



estree

LIXO É SÓ O COMEÇO

# SUSTAINABILITY REPORT

2017

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OVERVIEW

**31 MILLION PEOPLE**

served by the public collection system

**8 MILLION METRIC TONS**

of waste collected or received

Present in

**7 BRAZILIAN STATES**

**13.3 THOUSAND**

employees

ECO-EFFICIENCY

Generated

**412.1 THOUSAND CARBON CREDITS**

Generated

**82 GWH OF ELECTRICITY**

from biogas, enough to serve a city of

**180,000 INHABITANTS**

HIGH-QUALITY, EFFICIENT OPERATIONS

**1.2 MILLION CUBIC METERS**

of leachate treated

**2 EFFLUENT**

treatment plants

ENVIRONMENTAL EDUCATION

**340,000 PEOPLE REACHED**

in 10 years of Instituto Estre

**52 CITIES**

reached in 2017

Aerial view of the Paulínia (SP) landfill, May 2018

**INNOVATION IN  
WASTE MANAGEMENT**

**116,000  
METRIC TONS**

of waste processed in blending and  
Refuse Derived Fuel (RDF) processes

**GOVERNANCE,  
TRANSPARENCY AND ETHICS**

**LISTED  
ON NASDAQ**

Certified to ISO 37001  
Anti-bribery Management Systems

**HEALTH AND  
SAFETY**

**50%  
REDUCTION**

in injuries

**45,71%  
LOWER**

injury rate

**85,3%  
REDUCTION**

in days lost

**2017 HIGHLIGHTS**

Aerial view of  
the Paulínia  
(SP) landfill,  
May 2018

# ABOUT THIS REPORT

GRI 102-40, 102-42, 102-43, 102-44, 102-46

Este's Sustainability Report 2017 is a tool to communicate with shareholders, market analysts, customers, employees, suppliers and other stakeholders about sustainability. The content of this report covers the period from January 1 to December 31, 2017.

The content refers only to the operations of Este Ambiental S.A. in Brazil, including data about our socioenvironmental, economic and operational performance as well as about our relationship with stakeholders.

As in 2016, this Sustainability Report has been prepared in accordance with the Core option of the Global Reporting Initiative (GRI) Standards, and with reference to the Integrated Reporting Framework advocated by the International Integrated Reporting Council (IIRC). **GRI 102-45, GRI 102-50, GRI 102-52, GRI 102-53, GRI 102-54**

Throughout this report, we reiterate our commitment to advancing the Agenda 2030 and indicate how what we do connects to the Sustainable Development Goals. Este contributes towards 12 of the SDGs, and any activities connected with the Goals are flagged by icons in the relevant chapters. For further information, see the GRI Content Index.

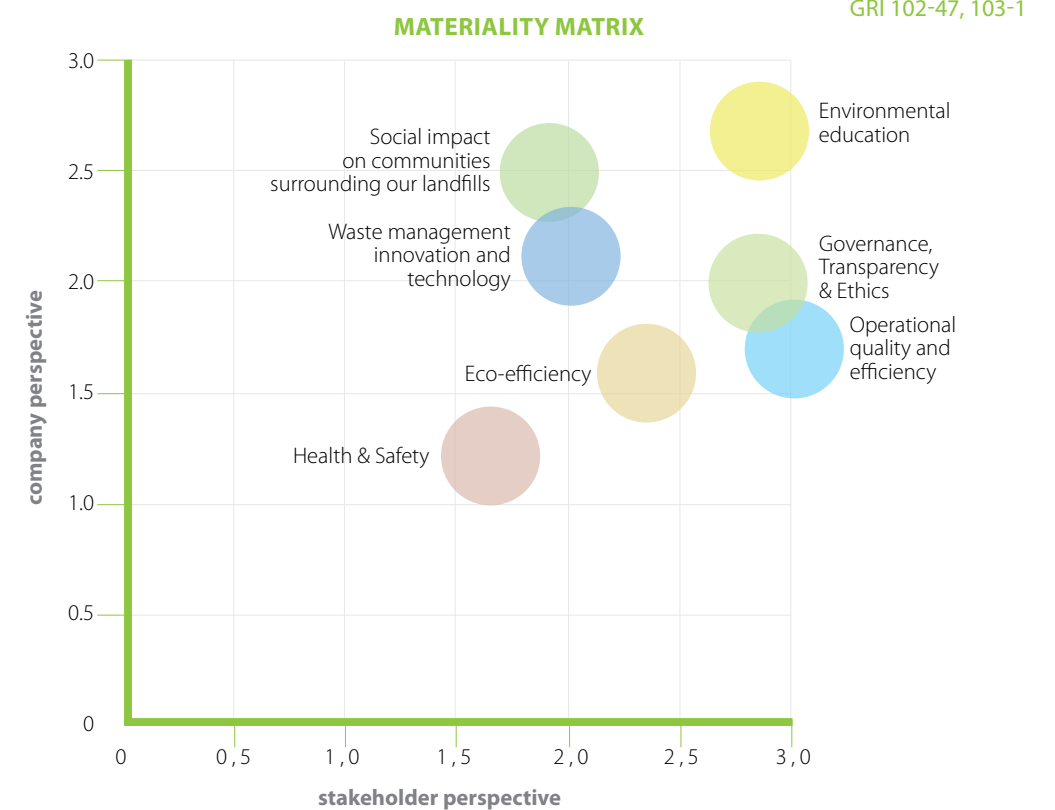


## STAKEHOLDER SURVEY

This report has been informed by an extensive stakeholder survey used as the basis for building our materiality matrix. Our internal strategic topics were intersected with issues deemed material by our different stakeholders. The materiality exercise included a document review and deep-dive interviews with senior management, advisors and experts. Focus groups were also held with commercial

managers and members of the Paulínia community. Lastly, a broader online survey covered customers, employees, partners and communities surrounding our operations.

7 priority issues were derived by intersecting the issues deemed most material by external stakeholders and by senior management, and these informed the selection of GRI disclosures in this Report (*read more on page 80*).



# LEADERSHIP AND ENVIRONMENTAL STEWARDSHIP IN BRAZIL

The Brazilian waste market has developed rapidly in recent years and shares many common characteristics with the US market, including the way waste is collected, transported, processed and eventually disposed of. In the US, after the passage of strong environmental regulations during the 1960's, 1970's and early 1980's, rapid efforts were undertaken to replace the existing "dumps" with sophisticated sanitary landfills that would protect the environment and the citizens.

The resulting requirement for investment capital to undertake this transformation, as well as the economies of scale resulting from this opportunity, saw a rapid

institutionalization of the industry with large investment capital inflows. "Waste" has evolved to be viewed as a resource – for example where value can be extracted from recycling, for use as a fuel, as well to produce electricity from landfill gas.

While Brazil has rapidly followed the US development cycle, we are still tackling the challenges of legacy open dumps, their adverse impacts on the environment, and the toll they have had on public health. People who earn a livelihood from or live near these dumps are exposed to illness and disease that spread through the water, soil and air. Waste management – through



ESTRE RECOGNIZES ITS VITAL ROLE IN PROTECTING THE ENVIRONMENT AND ADVANCING SUSTAINABILITY FOR EVERY BRAZILIAN

environmental stewardship and sustainability management - plays an important role in the economic development and prosperity of Brazil.

Estre is a leader at the forefront of Brazil's consolidating and fast-developing solid waste industry. Through Estre's recent public listing on NASDAQ, we have demonstrated our role as a pioneer in attracting institutional foreign capital to the tremendous opportunities in Brazil. This listing will enable Estre to strengthen its capital base, continue to invest, and expand the markets it serves in Brazil – particularly those areas where compliant waste management does not yet exist.

As a US listed company with International investors, Estre has strengthened and expanded its compliance policies and procedures – even beyond the industry-leading levels that were in place at the company previously. While Brazil's slow economic recovery may constrain future projects, it is important that we continue to pursue our ambitions and further deliver on our strategy as an industry leader.

**Andreas Yutaka Gruson**  
Chairman of the Board

# COMPLEX OPERATING CONDITIONS DEMANDED DARING AND EXCELLENCE

The waste management and environmental solutions industry is seeing profound and rapid change. New technologies, enhanced governance, new sustainability guidelines and cost reduction, among other issues, are challenging companies to find increasingly efficient and profitable solutions.

In the Brazilian market, conditions are even more challenging given the still significant effects from the long-running and multifaceted economic crisis, which has continued to constrain government spending and infrastructure investment. In our industry, one of the most dramatic effects is illustrated by the fact that over half of municipal waste volumes in Brazil are not properly disposed of or even collected.

These complex operating conditions require companies to develop bold, creative and

agile solutions. Estre Ambiental has delivered consistent results since 2015 by implementing management strategies underpinned by operating excellence, compliance, and a strong environmental commitment.

These management programs paved the way for Estre's public listing on NASDAQ in December 2017. The merger with Boulevard Acquisition Corp II has helped to significantly reduce our indebtedness and strengthened our capital base.

Now with access to the largest capital market in the world, and with the most comprehensive range of waste management services in the market, Estre is preparing to lead the consolidation of Brazil's solid waste industry. Unmet demand for compliant waste management in over half of Brazil's municipalities provides a broad horizon of opportunity

“

WE ARE COMMITTED TO LEAVING FUTURE GENERATIONS A HEALTHIER PLANET THAN THE ONE WE KNOW TODAY



to be explored.

In our efforts to fill this gap, we continually strive to deliver operational excellence through our human capital. Following the reformulation of our occupational health and safety programs to meet OHSAS 18001 requirements, we have successfully exceeded our accident reduction targets year after year.

Also significant was our certification to ISO 37001, the international gold standard for anti-bribery management systems. Estre was the third company in Brazil, and the first in the waste management industry, to obtain certification. Achievements like these are a testament to our efforts to implement best-practice internal controls and compliance.

Our continuing drive for operational excellence and continual improvement in compliance is delivering further on our original, overarching

commitment to environmental stewardship, which has been with us since our company was first founded nearly 20 years ago.

Estre is helped by partners and trusted by customers to care for the environment each day. We are committed to leaving future generations a healthier planet than the one we know today. In the following pages, we describe the journey we have traveled to transform waste back into resource for the economy, delivering sustainable benefits to broader society in the regions where we operate. I hope you will also join us on this journey.

**Sergio Pedreiro**  
CEO



Aerial view of the Paulinia (SP) landfill



# ESTRE AND SUSTAINABILITY

Related Sustainable  
Development Goals  
in this chapter:



# ABOUT ESTRE

GRI 102-7, 102-8, 102-6



Estre's relationship with sustainability goes back to our beginnings. Approximately 40% of waste volumes in Brazil are not properly disposed of, causing serious harm to the environment, communities and public health. Fortunately, the solid waste industry has evolved and matured, and Estre is leading at the forefront of this consolidating market.

Efforts to implement compliant waste disposal and to develop and invest in waste recovery technologies create enormous value for society and our planet. This is our purpose: to care for our environment with integrity, efficiency and respect for stakeholders. **GRI 102-1**

With a 20-year presence in

the Brazilian waste market, Estre sees waste as the beginning of a cycle. Through our services for cities—including waste collection, treatment and value recovery—we help to build cities that are cleaner, more sightly, and more sustainable. For citizens, we provide greater quality of life, well-being and health. And for businesses, we help to reduce impacts from their value chain, enhance environmental stewardship, and help organizations transition to a circular economy.

