mixer and it's easy to see why these trucks have a relatively short life. For this reason, Aperam presented the world's first stainless steel concrete mixer. Developed by the Brazilian Association of Concrete Service Companies - a joint project between Aperam, Convicta and Volkswagen Trucks - the ultra-light and resistant concrete mixer offers the mechanical strength and nominal hardness necessary to withstand the combined effects of abrasion and corrosion. In addition, it is light enough to transport up to 8m<sup>3</sup> of concrete per trip!

### First fully robotic fast food chain chooses stainless steel

Behind the delights served by Bionico, the world's first 100% robotic fast food chain, is stainless steel. Supplied by Aperam S&S Brasil, the fully-automated restaurant chose stainless steel for its sto, packaging and food preparation applications, thanks to the many unique characteristics of the material. In addition to being completely safe when in contact with food, it also does not affect the taste, smell or color of the product.

In addition, stainless steel is corrosion resistant, easy to clean, extremely strong and durable, and can easily withstand cold and hot temperatures.

### Aperam Stainless Steel - also innovating on renewable energy production

We are proud that our stainless steel anemometric tower solution was recently awarded by the ISSF in the category "best development". Our stainless steel anemometric tower was noted for the many benefits it brings to wind energy farms. Used to measure wind speed in the harsh environmental conditions along the Brazilian coast, the use of stainless steel has proved to significantly increase the tower's

lifespan. The stainless steel solution also reduces maintenance costs, improves safety, and simplifies the manufacturing process

### Electric grain-oriented steel provides renewable energy

Brazil is building the largest solar plant in the world, and Aperam is part of it. More than 500 tons of Aperam oriented grain electric steel are being used to build the plant's six three-phase transformers. With more than R \$ 1 billion invested, the plant has an estimated capacity to generate around 360 GWh of energy per year. Thanks to the use of innovative bifacial solar modules that can capture energy from both ends, the plant will generate energy at a rate 18% higher than that of an average solar plant. When it comes into operation, the renewable energy produced by the facility will save approximately 207,000 tonnes of CO<sub>2</sub> from the air emission.

### Aperam Electric Steel - the material of choice for innovation

Electric steel is behind the Sirius Project, the second particle accelerator in the world and the largest and most complex scientific infrastructure ever built in Brazil. In need of a material that could withstand a highly magnetic product, Aperam's E233 electric steel was the natural choice for the project. This is because the E233's high electrical permeability results in low magnetic losses - an essential feature for the accelerator to function. E233 electric steel is also commonly used in wind turbines and electric motors, along with hermetic compressors used in refrigerators, freezers and air conditioners.

### Aperam Service Center in Brazil launches virtual store for sales of stainless steel

Aperam's Service Center in Brazil launched the country's first virtual store for sales of stainless steel. The online store offers about 115 items, including bars, plates, fittings and tubes. It also has an intuitive user interface for easy navigation and an interactive customer service function, which allows customers to ask questions and get real-time assistance with their purchases.

After a successful initial launch in the state of São Paulo, the website will be launched throughout Brazil. Once available across the country, the site will play a key role in promoting the many benefits of using stainless steel. As a result, it will contribute to increasing the absorption of stainless steel in Brazil.

The online store is the beginning of a promising new sales path for stainless steel in the digital age! Learn more at: <https://loja.aperam-servicos.com.br/>



Stainless steel concrete mixer truck



First fully robotic fast food chain chooses stainless steel



Electric grain-oriented steel provides renewable energy



Aperam Electric Steel - the material of choice for innovation



Aperam Service Center in Brazil launches virtual store for sales of stainless steel