

# Sustainability Report

VALLOUREC BRAZIL  
2015 / 2016

The  
challenges  
that drive us



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## — INTRODUCTION

This Sustainability Report presents the economic, social and environmental results attained by six of the seven Vallourec companies in Brazil in 2015-2016: Unidade Tubos Barreiro (Tubes Plant), Vallourec Mineração (Mining Plant), Vallourec Florestal (Forestry Plant), Vallourec Transportes e Serviços (Transports and Services Plant) and Tubos Soldados Atlântico (Welded Tubes), Vallourec Espírito Santo. Only the Jeceaba plant is not reported in this document, with the exception of information about socio-cultural activities.

**I**n its 15<sup>th</sup> edition, this is the first time that the report brings together the results of two years, covering the performance of the Vallourec companies in Brazil from January 1, 2015 to December 31, 2016. The decision was taken because of the great transformation the company is going through, with the optimization of industrial processes that have occurred in all the Group. In Brazil, the change occurs with the creation of a new and single company, Vallourec Soluções Tubulares do Brasil (VSB), that will concentrate the production of steel at the Jeceaba plant, as described in the next pages.

This report follows the guidelines of the Global Reporting Initiative (GRI), G4 Essential version, and presents results and forms of management of the main themes, impacts and challenges of our activities. It also considers the supplement with industry Mining and Metals indicators.

All the information published in this report is validated by the respective managers and members of the Environmental Strategic Group (Gema) who are accountable for its authenticity. Internal and external audits to which the Vallourec companies are submitted every year also confirm that these data and initiatives are regularly verified and monitored.

### 2015-2016 Sustainability Report

Period: January 1, 2015 - December 31, 2016

Scope:

- Vallourec Soluções Tubulares do Brasil S.A. - VSB
- Vallourec Mineração Ltda. - VMN
- Vallourec Florestal Ltda. - VFL
- Tubos Soldados Atlântico S.A. - TSA
- Vallourec Espírito Santo - VSB-ES
- Vallourec Transportes e Serviços Ltda. - VTS

Last report: 2014

Profile: GRI-G4 version, Essential



Further information on the Vallourec Group can be found in our site:  
<http://www.vallourec.com/COUNTRIES/BRAZIL/PT>



### MATERIALITY

G4-18, G4-22, G4-23, e G4-24, G4-25, G4-26 and G4-27

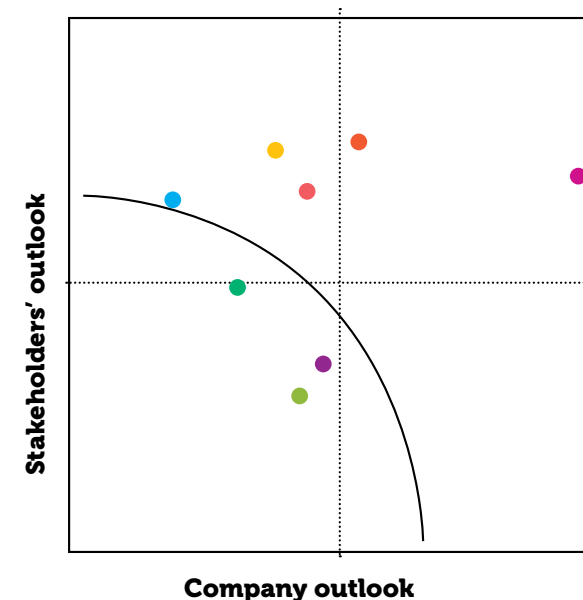
Defining the themes covered by this report is based on the materiality, built on guidance from external consultants, in the fourth quarter of 2016. Members of High Management, employees from different areas and units of the company, customers, partners, neighboring communities and suppliers were involved in the process and collaborated through interviews and/or on-line consultations, in defining the most relevant issues, both from the point of view of the company and of its stakeholders.

Based on this interaction, eight great themes were prioritized, guiding the preparation and the reading of this report, covering chapters 1 to 8. The way the material themes are managed

is detailed throughout the report. In the footnotes of the pages there is information about the GRI-G4 indicators, answered and listed in the GRI Content Summary (p.94).

In 2016, new consultants were contracted to support the company adopting a new methodology to draw up its materiality. The change can be seen in the way the relevant themes are presented and the very materiality matrix. Continuing the managing and reporting process, the themes classified in previous reports, such as "very high materiality" and "high materiality" continue to be reported and are part of the eight material themes presented in this 2015-2016 edition.

### MATERIALITY MATRIX



- 1. Economic development
- 2. Local development of communities
- 3. Innovation, quality and processes
- 4. Health and occupational safety
- 5. Governance and Transparency
- 6. Attracting and retaining talent
- 7. Customer service
- 8. Environmental commitments

\* Limits of aspects (G4-20, G4-21): see annex (p.92)

# MANAGEMENT MESSAGE —



● **ALEXANDRE DE CAMPOS LYRA** /

SENIOR VICE PRESIDENT OF THE VALLOUREC GROUP IN SOUTH AMERICA AND DIRECTOR-PRESIDENT OF THE VALLOUREC COMPANIES IN BRAZIL

**A**n extremely challenging year, 2016 brought a complex reality, including a strong reduction of the national GDP - about 3.6% - and an increase of inflation and unemployment, in the context of a severe political crisis. During 2015 and 2016, the GDP reduction was 7.3%. Thus it can be said that, in general and with very few exceptions, this recession trend affected all production sectors in the country, including steel production.

The oil and gas market, one of the main niches of Vallourec, is going through one of the greatest world crises of its history. In the home market, Petrobras continued at the heart of the Lava Jato (Car Wash) Operation, further reducing levels of purchase of seamless steel tubes, Vallourec's main product.