We deliver a host of social and environmental benefits through a range of technologies, which we describe throughout this Report. Optimally efficient Waste Management Centers, waste-to-

energy plants, Refuse Derived Fuel (RDF) operations, reverse electronics manufacturing, construction waste recycling, and healthcare waste treatment are just a few examples of our world-class waste treatment technologies.

**GRI 102-2**

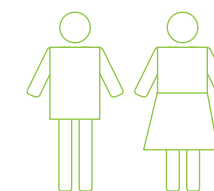
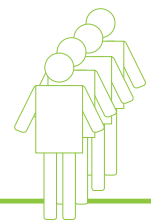
Instituto Estre celebrated its 10<sup>th</sup> anniversary in 2017. The Institute was created to provide information and raise awareness about the challenges of waste management in society, and is recognized as a thought leader in Brazil for environmental education. Our relations with communities surrounding our operations are also a priority; we work consistently to build trust and communicate transparently about our activities

and how we contribute to the well-being of our communities.

Ethics, compliance, safety and people are further pillars of our strategy. Throughout this Report, you will learn more about our vision for sustainability and creating value for the environment and society through solutions for cities and companies.

The Jardimópolis (SP) landfill

**31 MILLION**  
people served by the public collection system



**4,000**  
Customers in the private sector  
**141** government customers

# COMMITMENT TO SUSTAINABILITY



Estre panel at the Ethos Conference 2017

An important sustainability milestone between 2016 and 2017 was the publication of our Sustainability Report in accordance with Global Reporting Initiative (GRI) guidelines. “Sustainability reporting has taken us a great deal further in strengthening our position as a leader in sustainability”, says Sustainability Manager Mariana Rico.

Another important milestone was the introduction of our Group-wide Sustainability Policy. In it, we reaffirm our role in transforming society by developing the environmental industry with a focus on compliant

waste management.

In 2017 Estre had the opportunity to sponsor the Ethos 360° Conference 2017, during which we led and moderated a round table themed: “Innovation and the Circular Economy in Waste Management”, and were invited to attend a round table themed “A private-side perspective on public procurement mechanisms”. Throughout the two-day event, Instituto Estre exhibited an educational scale model depicting the waste cycle. It was a golden opportunity to position the Company in one of Latin America’s foremost sustainability forums.

# ALIGNED WITH UN INITIATIVES

In 2017, Estre reaffirmed its commitment to the UN Global Compact and to implementing corporate policies and practices that are aligned with universally agreed and internationally applicable values and goals, through initiatives in the areas of human rights, labor rights, environmental protection and anti-corruption. Our letter of commitment to join the UN Global Compact was signed by our CEO and the terms and conditions for use of the Global Compact logo were signed by our Legal and Compliance Director.

The 17 SDGs are listed below, and the 11 related to Estre's business are explained throughout the Report. For further details, see the summary on page 80.



# ABOUT ESTRE

**Estre Ambiental S.A. is the largest environmental services company in Brazil. While most still see waste as the end-result from production or consumption, Estre sees it as the starting point for a whole range of opportunities.**

## OUR MISSION

To provide innovative environmental solutions safely, responsibly and ethically, and improve people's quality of life by promoting awareness and engagement, and creating value for our customers and shareholders.

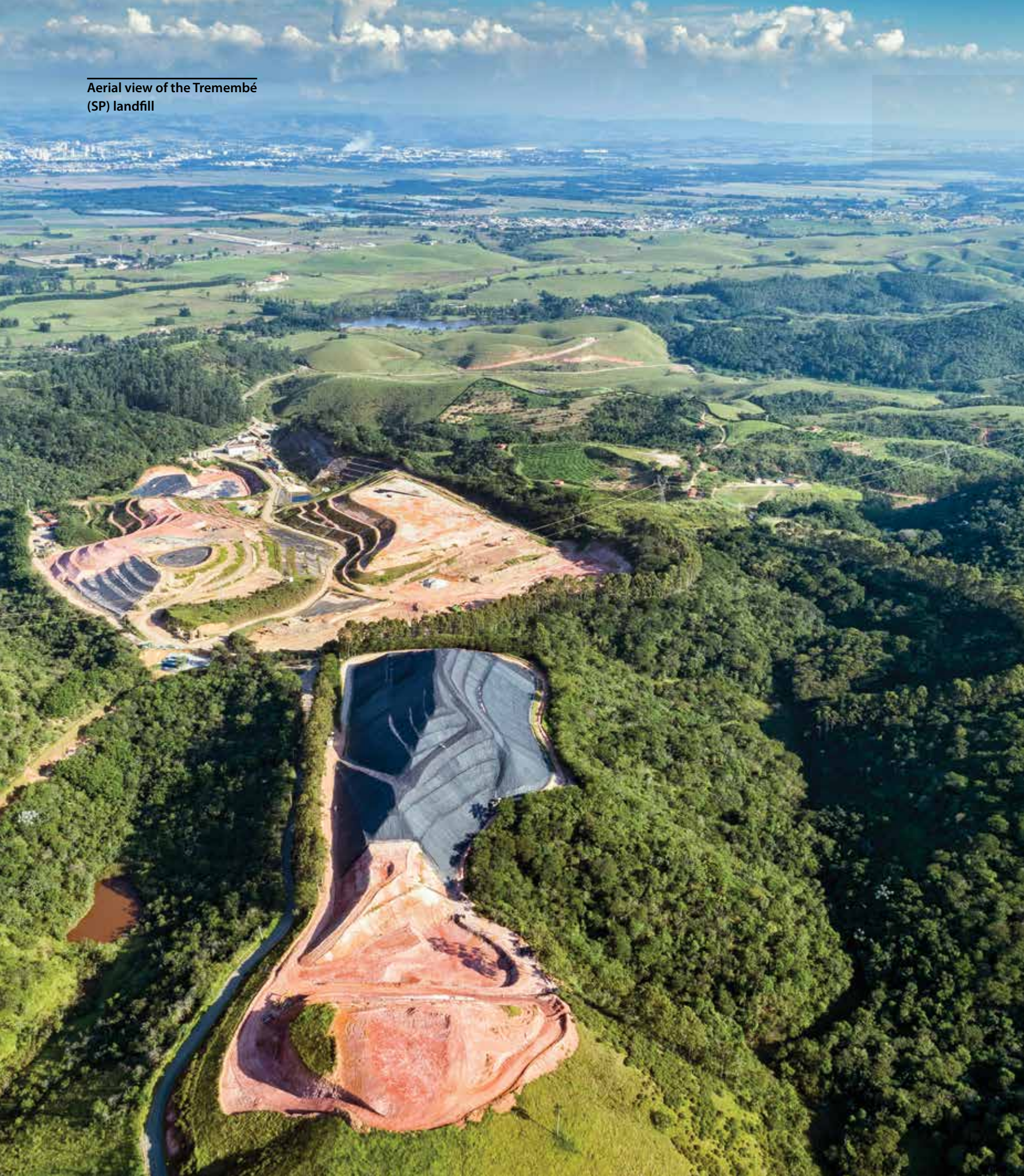
## OUR VISION

To be the leading provider of environmental solutions in Brazil, while promoting innovation, ethics and sustainability.

## OUR VALUES

We recognize and value our people; we do the right thing, safely; we are passionate about our business; we act as business owners; we act with humility, simplicity and ethics; we encourage innovation.

Aerial view of the Tremembé  
(SP) landfill

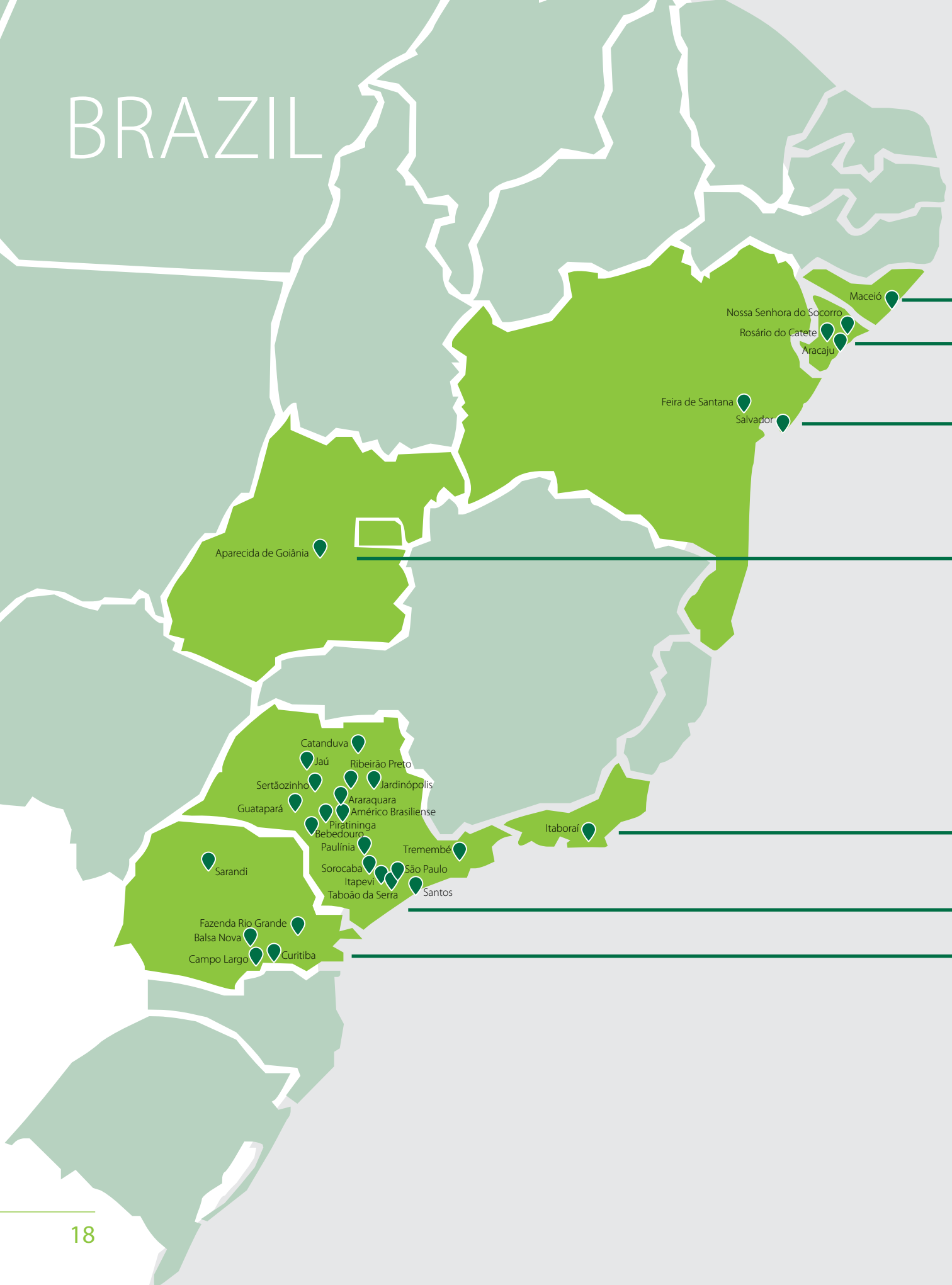


# TIMELINE

- 1999** – Estre is established
- 2000** – The Paulínia landfill starts operation
- 2003** – The Itapevi and Santos landfills start operation
- 2004** – First certification to ISO 14001
- 2006** – Estre acquires the Guatapar and Jardinplis Waste Management Centers
- 2007** – Instituto Estre is established
- 2008** – Acquisition of Oxil (reverse logistics for electronic waste)
- 2009** – Partnership established between Angra Infra and Estre; followed by acquisition of Veolia assets
- 2010** – Landfills in Macei, Curitiba and Itabora start operation
- 2011** – Acquisition of Cavo, followed by investment from BTG (Estre initiates street cleaning and waste collection services)
- 2012** – Estre acquires Itabora, Viva Ambiental and Geo Vision; Tyrannosaurus value recovery unit starts operation
- 2015** – Estre Energia starts operation
- 2016** – Estre subscribes to the UN’s Global Compact and the Ethos Institute Business Pact for Integrity and Against Corruption
- 2017** – Estre lists on NASDAQ and achieves certification to ISO 37001 (Anti-bribery management system) for its Headquarters and Capo Redondo units

# BRAZIL

## ESTRE IS PRESENT IN 7 STATES





**Alagoas**  

**Sergipe**    

**Bahia**  

**Goiás** 

**Rio de Janeiro**  

**São Paulo**        

**Paraná**      

### Key

 Sanitary Landfill


 Transfer Station

 Recycling units


 Municipal Waste Collection/Street Cleaning

 Biogas Facility

 Leachate treatment plant

 Co-processing

 Healthcare waste treatment

 Regional Chapter of Instituto Este

# NEW OWNERSHIP STRUCTURE AND ENHANCED CORPORATE GOVERNANCE

Near the end of 2017, Estre underwent a major change in its ownership structure when it listed on NASDAQ under the ticker symbol "ESTR" through Cayman Islands-incorporated holding company Estre Ambiental, Inc. Estre received a significant contribution from an investment vehicle formed by Avenue Capital Group.

The changes have been a watershed for the company and have allowed us to restructure our capital base, with ownership no longer concentrated in a single controlling shareholder. Our public listing has also led to a transformation of our corporate structure and corporate governance framework, including a complete reorganization of our Board of Directors and the creation of new committees. The changes have improved transparency, equity, accountability

and corporate responsibility as the Company continues to grow as a partner to the environment.

## BOARD OF DIRECTORS

The Board of Directors is our highest advisory and management body. It meets at least five times per year to discuss relevant business matters. The Board of Directors is composed of ten members, most of whom are independent directors and all of whom serve a term of three years. The board is actively responsible for Group strategic and financial planning and is advised in performing its duties by three subject-matter committees. These committees, each composed of three members, help to expedite decision making and bring the Board closer to the Group's day-to-day activities.

## Board of Directors 2018

- Andreas Yutaka Gruson (Chairman of the Board)
- Fabio Pinheiro
- Gesner Oliveira
- John Morris, Jr.
- Dr. Klaus Pohle
- Ricardo Pelúcio
- Richard Burke
- Robert Boucher, Jr.
- Sergio Pedreiro
- Stephen S. Trevor

## Audit

This committee is responsible for oversight and decision-making in matters related to financial reporting and disclosures and other matters related to risk and compliance.

## Compensation and Nominating

This committee is responsible for evaluating and nominating candidates to senior-management positions, and for periodically reviewing Estre's rewards and compensation plan, including bonuses.

## Governance

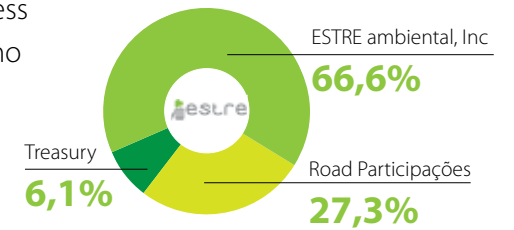
The Governance committee assesses Estre's overall development, including the development of Executives and the Board of Directors. It is also responsible for assigning roles and responsibilities and developing procedures to improve synergy across Group operations.

## Executive Board 2018

Estre currently has 5 executive positions:

- Sanitary Landfills, Value Recovery, Health Waste, Private Business and Environmental Services – Alexandre Ferreira Bueno
- Financial – Fábio d'Ávila
- Legal, People & Management, Compliance, Sustainability, and Corporate Affairs – Julio César de Sá Volotão
- Communications & Marketing – Marcello D'Angelo
- Waste Collection – Thiago Fernandes

## ESTRE AMBIENTAL S.A. OWNERSHIP STRUCTURE



Marcello D'Angelo

Julio César de Sá Volotão

Sergio Pedreiro

Alexandre Ferreira Bueno

Fábio d'Ávila

Thiago Fernandes



# ETHICS AND COMPLIANCE



Estre was the first company in the waste management industry to obtain certification to ISO 37001

**70%**  
reduction in  
environmental  
fine notices

In 2017, Estre became the third company in Brazil, and the only company in our industry, to obtain certification to ISO 37001, an international standard on anti-bribery management systems. The certification covers our Headquarters and the Capão Redondo business unit in the south side of São Paulo city. Successful certification has been the result of continuing efforts to strengthen our Risk & Compliance function with expanded administrative capabilities. For the past three years, a robust Integrity program has been widely disseminated through company communications covering all levels of the organization, as well as suppliers. Risk assessments on our business units and processes have supported the implementation of an Integrity Program across subsidiaries. **GRI 205-1, GRI 205-2**

After receiving tax notices toward the end of 2017 and following the Federal investigations as part of Operation *Descarte*,

an internal audit was conducted by an independent committee appointed by the Board of Directors.

Based on the committee's assessment on integrity in supplier relations and on our compliance standards, a reorganization was implemented within the Soma Consortium, and supplier onboarding policies were enhanced.

Estre also grew in compliance maturity in 2017, implementing action plans and targets with a focus on prevention. This helped to reduce the amount of environmental fines imposed on our landfills by 70%.

Our Compliance function has also been active on other fronts, including our Leadership Development Program (LDP), which featured a module dedicated to ethics and compliance, and was attended by 90% of executives; and our Compliance Guardians Program, which aims to ensure our

employees adhere to our anti-corruption policy, code of ethics and other policies and standards. "Compliance guardians will act as focal points at our business units, helping to disseminate these practices," says Eduardo Azevedo, Head of Risk and Compliance.

In the second half of 2017, Estre organized a Supplier Compliance Day to disseminate our Supplier Code of Ethics and discuss issues around ethics, labor practices and sustainability.

#### **GRI 102-9**

Following our recent public listing, Estre has become subject to stringent international regulations such as the Sarbanes-Oxley (SOX) Act, which has further enhanced our financial controls and efficiency in corporate governance.

#### **Ethics Committee**

Created by the Ethics Committee Policy, this committee is primarily tasked with ensuring Estre's integrity program is implemented and monitored. Senior

management attends meetings (scheduled and extraordinary), with the CEO being ever present.

#### **Compliance Program**

The Compliance and Risk Management function reports periodically to the Ethics Committee and the Board of Directors on the management of the hotline, implementation of the Integrity Program aligned with Anti-corruption Act 12846/2013, training in anticorruption policies, creation of metrics to monitor corruption risks, monitoring internal controls combating corruption and preparing Estre to achieve integrity program certification.

#### **Integrity Program**

Established as a corporate target at the company, the program pursues compliance with the Anti-corruption Act and in 2017 was successfully implemented leading to the payment of bonuses for executives and profit shares to other employees as a result of 90% of this program's controls



Estre Institute's waste cycle scale model exhibited at the Ethos Conference 2017



having been performed. These controls are also established as individual targets for certain executive levels. The program consists of metrics that make it possible to objectively monitor activities, and the consultancy firm Ernst & Young was engaged to carry out an independent assessment. The evolution of the Integrity Program and greater internal disclosure of the Hotline enabled the company to identify cases of corruption in 2017, which led to the professionals involved being punished, and other cases

where contracts with commercial partners were terminated or not renewed as a result of corruption-related violations. **GRI 205-3**

### Scope

All company professionals are required to sign the Accountability and Affirmation Statement related to the corporate code of ethics and conduct and Anti-corruption Policy. Hard copies of the code are given to all staff, including service providers, during the induction process conducted by the personnel and management

department. Professionals and service providers were given training on the Integrity Program by 2017, in the same year a remote course was also administered.

### Conflict of interest Policy

Introduced in 2017, this policy embraces our staff and service providers, who should not be involved in any conflicts of interest that could adversely affect our business. Due diligences are conducted on eligible or high risk positions to detect conflicts of interest, which can be used as a criteria by the Company.

### Business Pact for integrity and against corruption (Instituto Ethos)

Since 2016 Estre has participated in the Business Pact

for integrity and against corruption work group, organized by Instituto Ethos to raise awareness about this issue. Companies undertake the commitment to disclose Brazilian anticorruption legislation to its staff and stakeholders their order to ensure complete compliance with it. Companies also undertake to thwart bribery in all forms and to strive for legality and information transparency, and to collaborate in investigations where necessary.

### Brazilian Institute for Corporate Governance (IBGC)

Estre has recently joined IBGC so it could join the debate about the best corporate governance practices. Estre's representatives also actively participate in the Legal Commission.

INSTITUTO  
**ETHOS**



Street sweeping in Curitiba (PR), where Estre has been responsible for city cleaning for more than 20 years

# ESTRE FOR THE ENVIRONMENT

Related Sustainable Development Goals in this chapter:

 3 GOOD HEALTH AND WELL-BEING	 6 CLEAN WATER AND SANITATION
 7 AFFORDABLE AND CLEAN ENERGY	 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
 11 SUSTAINABLE CITIES AND COMMUNITIES	 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
 13 CLIMATE ACTION	 17 PARTNERSHIPS FOR THE GOALS

# SOLID WASTE IN BRAZIL

A milestone for our industry, Brazil's National Solid Waste Policy (PNRS) set a new direction for the generation, reduction, treatment and compliant final disposal of solid waste. However, a number of challenges remain to be addressed to achieve full compliance with PNRS requirements. These include advancing municipal implementation of integrated waste management systems, achieving financial sustainability

through specific waste taxes and budgets, requiring companies to implement reverse logistics, promoting shared responsibility for waste generation throughout the value chain, implementing municipal waste segregation systems, and replacing open dumps with sanitary landfills by 2021. The 2016 solid waste survey by the Brazilian Association of City Cleaning Companies (ABRELPE) found that:

**41.6%**  
of waste volumes are improperly disposed of



**81,000 METRIC TONS**  
of waste go to irregular dump sites daily



**78.3 MILLION**  
metric tons of waste materials were generated in Brazil (2.04% less than in 2015)



**2.04%**

## A DEVELOPING INDUSTRY

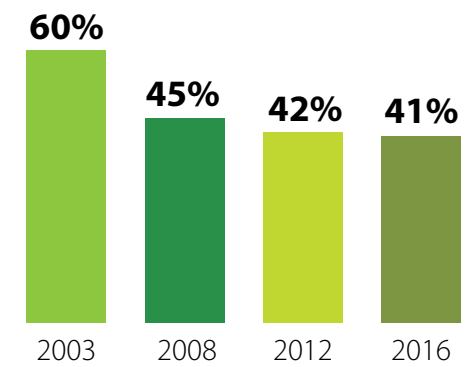
Disposing of solid waste in open dumps has been a crime since the Environmental Crimes Act (Act 9605/1998) was promulgated in 1998. This has compelled the market to develop new solutions and sanitary landfills.