In the reporting period - 2015-2016 - the market was also impacted by the drop in steel production, that declined to levels of 10 years ago, by the variation of commodity prices, especially iron ore and oil, by fluctuations in the exchange rates in Brazil and the results of the biggest environmental accident in the history of the country, in November 2015. In the last two years, similarly to other companies in the industry, Vallourec was affected by the lack of investment projects and the global reduction of sales prices.

In these two years, the consolidated net income of the Vallourec companies in Brazil was a loss of R\$ 551 million (in 2013-

2014, a profit of R\$ 1.151 billion). The merger of the industrial assets of the Barreiro and Jeceaba sites, making up Vallourec Soluções Tubulares do Brasil (VSB) resulted in an accounting expense of R\$ 786 million, and was the main cause of the loss in this two-year period. On the other hand, the net income from sales was R\$ 4.9 billion (2013-2014: R\$ 6.8 billion) and the production of seamless steel tubes was 171.8 thousand tons in 2016 (Barreiro mill), with a continuous reduction since 2014 (in 2015 there was a production of 234.8 thousand tons and, in 2014, 369.8 thousand tons).

To operate in this new business environment and following the guidelines of the Group, Vallourec showed resilience and agility in decision-making and, at the beginning of 2016, it implemented a world program to increase competitiveness, called "Vallourec Transformation Program", which, in Brazil, saw the main action as the integration of the steel assets in the country, creating Vallourec Soluções Tubulares do Brasil (VSB). The new company, the result of the merger of the industrial assets of the Barreiro and Jeceaba mills, optimized the production structure of the company and sought alternatives to continue to provide high quality products and services to the market, in a more competitive way.

During the months before the merger of the Barreiro and Jeceaba plants, several projects were carried out for the success of this integration. Among these it was the Cultural Change project which, through quantitative and focal group surveys, found the main organizational cultural lines in each unit and, starting from this point, proposed an ideal culture, and its work was extended to the Cultural Transformation Program. During the process, the themes were chosen to guide the desired culture and ten work groups were set up to develop methodologies and map processes to make up action plans to leverage this



— WITH THIS MERGER AND THE TRANSFORMATION PROCESSES, VALLOUREC SOLUÇÕES TUBULARES DO BRASIL NOW HAS THREE LARGE SHAREHOLDERS: VALLOUREC (84.6%), NIPPON STEEL & SUMITOMO METAL CORPORATION (NSSMC - 15%) AND SUMITOMO CORPORATION (0.4%). AS WELL AS A SHAREHOLDER, NSSMC IS STILL A SIGNIFICANT SHAREHOLDER OF THE COMPANY, CONTRIBUTING TO THE RETURN TO GROWTH AND MAINTAINING OUR LEADERSHIP IN THE SEAMLESS STEEL TUBES MARKET.

transformation. This was based on the values of integrity and transparency, standards and professionalism, performance and responsiveness, respect for people and joint commitment.

With this merger and the transformation processes, Vallourec Soluções Tubulares do Brasil now has three large shareholders: Vallourec (84.6%), Nippon Steel & Sumitomo Metal Corporation (NSSMC - 15%) and Sumitomo Corporation (0.4%). As well as a shareholder, NSSMC is still a significant customer of the company, contributing to the return to growth and maintaining our leadership in the seamless steel tubes market.

A further required measure in this environment of economic downturn, Vallourec has used the resource of temporary stoppage of production (layoff). This scheme is a way of keeping employment and occupying the team with training until the return to production. As a result, 2016 saw a record number of training hours: 306 thousand hours, more than double that of 2014 (138.1 thousand hours of training).

Our focus on safety continued as an overall priority in the routine of the Group companies. Even faced with a challenging economic scenario, the company maintained its safety investments, about R\$ 5 million per year, reinforcing its commitment to occupational health and the safety of its personnel. As a result, in 2016, in Brazil, Vallourec recorded a significant improvement in its health and safety performance. The Group improved its

records and, once again, attained the lowest frequency of accidents in its history, with a rate of 6.67 compared to 10.46, in 2015.

In the environmental sphere, the company continued its robust work on the control and reduction of air emissions, with an important result that covers historical data over 30 years. Vallourec finalized its carbon balance, proving that which experience has shown in practice: green tubes "sequester" more carbon from the atmosphere than they emit, resulting in a positive carbon balance. Other issues in our environmental commitment are the use of energy and management of dams. In this last item, Vallourec Mineração is a pioneer among iron ore producers in implementing dry stacking, a process that substitutes dams for the storage of waste, with gains to the environment and society.

Speaking about society, during these two years, we have got closer to the communities. Even in times of austerity, we continued the social and cultural programs and investments, directly and indirectly benefiting over 250 thousand people in 2016, taking into account the audience involved in the cultural and educational activities of Cine Teatro Brasil Vallourec, as well as the social actions carried out regularly in the relationship communities of the Vallourec companies in Brazil.

We started 2017 with a greater confidence in the return to growth of the Brazilian economy. Petrobras, for example, published its business plan for the next five years, maintaining its focus on pre-salt ultra-deep waters, which require extremely high quality tubes. In the foreign market, there is also the expectation of a gradual recovery of the price of oil, with a resulting increase of investments and the demand for steel products.

For this recovery, we have to face the challenge of continuing to work on cost reduction and the full control of resources used in investments and creating inventory. We believe that this commitment, shared by all the team, will result in the adaptation of the basis of costs of production, strengthening our competitiveness and the longevity of our business, adding value for all our stakeholders.