Despite the tougher regulations, however, 60% of waste volumes in Brazil were still disposed of in open dumps in 2003.

Since then, continued implementation and expansion of regional sanitary landfills—such as Estre's own operations—helped to reduce non-compliant disposal to 41% of total volumes by 2016. The private sector has a crucial role to play in the regionalization of

sanitary landfills in Brazil, providing an alternative for cities seeking to achieve waste disposal compliance. According to a study carried out by ABLP <sup>1</sup>, 448 new regional landfills are still needed to eradicate open waste dumps in the country.

### IMPROPER DISPOSAL OF MSW IN BRAZIL<sup>2</sup>



**1.040 KG**  
of household waste per person (declining by 2.9% compared with 2015)



**2.9%**

**THE DECLINE**  
is explained by declining consumption as a result of the economic crisis



<sup>1</sup> *Limpeza Pública* n. 95 (2016) – Brazilian Association of Solid Waste and City Cleaning.

<sup>2</sup> The percentage of improperly-disposed-of-waste is calculated based on daily MSW volumes, which vary with economic conditions and consumption. Source: "Snapshot of Solid Waste in Brazil" - ABRELPE.

# ENVIRONMENTAL SOLUTIONS AND INNOVATION

Finding optimal solutions to exhaust all waste treatment and value recovery possibilities before waste goes to landfill is part of our innovation process at Estre. We recognize Brazil's potential for, and invest in solutions that contribute toward, a circular economy, in

which waste is minimized and discarded products are cycled back into the value chain.

Estre is at the forefront of many of these value recovery processes, such as energy generation from landfills and production of fuel from waste.

## WASTE TO ENERGY

Decomposing waste from homes, tree pruning and other organic compounds in landfills generate a biogas composed of methane and carbon dioxide, which contributes to the greenhouse effect if directly released into the atmosphere.

In 2017, 82 GWh of electricity were generated by our landfill gas plants in Guatapar, So Paulo, and Fazenda Rio Grande, Paran—each has an installed

capacity of 14 MW. The power output is partly used by Estre's own operations, but most is exported to the grid for use by end consumers.

The electricity these plants produce is enough to supply 180,000 people with clean and renewable energy. This has avoided 15,800 metric tons of methane emissions, or 395,000 metric tons of CO<sub>2</sub> emissions, into the atmosphere.

 **15,800 METRIC TONS** of methane emissions avoided, equivalent to **395,000 METRIC TONS OF CO<sub>2</sub>**

**82 GWH OF ELECTRICITY** PRODUCED, enough for a population of **180,000** 

 **412,100 CERTIFIED EMISSION REDUCTIONS (CER) GENERATED**



Fazenda Rio Grande (PR) Waste Management Center, which handles waste from the Curitiba area.



Biogas power plant in Paulnia (SP)

The Tyrannosaurus operation,  
producing Refuse Derived Fuel (RDF)



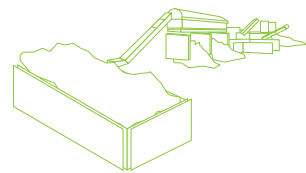
## PIONEERING REFUSE DERIVED FUEL (RDF)

In 2010 Estre became the first company in Brazil to invest in Refuse Derived Fuel (RDF) production technology. The Tyrannosaurus, as the unit has been christened, is capable of crushing large quantities of municipal solid waste (residential and commercial) and non-hazardous industrial waste (Class IIA and IIB). Waste entering the unit is screened by a tightly controlled gravimetric system (based on waste composition), sorted, and mechanically blended with an optimal proportion between dry and wet materials. In 2017, 46,000 metric tons of non-hazardous waste were processed by waste-to-

energy recovery processes.

Estre's RDF meets all applicable state regulations and has a high calorific value of more than 4,000 kcal/kg, exceeding the energy content of other alternative fuels such as wood chips and sugar cane bagasse and trash.

The use of RDF reduces environmental liabilities, increases the useful life of sanitary landfills, and helps to conserve non-renewable natural resources, such as petroleum coke. The Tyrannosaurus is housed at the complex in Paulínia (SP) and has a daily processing capacity of between 300 and 600 metric tons of solid waste.



**46,000  
METRIC  
TONS**

of nonhazardous waste processed into fuel for industrial use

## DISPOSAL OF ELECTRONICS: REVERSE MANUFACTURING

In 2017, Oxil, an Estre Group reverse logistics and manufacturing company, recycled 93% of the 534 metric tons of waste it received, largely consisting of electronic waste including printers and toner cartridges. The small percentage of non-salvageable waste is co-processed in kilns to produce clinker (for cement) or sent to recycling facilities.

Oxil provides a range of services including asset inventory taking, warehousing, destruction of confidential documents, supervised destruction, custom projects for clients, sorting, management of

tax and asset write-off accounting, de-characterization, dismantling and disposal.

E-waste is classified as high-priority waste due to the high level of environmental contamination it can cause. This waste classification system, and the requirement to implement reverse logistics for high-priority waste groups, were introduced as part of Brazil's National Solid Waste Policy (PNRS). With 1.5 million metric tons of e-waste produced per year (only 2% of which is recycled), Brazil generates more of this type of waste than any other country in Latin America.

**534  
METRIC TONS**  
received, of which

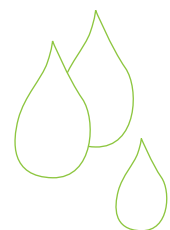


# CO-PROCESSING: BLENDING OPERATION

Resicontrol Soluções Ambientais is an Estre Group co-processing company that specializes in blending non-hazardous or hazardous waste (Class II or I) containing paint and oil sludge, resins, glues, latex, cosmetics, drugs and contaminated soil for use in the production of cement. Materials received at facilities in Sorocaba (SP) and Balsa Nova (PR) are first analyzed at an ISO 17025-certified laboratory. They are then sent for processing, de-characterization and blending using state-of-the-art facilities that provide customers and partners with a safe and high-quality end

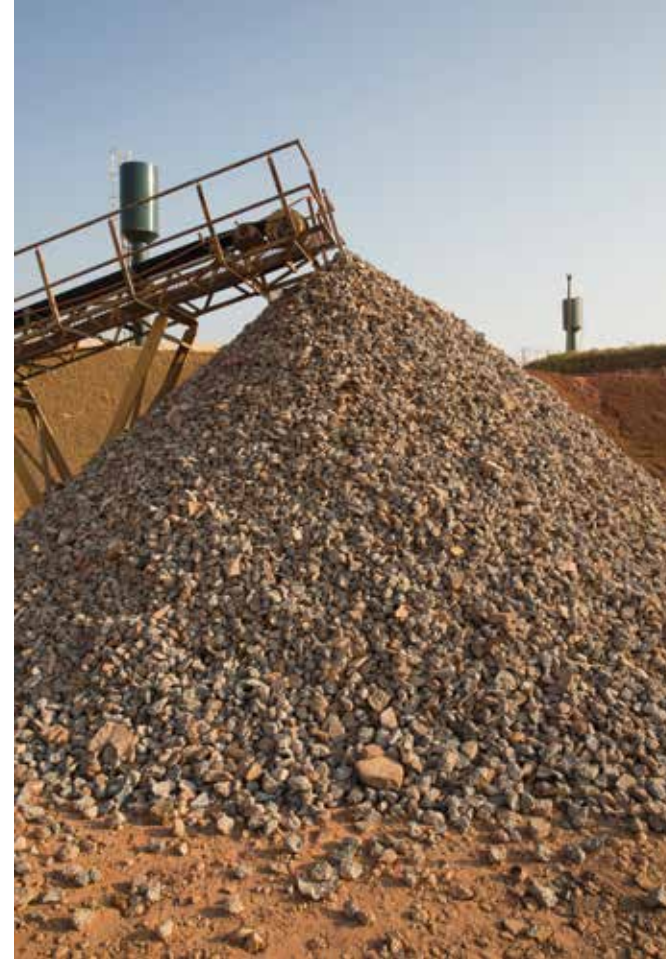
product with no distinctive marks, safeguarding clients' brands and the value chain involved.

The output is similar to the product from the Tyrannosaurus unit: a solid or liquid blend that is high in calorific value and low in chlorine, moisture and ash, and compliant with applicable regulations. In 2017, Estre processed approximately 70,000 metric tons of waste at our blending units, producing enough alternative fuel to generate the equivalent of 350,000 MW of electricity, while helping to conserve natural resources.



## 70,000 METRIC TONS

of waste, enough to generate **350,000 MW** of electricity

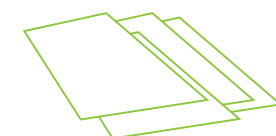


## NEW VALUE FROM CONSTRUCTION WASTE

According to the Brazilian Association for Construction and Demolition Waste Recycling (ABRECON), Brazil produces around 84 million cubic meters of construction and demolition waste each year. If all this waste were recycled, it would be enough to build 7,000 ten-story buildings, 168,000 kilometers of highways or

3.7 million low-budget houses.

Estre has a mechanized recycling system capable of processing various types of construction materials. Sand, gravel, crushed rock, mortar, concrete and ceramic materials are crushed and can be used again. A total of 46,234 m<sup>3</sup> of construction waste were processed in 2017.



**46,234 m<sup>3</sup>** of construction waste recycled

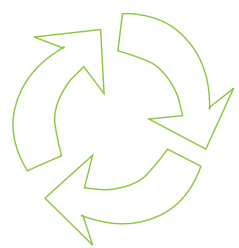
## D-MRF TECHNOLOGY:

# ADVANCING A CIRCULAR ECONOMY

Estre's Dirty Material Recovery Facility (D-MRF) recovers recyclable materials in a process that combines reverse logistics with circular economy principles, producing a clean, safe, traceable and tax-compliant product. The technology cycles waste back into the market as high-quality raw materials usable in producing paper, plastics and metals. Between 2016 and 2017, Estre invested over R\$ 15 million in building and automated waste separation and sorting unit for recyclable materials. The unit has a range of sorting equipment including rotary screens, ballistic

separators, optical separators, reversible conveyors, magnetic separation equipment and inductive separators.

The facility will have a capacity to process more than 120 metric tons of recyclable waste daily, producing more than 35,000 metric tons of recycled materials per year. The unit will be installed in an 8,000 square-meter facility within the Estre complex in Paulínia (SP), operating in tandem with the Refuse Derived Fuel (RDF) unit. Operation is scheduled to commence in the second half of 2018.



**120 METRIC TONS**  
of waste to be  
processed daily,

producing more than  
**35,000 METRIC TONS**  
of recycled materials per year



Aerial view of the Fazenda Rio Grande Bioremediation Unit

## SOIL DECONTAMINATION

Bioremediation is a biological treatment for contaminated soils that leverages the ability of microorganisms, especially fungi and bacteria, to break down organic compounds into carbon dioxide, water and biomass. Typically, infed soils are contaminated with petroleum hydrocarbons (gasoline, diesel, kerosene, lubricants, oils); polycyclic aromatic hydrocarbons (PAH) and BTXE aromatics. Bioremediation management procedures include controlling waste receipt, determining pollutant concentrations, adding appropriate amounts of nutrients, adequately handling soil material,

and maintaining appropriate temperature, humidity and oxygenation in processed soils.

Gas emissions from the Fazenda Rio Grande Bioremediation Unit are captured by an exhaust system and retained by special biofilters. Atmospheric emissions are monitored periodically in accordance with SEMA Resolution 016/2014 and SEMA/IAP Directive IAP 001/2008.

The Fazenda Rio Grande Bioremediation Unit covers an area of 12,000 m<sup>2</sup> and has a capacity to treat 6,600 metric tons of contaminated soils per month. In 2017 the unit received 40,000 metric tons of contaminated soils.

**40,000**  
metric tons  
of soil  
treated

# SANITARY LANDFILLS

GRI 102-11, GRI103-304,  
GRI 103-306

Estre operates thirteen sanitary landfills (known as Waste Management Centers) throughout Brazil, some with healthcare waste disposal units, power generation facilities and effluent treatment plants.

Sanitary landfill efficiency and safety is ensured by soil waterproofing; leachate drainage, collection and treatment systems; surface water drainage systems; biogas extraction as fuel; geotechnical monitoring and periodic reporting to environmental agencies; and fauna and flora control.

We are committed to ensuring

that our sanitary landfills operate in accordance with international best practice, and to preventing any contamination risk for the environment and communities. In 2017, our landfills treated 1.2 million cubic meters of leachate. Our commitment also extends to mitigating impacts as required by our operating licenses.

Special precautions are taken at our nine landfills located near protected areas. These landfills have environmental protection and recovery measures in place to ensure the preservation of existing ecosystems.

**GRI 304-1**

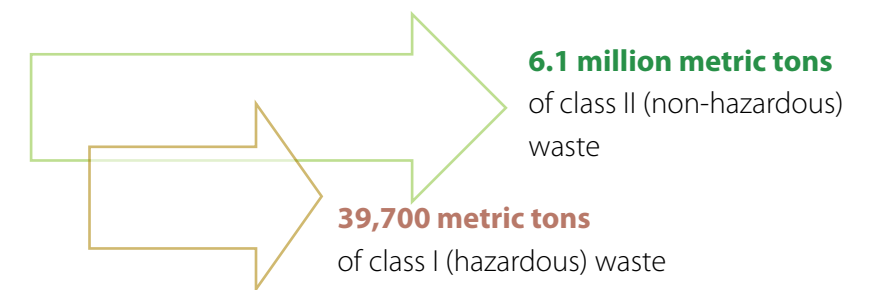
## EFFLUENT TREATMENT PLANTS IMPROVE LANDFILL EFFICIENCY

Effluent treatment plants have been built at two of our Waste Management Centers—Fazenda do Rio Grande (PR) and Maceió (AL)—for on-site leachate treatment. At these facilities, landfill leachate—which has a high organic load and poses a risk of groundwater contamination—undergoes multiple treatment

stages (anaerobic, aerobic, physicochemical, filters) before it is discharged into water bodies. Treated effluent will not impact river biology and is safe for reuse in irrigation, for example. At our other landfills, leachate is treated at off-site plants that are duly licensed by the appropriate environmental protection agency.

**1.2  
million  
cubic meters  
of leachate treated**

**Our landfills at a glance:**



Our landfill in  
Tremembé (SP)







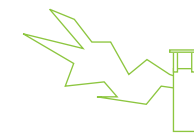
Biogas burners at the Guatapar (SP) landfill

**Final disposal of incoming waste** (in metric tons) **GRI 306-2**

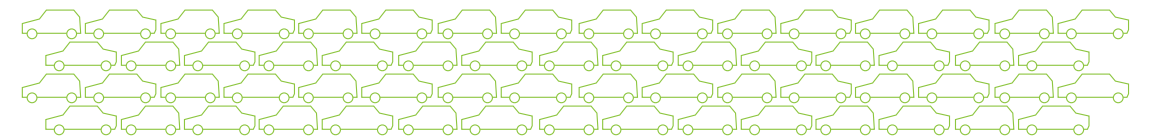
Material	2017
<b>Nonhazardous waste</b>	
Recycling <sup>1</sup>	2,967.88
Recovery <sup>2</sup>	46,994.00
Landfilling	6,080,959.70
<b>Total</b>	<b>6,130,921.58</b>
<b>Hazardous waste</b>	
Co-processing <sup>3</sup>	70,215.00
Landfilling	39,692.00
Treatment of healthcare waste	6,353.87
Bioremediation <sup>4</sup>	39,875.30
<b>Total</b>	<b>156,136.17</b>

<sup>1</sup> Products such as scrap metal and plastics, drums, containers, plastic carboys and pallets.  
<sup>2</sup> Waste sent to waste-to-energy and RDF facilities.  
<sup>3</sup> Waste sent to blending for de-characterization and customer brand protection.  
<sup>4</sup> A process that uses live organisms to reduce contamination in, or decontaminate, soil.

## ESTIMATED GHG EMISSIONS AVOIDED



At Estre’s 13 sanitary landfills, **OVER 100,000 METRIC TONS** of methane emissions are estimated to be avoided by burning methane as biogas, compared with open waste dumps



That’s equivalent to the emissions from **461,872 VEHICLES**, enough to form a line from So Paulo to Salvador.



# ESTRE FOR CITIES

Waste collection in  
Curitiba (PR)

Related Sustainable  
Development Goals  
in this chapter:



# WASTE MANAGEMENT FOR CITIES

Brazil's National Solid Waste Policy, a legal framework for proper waste management, has been in force since 2010, but remains a challenge for many municipal governments as they struggle to meet the requirement to eradicate open waste dumps between 2018 and 2021 (depending on the municipal population) and implement other methods of treatment, such as waste segregation and composting.

And while a grace period has been allowed to implement the Policy requirements, legacy dump sites are already considered irregular as they contaminate the environment (air, soil and water) and are places of high social vulnerability for people who earn a livelihood from or live near these dumps. The situation is most dire in the Northeast, where most waste materials are improperly disposed of.

Estre already operates landfills in Aracaju (SE), Feira de Santana (BA) and Maceió (AL), but sees an opportunity to expand in the region. "The Northeast is where we



Beach cleaning in Maceió (AL)

can deploy widely proven solutions to greatest advantage," says public commercial manager Breno Palma. Estre's other operations are in the states of Paraná, São Paulo, Rio de Janeiro and Goiás. In these locations, Estre offers a range of services to its many public clients (municipal governments), including waste transportation and landfilling, municipal waste collection and street cleaning services, healthcare waste treatment, and construction waste recycling.

Currently, public clients

account for the bulk of Estre's revenues. In 2017, some municipal governments became delinquent due to falling tax revenues. "Many municipalities cut down on street cleaning services to cut costs," says Rodrigo Miata, a specialist at Estre's waste collection and street cleaning department. Because city cleaning services are discretionary and do not have specific municipal budget allocations, delinquency will often increase during economic crises. Despite Brazil's currently adverse economic conditions, Estre is

confident the economy will recover and has continued to invest in innovative technologies that will be increasingly in demand in the future.

## SERVICE OFFERING

### Cleaning

Street sweeping, manual and mechanized waste collection, waste segregation, and city cleaning.

### Treatment

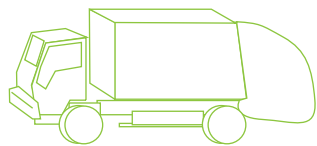
Sanitary landfills, healthcare waste treatment and disposal.

### Value Recovery

Construction waste recycling and mechanized sorting of segregated waste

# STREET CLEANING AND WASTE COLLECTION

In 2017, Estre was responsible for municipal solid waste collection in eleven cities (São Paulo, Taboão da Serra, Ribeirão Preto, Sertãozinho, Américo Brasiliense, Aparecida de Goiânia, Aracaju, Campo Largo, Curitiba, Maceió and Salvador), through either its own or jointly owned operations. A total of 1.9 million metric tons of waste were collected in the year (including household, healthcare and segregated waste), which includes 558,000 metric tons of city cleaning and street sweeping waste collected by SOMA SPE in the south and east regions of São Paulo City.



**1.9 MILLION  
METRIC TONS**  
of waste collected\*

*\*This amount does not include Loga's operations.*



Waste collection in  
Ribeirão Preto (SP)

# WASTE MANAGEMENT FOR SMART CITIES



City cleaning in Aracaju (SE)

The concept of smart cities has emerged in the context of today's highly connected and data-driven world.

A combination of Big Data and emerging technologies is reshaping the way transportation, utility, infrastructure and municipal waste services are managed. Cities are now seen as complex operating systems, in which different industries can be integrated together to achieve more efficient and sustainable solutions.

Estre sees this trend as an opportunity for innovation, and has evolved in tandem with

international and local market developments. A number of successful solutions have already been deployed, such as garbage containers with underground vaults that prevent garbage from building up on sidewalks and make waste collection logistics more efficient.

Smart cities are also on the Agenda 2030 as SDG 11, "Sustainable cities and communities". The UN has emphasized the importance of compliant waste management in urban spaces to achieve sustainable development as urban expansion continues.

## IMPROPER WASTE DISPOSAL AND PUBLIC HEALTH RISKS

A study published in 2016 established a connection between waste disposal and public health. The public healthcare cost of treating diseases related to improper garbage disposal was estimated to be US\$ 370 million per year. The study, a collaboration between the International Solid Waste Association (ISWA), the Brazilian City Cleaning Union and the Brazilian Association of City Cleaning Companies, assessed the impact of more than 3,000 open waste dumps on health and the environment.

According to the survey, waste produced by 75 million Brazilians is disposed of in open dumps or other non-compliant sites. The biggest impacts are on people living near these dumps, waste pickers, and city cleaning workers because of the diseases spread by contaminated

water, soil, air, fauna and flora.

The study looked at solid waste volumes in Brazil between 2010 and 2014 and found, as a conservative estimate, that at least 1% of people served by open waste dumps, or about 750 thousand people, develop diseases.

In addition to the added public health care burden, the study also estimated the environmental costs from CO<sub>2</sub> emissions and damages caused to water bodies, the soil, flora and fauna: an average of US\$ 2.1 billion between 2010 and 2014.

The survey estimates that in 2020 the average cost from legacy waste dumps in Brazil will range from US\$ 3.2 to US\$ 4.65 billion. These funds would be sufficient to wind down all of Brazil's legacy dumps and significantly modernize its waste management infrastructure.

**US\$ 370 MILLION** spent per year on public healthcare

**US\$ 3.2 TO US\$ 4.65 BILLION:** is the estimated average cost of legacy waste dumps in 2020



\*Source: *Saúde desperdiçada – O caso dos lixões* (Abrelpe and ISWA, 2015).



Soil bioremediation  
operation Jardinópolis (SP)

# ESTRE FOR COMPANIES

Related Sustainable  
Development Goals  
in this chapter:



# CONNECTING WITH MARKET TRENDS

In 2017, much effort was focused on expanding our business client portfolio through our newly created Private Business division, which saw a 20% increase in revenue compared with 2016. "Much of the year was dedicated to structuring the business and we are now poised for growth in 2018," says Lucas Herman, head of the private business unit. Among the division's new clients are auto parts maker Mahle, steelmaking company Gerdau, and new operations with mining company Vale, in Pará.

Our service offering for companies includes solutions for value recovery or compliant disposal of all types of waste (industrial, healthcare, construction), ensuring minimal environmental impact. Under

Brazil's National Solid Waste Policy (PNRS), companies are responsible for implementing reverse logistics for their products and waste, ensuring they are reused or properly disposed of. Companies must also inform their consumers about the proper disposal of products and packaging.