# — VALLOUREC TRANSFORMATION PLAN BRINGS TO LIFE A NEW COMPANY

**T**he two-year period - 2015-2016 - is a landmark for Vallourec. The company drew up and started a new chapter of its trajectory in Brazil, creating Vallourec Soluções Tubulares do Brasil (VSB) - the result of the merger of Vallourec Tubos do Brasil with Vallourec & Sumitomo Tubos do Brasil and the unification of the steel assets of the Barreiro and Jeceaba mills, both in the State of Minas Gerais.

The new company starts with big challenges, given the social and economic scenario and the business environment, but it also has a great potential. With a single and integrated team and a leading structure, Vallourec Soluções Tubulares do Brasil is a technically efficient and highly competitive production center, able to produce over 1 million tons of steel tubes per year for the home and foreign markets.

The merger is part of the Group Transformation Plan 2015-2020 a move toward change and repositioning of Vallourec to maintain its leadership in the premium seamless steel tubes world market.

The unification of the Barreiro and Jeceaba mills may also be considered a significant advance in the alliance of Vallourec with Nippon Steel Sumitomo Metals Corporation (NSSMC). For over 40 years, these two companies jointly developed the Premium connections of the VAM family, in a context of technical cooperation and strategic partnership.

Vallourec Soluções Tubulares do Brasil has the following shareholder structure: Vallourec (84.6%), NSSMC (15%) and Sumitomo Corporation 0.4%. With this structure, besides being a shareholder and partner, NSSMC continues as one of the main customers of the Vallourec group at the international level.

## The Vallourec Group Transformation Plan involves the companies of the group all over the world and its main highlights are:

- In Brazil, the strengthening of the partnership with Nippon Steel Sumitomo Metals Corporation (NSSMC) and the creation of Vallourec Soluções Tubulares (VSB);
- In Europe, the restructuring of operations with the closure of two rolling mills in France, one in Germany and another in Scotland, and the sale of a majority share in a mill in France.
- Development of two highly competitive seamless steel production centers in Brazil and in China
- Strengthening research, development and industrial cooperation with Nippon Steel Sumitomo Metals Corporation
- Increase of capital of the Vallourec Group with the input of capital of about 1 billion Euros by NSSMC, becoming one of the main shareholders of Vallourec, with 15% of the capital.

## BUILDING A NEW CULTURE

The merger of the Barreiro and Jeceaba steel mills - part of the contribution of Brazil to increase the international competitiveness of the Vallourec Group - brought a process of transformation to Vallourec Brazil. This goes beyond the integration of operational, administrative and organizational practice, which is already underway and includes building a single culture, as a means to attain the objectives of the new company.

Throughout 2016, the process of cultural transformation was being implemented, by means of the assessment of the existing culture, identifying the new (desired) culture, as well as setting up groups to leverage cultural change to draw up action plans to actually implement the new culture. In this way, three cultural archetypes began to guide the behavior, the symbols and the systems of the new company, Vallourec Soluções Tubulares do Brasil, that is: Performance, Focus on Customer and One Team.

Currently the work is at the phase of implementation of the action plans.