In this context, one of our greatest challenges is developing circular economy solutions for businesses. Estre's business service offering includes waste management services for manufacturing and consumer goods and services companies, Refuse Derived Fuel (RDF) production, blending for co-processing, reverse electronics manufacturing, construction waste recycling, and power generation.

# ON A PATH TO A CIRCULAR ECONOMY

The principle that waste should be minimized and discarded products should be cycled back into the value chain defines the circular economy, a new model that is prompting profound changes in production processes. The concept emerged from the realization that simply decreasing environmental degradation and improving process efficiency is not enough to preserve our planet.

This poses a huge challenge for companies, government agencies, and third-sector organizations.

The diversified range of industries we serve—from technology to agriculture—means we inherently have a vested interest in this subject. "Waste from one process is resource for another," says Lucas Herman. While some industries in Brazil are already waking up to the opportunity and the value that can be captured from the circular economy, only a handful of related projects have been implemented so far. Estre is alert to this trend and its enabling technologies and services.

Reverse electronics  
manufacturing in  
Sorocaba (SP)



# WASTE MANAGEMENT



**45%**  
recycled or recovered

Our waste management services are used by manufacturing and consumer goods and services companies of all sizes and span the entire value chain, from waste generation to final disposal, in a fully traceable process. Services include assessment, characterization, environmental licensing, on-site handling, temporary storage, collection, transportation, final disposal at approved sites and waste recovery. In 2017, 89,000 metric tons of waste were handled and 45% were either recycled or sent for value recovery. Our processes are continually reviewed for environmental and economic efficiency, with a focus on potential circular economy opportunities, in which waste becomes a resource for production.



**89,000 METRIC TONS**  
of waste materials



An effluent treatment plant at the Fazenda Rio Grande landfill (PR)

## SERVICE OFFERING

### Value Recovery

Refuse derived fuel (RDF), blending for co-processing, reverse electronics manufacturing, construction waste recycling, and power generation.

### Soil Decontamination

Contaminated land remediation.

### Treatment

Sanitary landfills for hazardous or nonhazardous waste, healthcare waste treatment, and liquid effluent treatment.





Ribeirão Preto (SP): employee meetings to disseminate our safety culture

# ESTRE FOR PEOPLE

Related Sustainable Development Goals in this chapter:



# VALUING AND LOOKING AFTER OUR EMPLOYEES

Objectives and targets are inconceivable without the involvement of people, who at Estre are crucial to our growth. As of 31 December 2017, we had **13,314 employees**.

We have a number of career development programs in place, and apply a performance management model. This enables targets to be drawn up and measured for all departments, thereby ensuring close alignment with business strategies and strong motivation to rise to challenges. One action to strengthen the company's management has been to introduce Individual Development Plans (IDP).

#### **GRI 404-2**

The performance assessment model also makes it possible to direct staff career development information. To that end, the People Committee meets periodically and adopts a series of approaches, such as alignment of performance, career, merits

and recognitions, and so on. Meanwhile, a series of training courses enable staff to recognize or develop their own potential. Among them are the **People Cycle**, which assesses employee development based on targets and skills, and the **Leadership Development Program (LDP)**, focused on promoting managerial skills to ensure that targets are achieved more effectively.

**PEX Landfill** and **PEX Collect** assess and recognize the company's best operations, awarding prizes to the winning facilities.

Also worth highlighting in 2017 are the career fast-tracking initiatives, the recognition of ideas linked to cost-cutting initiatives, and the reinforcement of the internship program.

One of the most important career development projects is the **Fast Track Program**, which aims to identify and speed up staff development with a view to

developing their careers. In 2017, the focus was the Operations and Corporate departments, and 83% of participants were promoted to management positions after six months of the program.

Another important action is the **Develop program**, which was introduced in the second half of 2017 and today comprises 40 topics. The initiative includes courses and training for staff on two fronts: a distance learning platform (comprising various subjects, such as compliance, occupational health and safety, environmental education, etc.) and the Multipliers program, which offers staff the opportunity to voluntarily share their expertise and gain access to new knowledge that will contribute to the career development of all those involved.

As well as skills training, Estre is committed to inclusion and to preparing our human capital for current and future challenges. With

the aim of preparing the our future talents by seeking to align staff with company values from day one of their careers, the internship program was reinforced. Each trainee receives 52 hours of training, divided into three parts: preparation (understanding the business), experiential and enhancement activities, and support and personal improvement plans.

To train staff in the Operations department for the role of driver, the **Right Direction** Program has been in place since 2012. In five years, 83 employees have qualified.

Another action to have left an important legacy is the **PROA Project**. Carried out in partnership with the PROA Institute, this vocational training program for young people on low incomes came to an end in 2016, having first provided six young apprentices with the opportunity to start their very first job at Estre.

# THE IMPORTANCE OF OUR OPERATIONS STAFF

## Time to Learn

For over 20 years, the Time to Learn program has contributed to staff development by providing free schooling and courses on socio-environmental topics. At the end of each cycle, students have their school history officially recognized by the State Education Department. In two decades, over 3,000 employees have taken part in the program in order to complete their primary or secondary education. In 2017, Time to Learn encompassed the Curitiba, Maceió, Ribeirão Preto and Taboão da Serra collection facilities, with 265 participants.

## Making a Difference

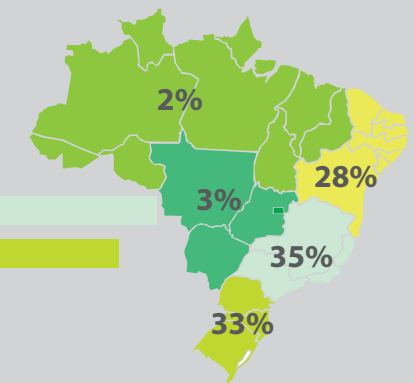
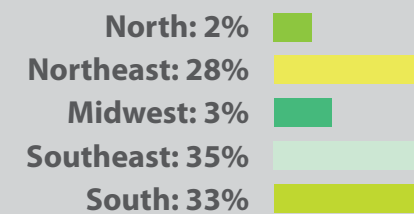
The Making a Difference program is geared to ensuring that Operations staff recognize the value of their own work for society, the company and the environment. The program comprises four pillars:

- Social support (experts on medical, legal and welfare issues take part in informal chats to answer any questions)
- Education and career (encouraging employees and their families to go back to school or obtain technical qualifications, as well as raising awareness about accident prevention in conjunction with the occupational health and safety department)
- Recognition (celebration day for administrative and operational staff and their families to socialize together)
- Leisure and quality of life (encouraging staff to take part in leisure activities and access free health and dental care at the SESC, one of the benefits of working for the company)

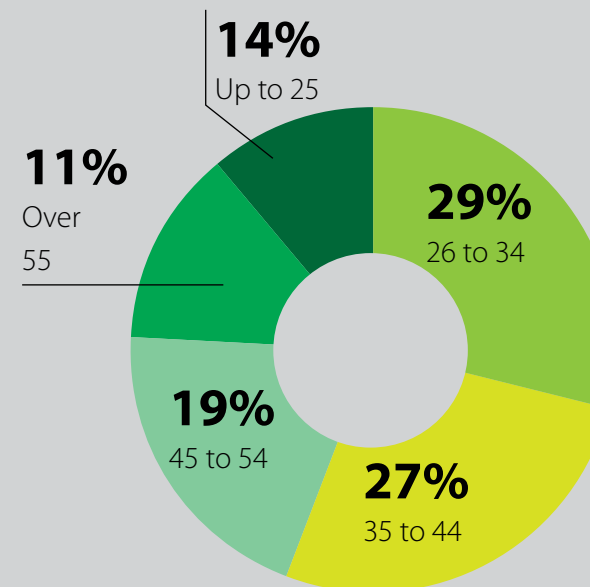
Street sweeping in Curitiba (PR)



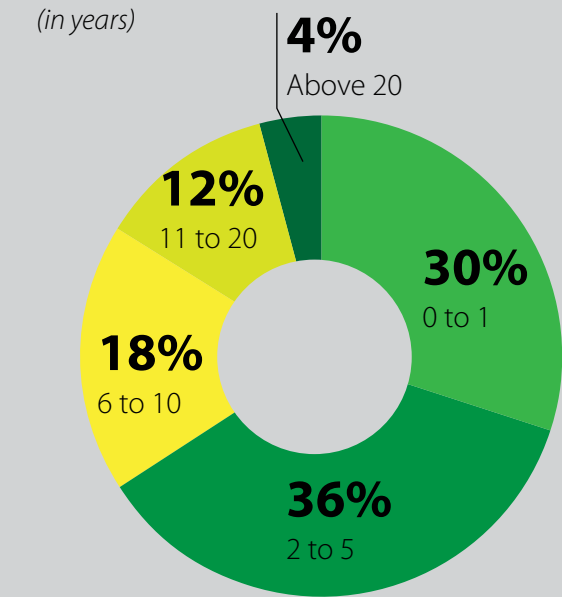
## Workforce by geography \*



## Workforce by age range



## Workforce by length of service (in years)

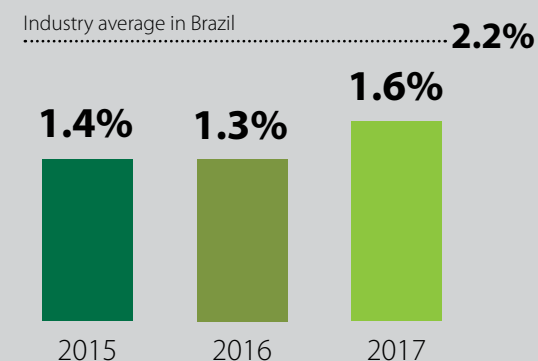


## Workforce by gender

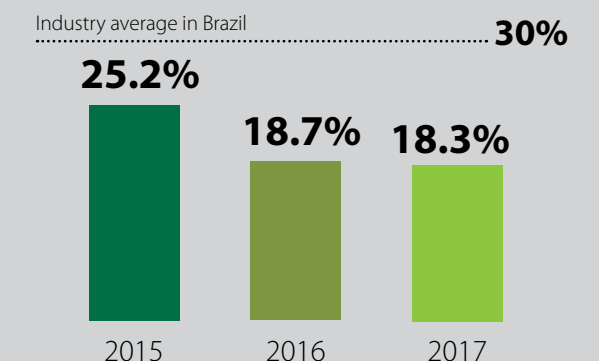


The larger percentage of men is explained by the fact that 71% of our workforce is employed in waste collection services

## Absentee rate



## Turnover



\* This data do not refer to Estre's affiliates.

# HEALTH & SAFETY: CORE VALUES OF OUR STRATEGY

In 2017, we restructured all of our Occupational Health and Safety processes and, in March, launched our new policy. With it, occupational health and safety ceased to be merely a priority for the company, to become one of its values. Twenty-five procedures and 46 forms were drawn up, with the aim of standardizing all activities and reducing the risk of accidents.

The company's intention was to initiate a process of cultural change, and to that end it invested over 55,000 hours of training for operational staff—those most exposed to risk. R\$ 1 million was also invested in structures and equipment to reduce the risk of accidents. The impact of all these efforts adopted by top management was a reduction in the number of accidents (280) compared to 2016, and no fatalities.

Although the outcomes were

positive, Estre is mindful that it must go on cutting accident rates. One of the resources behind the effectiveness of our Health and Safety Policy is the assessment model devised in-house, based on the OHSAS 18001 standard, to measure the level of maturity of the company. In 2017, the result of that assessment rose from 24 to 65 points out of 100. "We structured the safety sphere to achieve ever better results through planning, measurement and discipline, in an effort to make advances," says Marlon Silva.