## Values of the Code of Ethics (Vallourec Way)

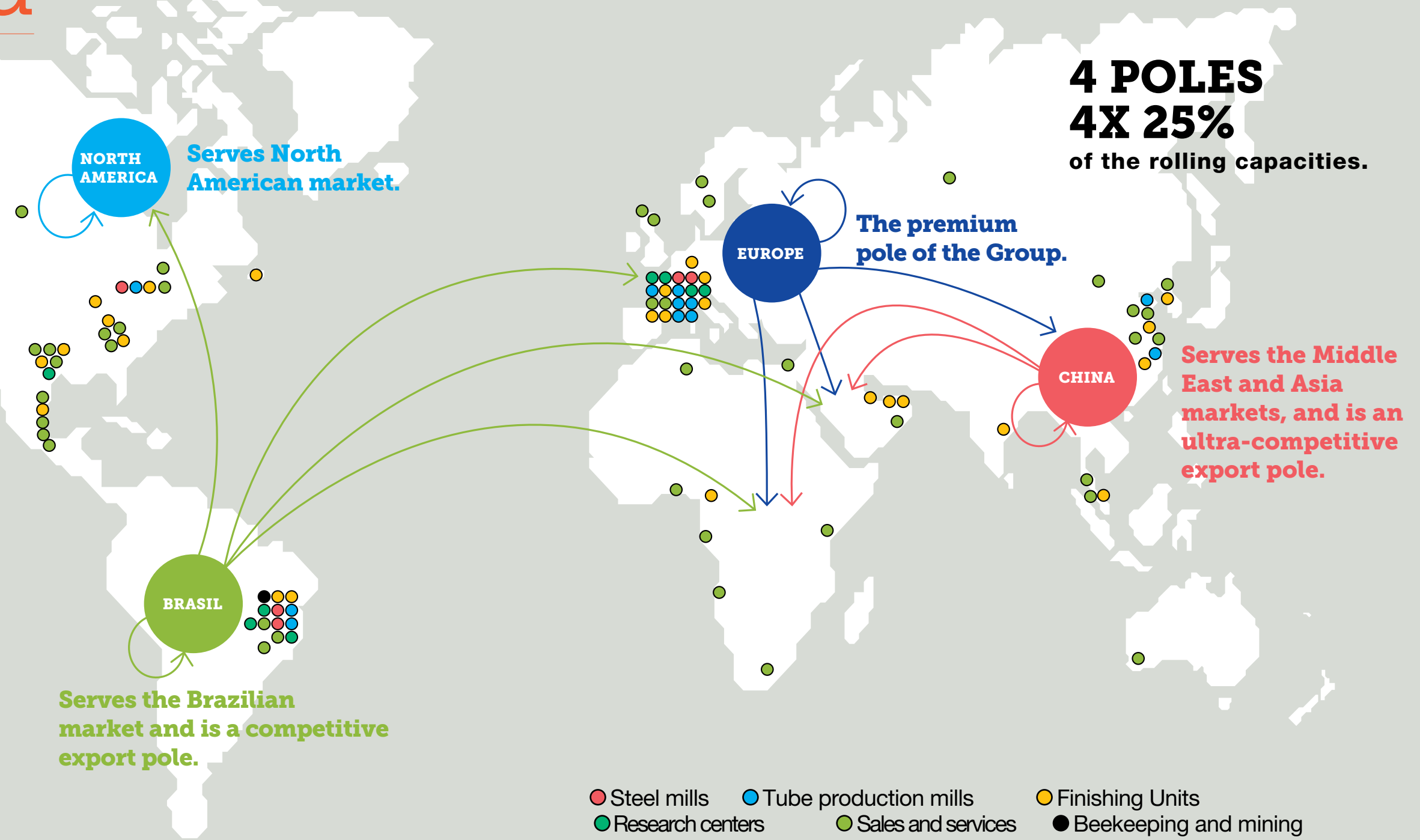
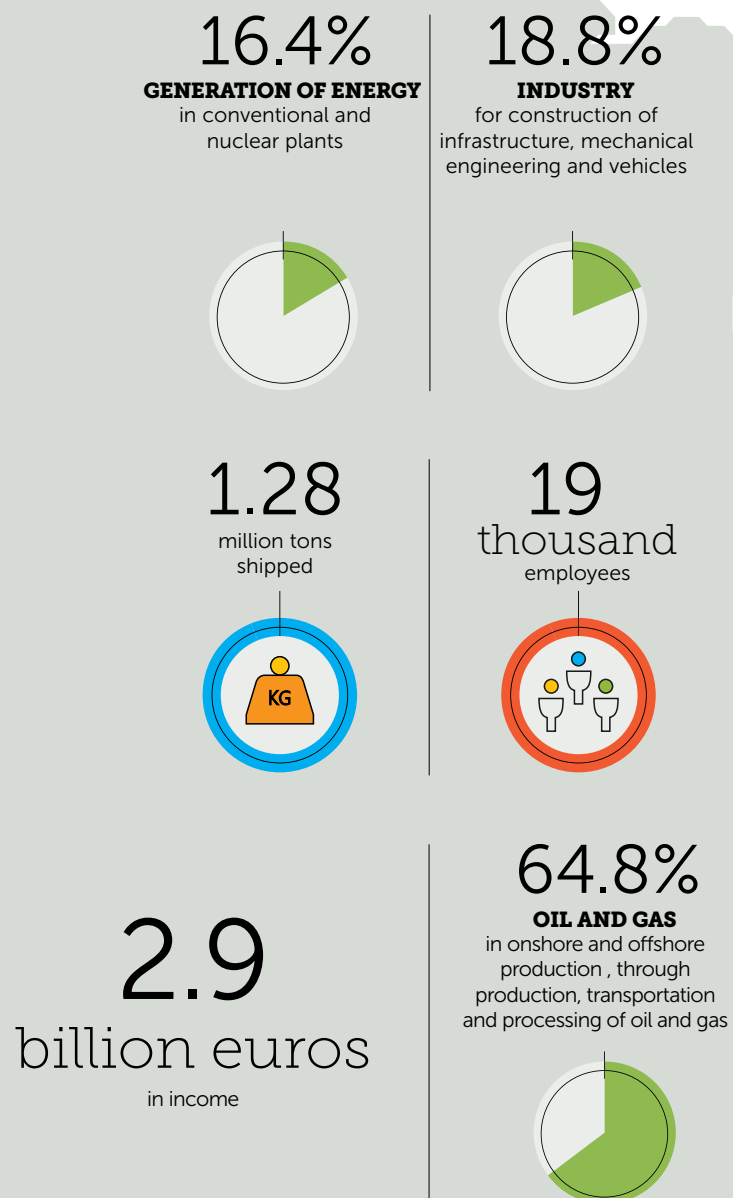
- Respect for People
- Integrity and Transparency
- Standards and Professionalism
- Performance and Responsiveness
- Joint Commitment

## Priority archetypes of the new culture

- 1) **Delivery:** A culture in which employees, teams and the company are expected to deliver what they promised to deliver.
- 2) **Customer Focus:** A culture in which the deep knowledge of the needs of all customers is the basis of all decisions.
- 3) **One team:** A culture in which the common good has precedence over the individual and over the groups.

# Vallourec in The World

**Choosing the most competitive path.** The industrial footprint of Vallourec covers four regions with equivalent capacities and supplies its markets through optimized routes according to the costs and deadlines, from production to delivery



# Vallourec in Numbers

G4-9

Overall information	2014	2015	2016
Number of employees (permanent and temporary)	5,969	5,229	4,355*
Production of seamless steel tubes (Tubos Barreiro Unit) (thousand tons)	370	235	172
Production of welded steel tubes (TSA and Vallourec-ES) (thousand tons)	21	19,30	3,34
Production of internal coating (TSA and Vallourec-ES) (thousand m <sup>2</sup> )**	150	89,69	13,99
Production of external coating (TSA and Vallourec-ES) (thousand m <sup>2</sup> )	212	155,47	50,45
Iron ore production (million tons)	4,3	4,2	4,0
Coal production (thousand tons)	312	301	289
Connections produced in the VTS Factory (unit)	5,557	7,849	2,463
Repaired connections (VTS) (unit)	16,366	5,883	4,855
Investments (million R\$)	269	192,6	233,9
Assets (billion R\$)***	7,2	7,0	8,8
Cost of goods, materials and services (billion R\$)***	2,2	1,9	1,7
Consolidated net sales (billion R\$)***	3,3	2,6	2,3
Net Profit (Loss) (R\$ million)***	556	191	(742)
Employees' salaries and benefits (million R\$)	639	621	619
Net equity (billion R\$)***	5	5,3	5,4
Social donations (million R\$)	7,3	6,7	3,3
Total training hours p/year (thousand)****	138,1	111	306
GHG emissions (thousand tons of CO <sub>2</sub> /year)	491	436	402
Non-hazardous waste (thousand tons/year)	280,5	236	181

\*This reduction is mainly the result of the new arrangement described below. This figure does not include the employees of the Jeceaba Unit, which closed the year with 2,187 employees, some of them transferred from the Barreiro Tubes Unit.

\*\*Including VSB-ES production.

\*\*\*considering the last 3 months in VSB

\*\*\*\*VTS data not included

# Vallourec in Brazil

G4-6, G4-8, G4-9

**Mission of Vallourec Soluções Tubulares do Brasil:** "To be recognized as a Premium tube solution provider, through industrial excellence, cutting-edge technology, sustainable management and cultural diversity, assuring a highly competitive position in the home and foreign markets".

G4-56

## SMART TUBE SOLUTIONS

— Vallourec Brazil is part of the French Vallourec Group, present in over 20 countries and with an installed capacity of three million tons of steel tubes per year. In Brazil, it is the leader in Premium tube solutions, producing seamless steel tubes manufactured from raw material and energy provided by its affiliates, Vallourec Mineração and Vallourec Florestal.

In 2016, the Group reinforced its strategic presence in the country with the merger of the Barreiro and Jeceaba mills and the creation of a single company: Vallourec Soluções Tubulares do Brasil (VSB). The Vallourec Group in Brazil also includes the helical tube unit, Tubos Soldados Atlântico (TSA) in partnership with Interoil, Vallourec Transportes e Serviços (VTS) and Vallourec Espírito Santo (Vallourec-ES), as well as sales offices in São Paulo (state of São Paulo), Rio de Janeiro (state of Rio de Janeiro) and Natal (state of Rio Grande do Norte) and branches in Sorocaba (state of São Paulo) and Caxias do Sul (state of Rio Grande do Sul). There are over 4 thousand employees in these units.

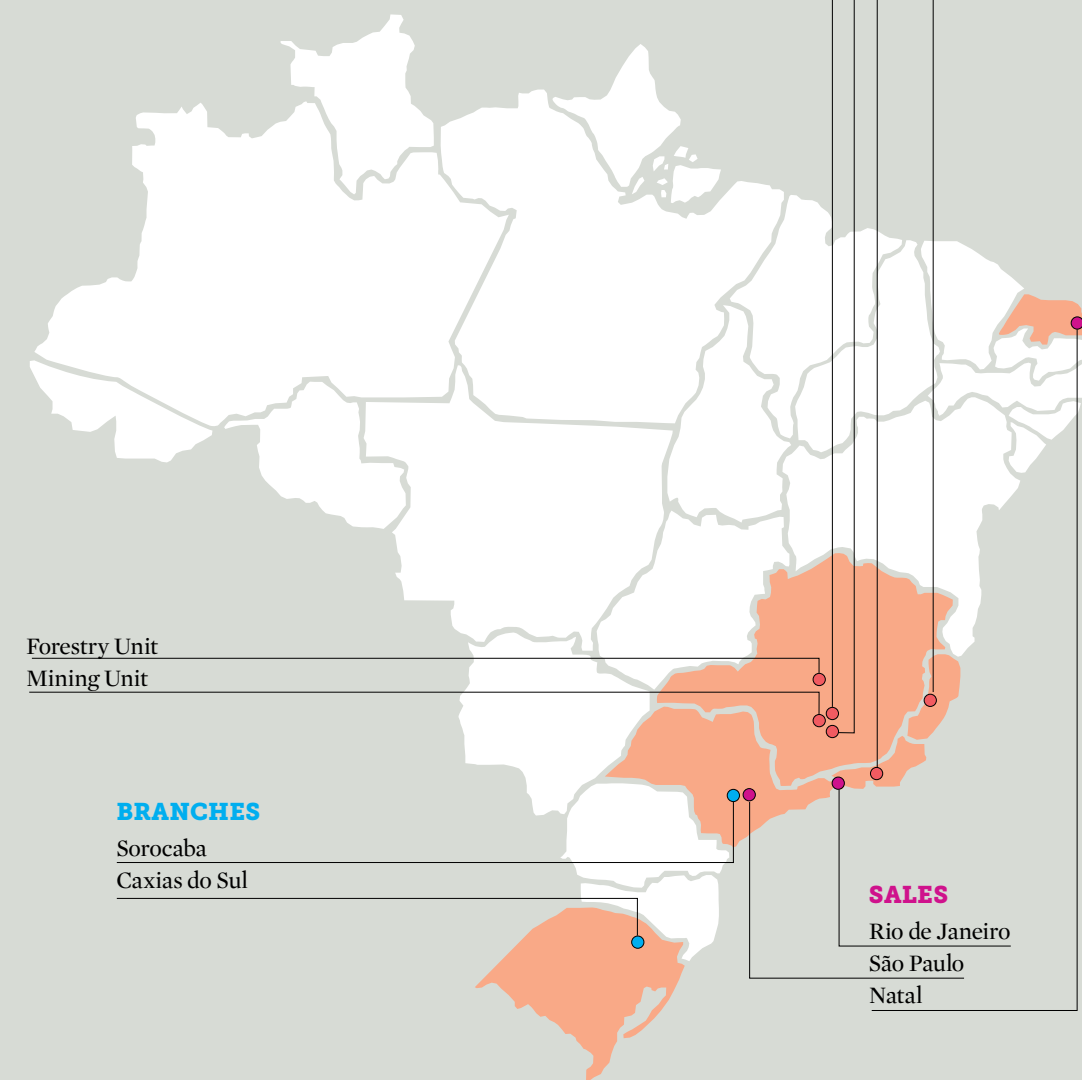
TUBOS SOLDADOS ATLÂNTICO S.A./ VALLOUREC ES