By reinforcing the theme of health and safety, backed up by various initiatives (monitoring of health and safety risks, working practices and incident management, for instance), injury rates were able to be cut by 45.71% and working days lost by 85.3%, compared to 2016.

**GRI 403-2.**



An employee working at the effluent treatment plant in Maceió (AL)

## Employee health and safety indicators by gender **GRI 403-2**

Rates	2015	2016	2017
	Men and Women	Men and Women	Men and Women
Lost-time injury rates	30.57	29.18	15.84

### Occupational Safety Program Objectives

- Prevent injuries
- Improve work practices
- Manage risks
- Maintain compliance
- Standardize and control

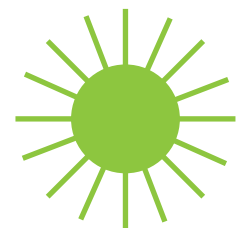


**55,000 HOURS** of training

Injury rate down **45.71%**

Days lost down **85.3%**

Number of accidents down **50%**



Recreational activities  
within the *Varre Grota*  
program in Maceió (AL)



# ESTRE FOR SOCIETY

Related Sustainable  
Development Goals  
in this chapter:



# PRESENCE IN THE COMMUNITY

In order for Estre to manage and dispose of waste safely, thereby protecting the environment and the population's health, a constructive and transparent relationship is essential with the local communities surrounding sanitary landfills.

It should not be overlooked that operating a sanitary landfill can have negative impacts, such as unpleasant smells (as it takes a while before the waste is buried), and traffic due to the circulation of garbage trucks. Local people are not familiar with the workings of landfills either, which creates mistrust and a feeling of insecurity. Estre believes it can use its institutional relations department and Instituto Estre to approach the local community to ameliorate any such feelings and help develop it.

#### **GRI 413-2**

The institutional relations department focuses on social conditions and uses a proprietary methodology to engage communities. The core objective is to foster local development by listening to the community and nurturing sustainability issues, in order to carry out social projects

that benefit and bring together stakeholders. The department also provides information about the venture and carries out environmental education initiatives.

Working with communities takes place from the very start, passing through several stages:

- Mapping stakeholders and diagnostics;
- Engaging stakeholders and community representatives and leaders;
- Creating the local development committee;
- Local development plan;
- Social initiatives and investments according to the established plan.

#### **GRI 203-1, GRI 203-2**

Estre strives to support communities in several ways, one of which is engaging with associations, as is the case of Associação dos Unidos pelos Moradores and Amigos de Rosário do Catete (Aumarc). In this case the company helps strengthen the organization institutionally and carry out activities, such as extra classes for schools, music, lectures etc. **GRI 102-13**



GRI 103-203, GRI 103-413

Sustainable  
Community  
program activities

Other projects are implemented at the Rosário do Catete (SE) plant. The company provided consultants to help associations regularize, carried out social engagement initiatives involving the government and engaged in works related to the parish, which provides coaching activities (IT, English language, and modeling and sewing classes).

NGO *Associação Comunitária de Moradores do Conjunto Santo Onofre e Comunidade São Rafael (Asconoel)* in Maceió (AL), which serves the community hosting our *Varre Grota* program, received a financial donation from Estre to organize events to mark special

dates, such as Mothers Day and Children's Day, and to implement a homework help program for children.

On another front, Estre is assisting waste picker cooperatives in installing sorting units and developing operating procedures, in addition to providing training in environmental education and cooperativism, with a focus on entrepreneurship.

Cooperlândia Ambiental do Brasil, in Paulínia (SP), is a program partner and has become a benchmark for the sector (both in Brazil and internationally) as the first recycling cooperative in the world to be certified to ISO 14001.



Street sweepers in action as part of the *Varre Grotas* program in Maceió (AL)



**67,000**

people benefited by the *Varre Vila* program

**23 DUMP**

sites in 2017, for a total of

**163**

to date

More recently, Estre organized a network of different stakeholders to support implementation of the Rosario de Catete Recycling Cooperative, working with the State Environment Department, the Small Business Support Service (SEBRAE) and the municipal government. This helped to expedite the formal organization of the cooperative and provided an opportunity for further discussion on the municipal Waste Segregation Act and the Local Environment Committee, helping to ensure the financial sustainability of the cooperative.

**GRI 413-1**

### *Varre Vila*

Created in 2012 in the district of Santa Inês, in Ermelino Matarazzo (SP), with support from SOMA

SPE, this program has helped to improve quality of life in host communities. The program currently reaches approximately 67,000 people. *Varre Vila* provides communities with information about waste storage, solid waste management and disposal, urban cleaning and environmental education. Street sweepers are hired from the community and also play a role as stewards and environmental educators, engaging other residents. During the course of the program, many street sweepers expressed a desire to initiate or complete their studies, and this led to the implementation of a literacy education pilot as a subcomponent of the program. In total, 20 people received literacy education in 2017.

### *Varre Grotas*

This program is run by *Viva Ambiental*, an Estre Group company responsible for waste collection in Maceió (AL). The program is designed to engage residents in low income communities, which in Maceió are known as "*grotas*", in cleaning up their neighborhoods. The program has been implemented in three *grotas* (Rafael, Onofre and Conjunto Ipanema), where 12 community street sweepers serve 5,260 families. The program has directly contributed to improving quality of life for residents, has helped community leaders enhance their social outreach, and has become a benchmark program for the local municipal government.

In 2017, Estre joined the **SOS Maceió** campaign when heavy rains left 2,000 people homeless in the city. The Company donated 1,000 cleaning and personal hygiene kits, and canvasses for slope stabilization. In the Rafael community, the *Varre Grotas* team pitched in to help revitalize areas that had been buried in mud.

According to Institutional Relations Analyst Inaimara Medrado, it is important that residents realize the positive impact the program has had on their neighborhoods. "Those areas where the *Varre Grotas* program was implemented were less affected by flooding because storm water systems were not obstructed by improperly discarded waste. The heavy rains would have had a much greater effect on these families if storm water channels were littered with garbage. The program aims to raise awareness, engage and mobilize community residents to make a difference," she says.

### *Ponto Vivo*

Another important program run by *Viva Ambiental* is *Ponto Vivo*, which aims to reduce the number of irregular dump sites in Maceió (AL) through educational community initiatives. It also helps to revitalize neighborhoods by planting trees and performing maintenance at former dump sites. In 2017 the team worked on 23 dump sites, adding to the now 163 dump sites and 23 neighborhoods served since project inception in 2010.



Cooperativa Cooperlândia at the Paulínia Waste Management Center

## Investing in education

Investing in education has been a long-standing practice at Estre. In 2017, we invested more than R\$ 3.16 million in education, including initiatives run by Instituto Estre, *Ponto Vivo*, *Tempo de Aprender*, as well as graduate programs for employees.

# THE IMPORTANCE OF ENVIRONMENTAL EDUCATION AND INSTITUTO ESTRE



In 10 years of service, Instituto Estre (a not-for-profit, public-interest, civil society organization created by Estre in 2007) has directly benefited more than 340,000 people—including 47,000 people in 2017—through environmental education initiatives in the South, Southeast, Midwest and Northeast of Brazil.

Initially created to provide information about waste to students and teachers, the Institute has since grown and diversified, and now interfaces with the public sector, the private sector, and civil society. “Environmental education provides an opportunity for dialogue with a range of different stakeholders, engaging them around our causes”, says Instituto Estre Education Manager Alciana Paulino. Instituto Estre

currently works with a wide range of stakeholders and its educational initiatives cover a variety of interests (environmental education, consumption, waste, sustainable education venues, and civic engagement).

The Institute works on two different fronts:

## Dialogue & Knowledge

The Institute works to promote and engage in dialogue about environmental education, waste and consumption with a wide range of stakeholders, and helps to produce and co-create knowledge in these fields. In 2017, the Institute attended five academic forums and made presentations in three of them. Dialogue with stakeholders with an academic interest in



A scale model exhibited at Instituto Estre in Paulínia (SP)

waste management is also important. In 2017, the Institute was attended by more than 900 people, including university- and associate-level students, and attended a number of Internal Accident Prevention and

Environment Week (SIPATMA) events. An educational scale model depicting the waste cycle was also exhibited at a number of venues, including at the 10<sup>th</sup> Instituto Ethos Social Responsibility Conference.

For further information, see the [Instituto Estre Activities Report 2017](#).



**10 YEARS** of environmental education and more than **340,000** people benefited



**47,108**  
people  
reached

**52 CITIES**  
reached in

**4** regions of Brazil



Students during a visit to the Paulínia Waste Management Center organized by Instituto Estre

### Stories to belong to to the world

A storytelling roadshow that tours schools, city theaters, parks and public spaces using an entertaining approach to engage the audience around subjects such as civic engagement and environmental education. In 2017 the program reached 14,604 people.

### Sustainable schools

This program aims to mobilize

school communities through environmental education, providing the opportunity to make their schools more sustainable. Participants are invited to think and act on the four pillars of a sustainable school: civic engagement, management, curricula (lesson content) and facilities. In 2017, the program reached 14,747 people in Rosário do Catete (SE) and Campinas (SP).

### “Where’s the garbage that was here?”

This is the Institute’s oldest and best-known program, and is designed to raise awareness and discussion about two of the biggest social and environmental challenges today, consumption and waste. The program encompasses training for teachers, development of classroom activities, a workshop with the Instituto Estre team and a study at one of our Waste Management Centers. With a focus on basic education students, the program offers educational materials

developed by the Institute for students and teachers. In 2017 the program reached more than 12,230 participants. Through its three regional chapters—in the Southeast, at our headquarters in Paulínia (SP), in the South, in Fazenda Rio Grande (PR), and in the Northeast, in Rosário do Catete (SE)—the Institute has consistently fulfilled its mission of promoting awareness and dialogue about contemporary social and environmental challenges through critical and empowering environmental education. **GRI 413-1**

“

A LIVING SCHOOL IS ONE THAT IS NOT CONFINED TO ITS WALLS.”

Professor **Andrea Herculano**, Program and Project Coordinator at SME – Caucaia, speaking of the partnership at the Environment Symposium.

# INSTITUTO ESTRE 2017 RESULTS



In 2017, Instituto Estre reached 47,108 people—32,692 directly and 14,416 indirectly—through its outreach activities. The year 2017 saw strong results on the “Dialogue & Knowledge” front, with a particularly large number of university- and associate-level visitors, demonstrating the reputation that the Institute has earned as an expert in environmental education and waste.

Below are the Institute’s figures for 2017.



Visit from Universidad Espiritu Santo (Ecuador) to the Fazenda Rio Grande Landfill

## DIALOGUE & KNOWLEDGE

### Academic Forums & Events

- 143 people
- 5 events
- 3 cities
- 3 papers presented

### University visitors

- 938 people
- 48 technical visits
- 31 education institutions

### Dialogue with companies and other institutions

- 4,098 people

### Integration Program and Estre em Família

- 11 events
- 129 people

### Pescar & Formare

- 196 students
- 23 teachers and volunteer educators

## ENVIRONMENTAL EDUCATION PROGRAM

### Internship Program

- 708 people registered for the Program
- 3 selected

### Pedagogical Workshops Where’s the garbage that was here?

- 496 workshops held
- 237 education institutions
- 10,600 students
- 1,630 teachers and educators

### Sustainable Schools

- 14,416 people
- 31 education institutions
- 12 co-creation workshops

### Stories to belong to the world

- 70 presentations
- 14 cities
- 14,604 participants

Waste collection garage  
in Ribeirão Preto (SP)



# ESTRE FOR THE ECONOMY

Related Sustainable  
Development Goals  
in this chapter:



# ECONOMIC AND FINANCIAL RESULTS

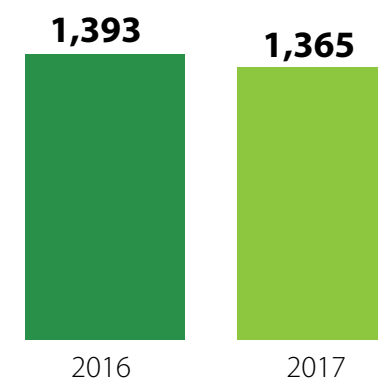
Net revenue declined by 2.0% from R\$1,393 million in 2016 to R\$1,365 million in 2017, largely reflecting reduced revenues from the Oil & Gas segment and a modest reduction in revenue from public waste collection contracts as a result of certain newly concluded contracts being postponed to 2018. The decrease was partly offset by higher revenue from the sanitary landfill and private waste collection client segments. Adjusted EBITDA rose 7% to R\$ 414 million, reflecting lower operating costs and expenses compared with the previous year. As a result, Adjusted EBITDA Margin for the year was 30%.

Estre turned around prior-year losses into net income of R\$ 52 million in the year, largely as a result of the Company joining the PERT/PRT (Federal tax settlement) program. Following the corporate reorganization at year-end 2017, Estre also reduced and restructured the Company's debt to end the year with a Net Financial Debt to Adjusted EBITDA ratio of 3.3x.

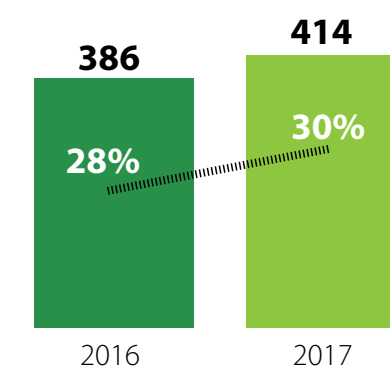


Effluent Treatment Plant: combined division results helped to balance Group financial performance

## NET REVENUE (R\$ million)



## ADJUSTED EBITDA AND ADJUSTED EBITDA MARGIN (R\$ million and percent of net revenue)



\* The information presented in this chapter is for Estre Ambiental, Inc., a NASDAQ-listed company, and includes Estre Ambiental S.A.

## CORRELATION OF MATERIAL TOPICS AND GRI DISCLOSURES

Material Topic	GRI Disclosures	Selected disclosures	
Governance, transparency and ethics	Economic performance	GRI 201-1	
		GRI 201-4	
	Indirect economic impacts	GRI 203-1	
		GRI 203-2	
	Anti-corruption	GRI 205-1	
		GRI 205-2	
		GRI 205-3	
	Public policy	GRI 415-1	
	Operational eco-efficiency	Energy	GRI 302-1
			GRI 302-2
Water		GRI 303-1	
Biodiversity	GRI 304-1		
Operational quality and efficiency	Emissions	GRI 305-1	
		GRI 305-2	
		GRI 305-3	
	Effluents and waste	GRI 306-1	
		GRI 306-2	
		GRI 306-5	
Health & Safety	Occupational health and safety	GRI 403-1	
		GRI 403-2	
Human Development*	Training and education	GRI 404-2	
		GRI 404-3	
Social impact on surrounding communities	Local community	GRI 413-1	
		GRI 413-2	
Environmental Education	Extent of program impacts	Estre Indicator (number of people involved and reached, and initiatives undertaken)	
	Knowledge generated through environmental education	Estre Indicator (number of related publications)	
Innovation & Technology	Recycling and value recovery	Estre Indicator (value recovery volumes)	
	Investment	Estre Indicator (amount invested in innovation and new technologies)	

## GRI CONTENT INDEX

General disclosures				
Organizational profile				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 102: General disclosures 2017	102-1 Name of the organization	5, 10		
	102-2 Activities, brands, products, and services	11		
	102-3 Location of headquarters	Back cover		
	102-4 Location of operations	12		
	102-5 Ownership and legal form	Incorporated		
	102-6 Markets served	11		
	102-7 Scale of the organization	11, 19		
	102-8 Information on employees and other workers	11		8
	102-9 Supply chain	23		
	102-10 Significant changes to the organization and its supply chain	None		
	102-11 Precautionary principle or approach	39		
	102-12 External initiatives	13		
	102-13 Membership of associations	67		
Strategy				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 102: General disclosures 2017	102-14 Statement from senior decision-maker	5, 6, 7		
Ethics and integrity				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 102: General disclosures 2017	102-16 Values, principles, standards, and norms of behavior	15		16
Governance				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 102: General disclosures 2017	102-18 Governance structure	20		
Stakeholder engagement				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 102: General disclosures 2017	102-40 List of stakeholder groups	3		
	102-41 Collective bargaining agreements	3		8
	102-42 Identifying and selecting stakeholders	3		
	102-43 Approach to stakeholder engagement			
	102-44 Key topics and concerns raised	3		

Reporting practices				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 102: General disclosures 2017	102-45 Entities included in the consolidated financial statements	2		
	102-46 Defining report content and topic Boundaries	3		
	102-47 List of material topics	3		
	102-48 Restatements of information	Any restatements were described in the respective chapters.		
	102-49 Changes in reporting	None		
	102-50 Reporting period	2		
	102-51 Date of most recent report	2016		
	102-52 Reporting cycle	2		
	102-53 Contact point for questions regarding the report	Back cover		
	102-54 Claims of reporting in accordance with the GRI Standards	2		
	102-55 GRI Content Index	82		
102-56 External Assurance	None			

## Material topics

### Economic performance

GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	78		1, 5, 8, 16
	103-3 Evaluation of the management approach	78		
GRI 201: Economic performance 2017	201-1 Direct economic value generated and distributed		Not available	3, 7, 8, 9, 11, 12
	201-4 Financial assistance received from government	Estre Group received no financial assistance from the government in 2017		

### Indirect economic impacts

GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	67		
	103-3 Evaluation of the management approach	67		
GRI 203: Indirect economic impacts 2017	203-1 Development and impact of infrastructure investments and services supported	66		3, 7, 8, 9, 11, 12
	203-2 Significant indirect economic impacts	66		3, 7, 8, 9, 11, 12

Anti-corruption				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	23		
	103-3 Evaluation of the management approach	23		
GRI 205: Anti-corruption 2017	205-1 Operations assessed for risks related to corruption	All operations were assessed for risks related to corruption		16
	205-2 Communication and training on anti-corruption policies and procedures	22		16
	205-3 Confirmed incidents of corruption and actions taken	24		16

## Energy

GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3	Information not available: Estre Group has energy generation data available for 2 landfills only. Other operations and the use of energy by vehicle fleets and machinery have not been computed. There are plans to implement an integrated approach to monitoring consumption data to inform the development of an energy management plan. Energy consumption for lighting is not considered relevant for reporting purposes.	
	103-2 The management approach and its components			
	103-3 Evaluation of the management approach			
GRI 302: Energy 2017	302-1 Energy consumption within the organization			7, 12, 13
	302-2 Energy consumption outside of the organization			7, 12, 13

## Water

GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3	Information not available: Estre Group has information available only on water discharge and treatment of landfill leachate. Water consumption for cleaning is not considered relevant for reporting purposes.	
	103-2 The management approach and its components			
	103-3 Evaluation of the management approach			
GRI 303: Water 2017	303-1 Water withdrawal by source			6, 7

## Biodiversity

GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	39, 41		
	103-3 Evaluation of the management approach	39, 41		
GRI 304: Biodiversity 2017	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	38		6, 15

Emissions				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3	Information not available: Information is available only on methane emissions avoided by burning biogas. The company is considering the future development of Greenhouse Gas (GHG) Emissions inventories to provide a better understanding of and improve on our emissions performance.	
	103-2 The management approach and its components			
	103-3 Evaluation of the management approach			
GRI 305: Emissions 2017	305-1 Direct (Scope 1) GHG emissions			3, 12, 13, 15
	305-2 Indirect (Scope 2) GHG emissions			3, 12, 13, 15
	305-3 Other indirect (Scope 3) GHG emissions			3, 12, 13, 15

Effluents and waste				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	38, 39		
	103-3 Evaluation of the management approach	38, 39		
GRI 306: Effluents and waste 2017	306-1 Water discharge by quality and destination		Information not available: Estre is responsible for properly treating leachate produced by our landfills; at 2 of our landfills, leachate is treated on site. at our 11 other landfills, treatment is handled by third-party companies.	3, 6, 12, 14
	306-2 Waste by type and disposal method	40		3, 6, 12

Occupational health and safety				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Goals
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	59, 61		
	103-3 Evaluation of the management approach	59, 61		
GRI 403: Occupational health and safety 2017	403-1 Workers representation in formal joint management-worker health and safety committees	All employees are represented in formal health and safety committees (CIPA).		8
	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	62, 63	Information not available: Information by gender is not available.	3, 8

Training and education				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Sustainable Development
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	59, 61		
	103-3 Evaluation of the management approach	59, 61		
GRI 404: Training and education 2017	404-2 Programs for upgrading employee skills and transition assistance programs	58		8
	404-3 Percentage of employees receiving regular performance and career development reviews		Performance assessments are performed for positions included in our variable compensation program. Other employees receive informal performance reviews through day-to-day feedback.	8

Local communities				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Sustainable Development
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	67		
	103-3 Evaluation of the management approach	67		
GRI 413: Local communities 2017	413-1 Operations with local community engagement, impact assessments, and development programs	68, 73		8, 12, 16 and 17
	413-2 Operations with significant actual and potential negative impacts on local communities	66		8, 12, 16 and 17

Public policy				
GRI Standard	Disclosure	Page	Omission	Sustainable Development Sustainable Development
GRI 103: Management Approach 2017	103-1 Explanation of the material topic and its Boundary	3		
	103-2 The management approach and its components	23		
	103-3 Evaluation of the management approach	23		
GRI 415: Public policy 2017	415-1 Political contributions	Estre Group made no political contributions in 2017.		16

## Agenda 2030 - Sustainable Development Goals (SDGs)

1. No poverty
2. Zero hunger
3. **Good health and well-being**
4. **Quality education**
5. Gender equality
6. **Clean water and sanitation**
7. **Affordable and clean energy**
8. **Decent work and economic growth**
9. **Industry, innovation and infrastructure**
10. Reduced inequalities
11. **Sustainable cities and communities**
12. **Responsible consumption and production**
13. **Climate action**
14. Life below water
15. Life on land
16. **Peace, justice and strong institutions**
17. **Partnerships for the goals**

The SDGs shown in the list above are flagged where relevant throughout this Report.

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**Roberto Panini** – People & Management

**Rodrigo Miata** – Collection

### Images

**Paulo Vitale** – pages 8, 11, 14, 16, 21, 26, 30, 31, 32, 35, 36, 38, 40, 43, 44, 48, 51, 52, 55, 56, 58, 61, 63, 64, 67, 68, 69, 71, 72, 76, 79

**Fátima Lodo** – pages 5 and 7

**ESTRE Archives** – pages 12, 24, 75





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