VALLOUREC TRANSPORTES E SERVIÇOS LTDA.

Transports and Services Unit

VALLOUREC SOLUÇÕES TUBULARES DO BRASIL

Jeceaba Mill  
Barreiro Mill



Forestry Unit  
Mining Unit

## BRANCHES

Sorocaba  
Caxias do Sul

## SALES

Rio de Janeiro  
São Paulo  
Natal

— SMART SOLUTIONS G4-56



**Vallourec Soluções Tubulares do Brasil (VSB)** (Barreiro Tubes Mill)

Vallourec Soluções Tubulares in Barreiro, Belo Horizonte, covers an area of approximately 200 hectares. It still has steel and finishing plants and is preparing to concentrate its activities on rolling and finishing of tubes. Steel production will be done only in the Jeceaba mill. One of the blast-furnaces in Barreiro was shut down in February 2016 and the other will operate until 2018. This measure was part of the integration and rationalization of the Vallourec Group structures in all the world.

The annual capacity of the mill is 550 thousand tons of seamless steel tubes for the domestic and international markets.

Annual capacity of the mill is

**550 thousand t**  
of seamless steels tubes



**Vallourec Florestal Ltda. (VFL)** (Forestry)

The main activity of Vallourec Florestal is the planting of eucalyptus forests to produce charcoal, one of the main inputs of steel blast furnaces to manufacture steel tubes.

Founded in 1969, VFL is a pioneer, in planting and managing eucalyptus forests. It stands out in the national market because of its genetic research, the mechanization of activities and the productivity of its forests.

The headquarters are in Curvelo (State of Minas Gerais) and the eucalyptus plantations are in the central, north and northwest regions of the state. Because of the low production of steel resulting from the drop in demand, it reduced charcoal production and had seven productive farms belonging to Vallourec Florestal in 2016. At the end of the year, it had seven productive farms, 845 employees and 16 interns.

Annual capacity of

**289 thousand t**



**Vallourec Mineração Ltda. (VMN)** (Mining)

Established in 1955, Vallourec Mineração has been in production since the beginning of the 1980's at the Pau Branco Mine. It operates at full capacity at 4 million tons of iron ore per year. The product is one of the richest in the world because of the privileged mining position in the Quadrilátero Ferrífero Region in the town of Brumadinho, 30 km from Belo Horizonte (State of Minas Gerais). It has 262 employees and extracts and processes three types of ore: hematite, goethite and itabirito.

The steel processes in Vallourec Soluções Tubulares do Brasil (Barreiro and Jeceaba plants) are supplied by the production of VMN.

Annual capacity of the Mine

**6 million**  
t of iron ore



**Tubos Soldados Atlântico S.A. (TSA)** (Welded tubes)

The municipality of Serra (State of Espírito Santo) has the capacity to line over 1.3 million m<sup>2</sup>. With a modern line of almost 6 thousand m<sup>2</sup>, with a very high productivity, the company provides high performance internal and external anticorrosive lining for different types of steel tube, from 6 to 60 inches.

Vallourec Tubos do Brasil S.A. is the majority shareholder, with 75.5 % of the capital; the other 24.5% belong to Interoil. The company has 23 employees.

Annual installed capacity of

**1.3 million**  
square meters of lining



**Vallourec ES (VSB-ES)**

Besides the Tubos Soldados Atlântico (TSA), Vallourec also has the Vallourec Soluções Tubulares (VSB ES) in the State of Espírito Santo, established in 2015.

VSB ES produces helical welded steel tubes from 406 to 1,524 mm (16 - 60 inches) of external diameter, with thicknesses of between 5.0 mm and 19 mm, and lengths up to 18 meters. Its annual installed capacity is from 70 - 90 thousand tons of tubes, depending on the product mix.

The products include tubes for oil piping, gas piping and general poly pipe, pipes for sanitation, water pipelines and irrigation; structural tubes and foundation pillars; conveyance tubes for mining and industry in general. The company has 73 employees.

Annual installed capacity of

**70 to 90**  
thousand tons of tubes



**Vallourec Transportes e Serviços Ltda. (VTS)** (Transport adm Services)

Founded in 2013 from a service base implemented in 2005, VTS is in the Special Business Zone (Zona Especial de Negócios - ZEN), in Rio das Ostras, State of Rio de Janeiro. It has 226 employees, services the home market and the South American market and focuses on specialized services and the supply of accessories to the oil and gas sectors, including inspection, maintenance and lining in the oil and gas industry; transport, repairs, technical consultancy, management and maintenance of inventories, coordination and design of wells, training, management of accessories, as well as the production of tube accessories. Vallourec Soluções Tubulares do Brasil holds 98.57% of the capital of VTS; 1.43% belongs to VFL.

2016 volume

**19,130** services



**Fundação Sidertube** (Sidertube Foundation)

Maintained by Vallourec since 1966, Fundação Sidertube is a non-profit entity that provides social, as well as health, education, culture, leisure and sports services, with projects directed especially for company employees, their families and retired employees.

Activities carried out by the Foundation include programs to generate income, networking, education, the prevention and treatment of chronic diseases.

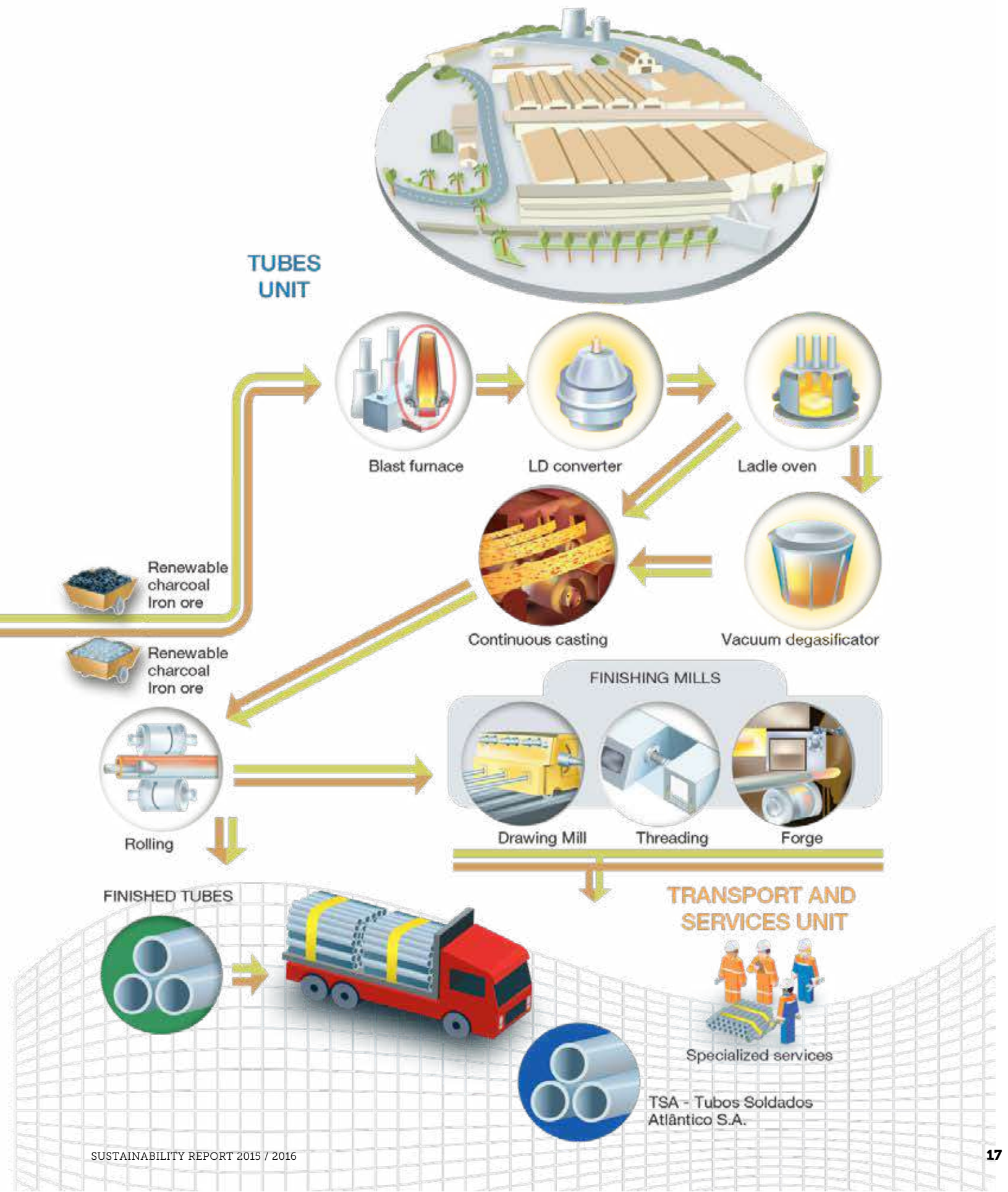
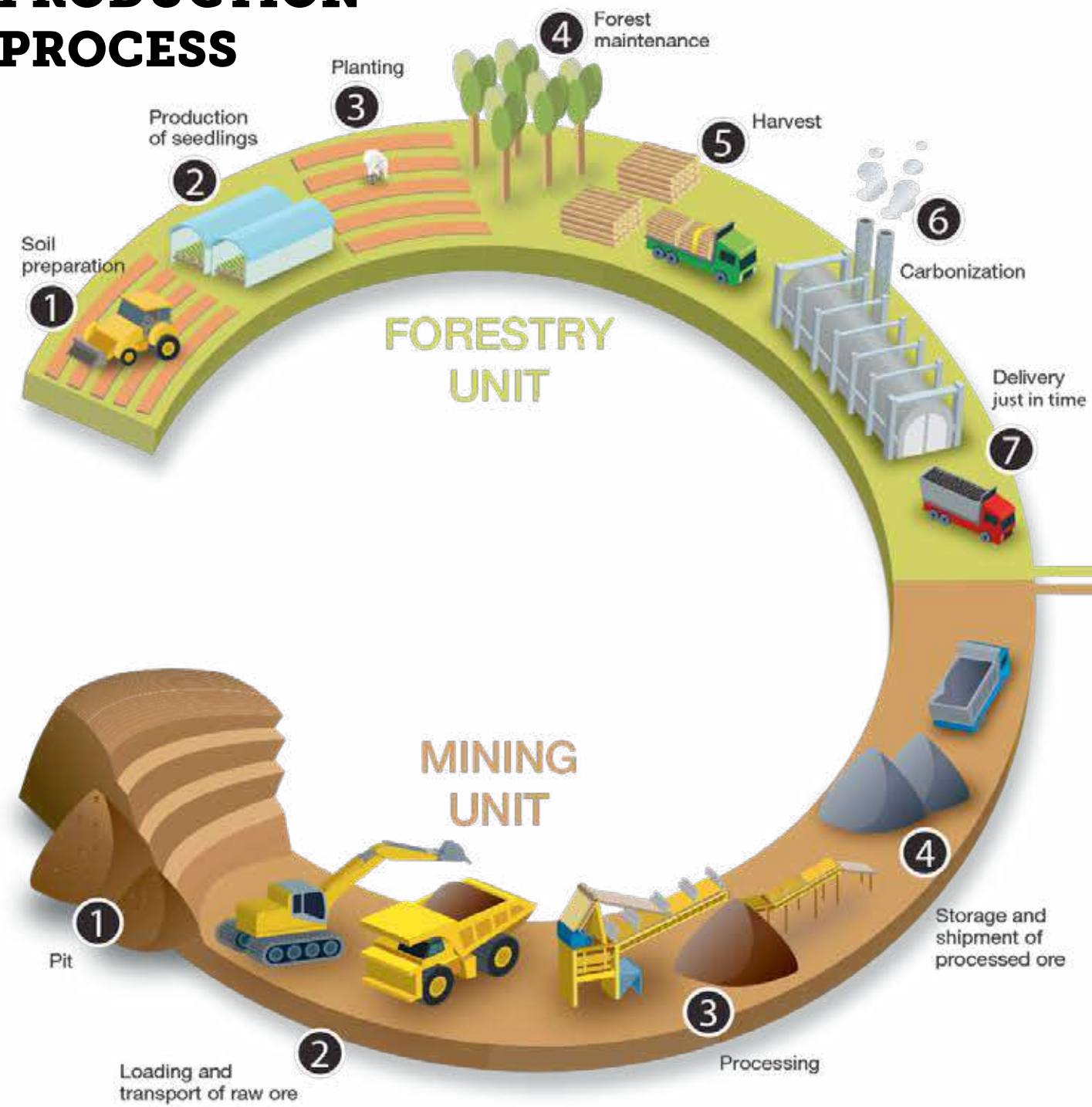
The Foundation is also responsible for the management of Cine Teatro Brasil Vallourec, a significant cultural asset in Belo Horizonte, open since 2013, after refurbishing with Vallourec resources. It is meant to encourage and disseminate culture through theater, dance, music, visual arts, audiovisual, literature and other cultural shows.

Total audience at Cine Teatro Brasil Vallourec in 2016

**200,000**



# — INTEGRATED PRODUCTION PROCESS



## — INTERNAL AUDIENCE PROFILE

### By type of job G4-10

Type of job	BARREIRO TUBES MILL			VMN*			VFL			TSA			VSB-ES**		VTS		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2015	2016	2014	2015	2016
Full	3735	3194	2883	254	240	251	1342	1199	845	165	28	24	130	78	368	324	221
Partial	90	91	36	0	8	11	0	0	0	1	0	0	1	1	14	14	5
<b>Total</b>	<b>3825</b>	<b>3285</b>	<b>2919</b>	<b>254</b>	<b>248</b>	<b>262</b>	<b>1342</b>	<b>1199</b>	<b>845</b>	<b>166</b>	<b>28</b>	<b>24</b>	<b>131</b>	<b>79</b>	<b>382</b>	<b>338</b>	<b>226</b>

\* Contrary to what was seen in the rest of Vallourec, VMN had a small increase (6%) in the number of employees because of the insourcing of some activities, such as maneuvering of trucks and plant cleaning. In spite of this, the number of outsourced employees continues slightly higher than the company employees; the difference is of about 20%. They work mainly in transportation, but also in activities of civil maintenance, reforestation, cleaning and security.

\*\* Company founded in 2015

### By work contract G4-10

Link	BARREIRO TUBES MILL			VMN			VFL			TSA			VSB-ES*		VTS		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2015	2016	2014	2015	2016
Employees	3825	3285	2919	254	248	262	1342	1199	845	166	28	24	131	79	382	338	226
Interns	377	366	319	5	4	7	22	22	16	0	0	0	0	0	22	33	30
<b>Total</b>	<b>4202</b>	<b>3651</b>	<b>3238</b>	<b>259</b>	<b>252</b>	<b>269</b>	<b>1364</b>	<b>1221</b>	<b>861</b>	<b>166</b>	<b>28</b>	<b>24</b>	<b>131</b>	<b>79</b>	<b>404</b>	<b>371</b>	<b>256</b>

\* Established in 2015

### By gender G4-10

Gender	BARREIRO TUBES MILL			VMN			VFL			TSA			VSB-ES*		VTS		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2015	2016	2014	2015	2016
M (%)	91,14	90,47	90,54	89,76	87,5	87,79	88,52	89,57	91,12	86,75	89,29	83,33	87,79	86,08	85,34	85,21	84,07
F (%)	8,86	9,53	9,46	10,24	12,5	12,21	11,48	10,43	8,88	13,25	10,71	16,67	12,21	13,92	14,66	14,79	15,93
<b>Total (%)</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

\* Established in 2015



### By age group

Age	BARREIRO TUBES MILL			VMN			VFL			TSA			VSB-ES*		VTS		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2015	2016	2014	2015	2016
Up to 20	89	84	31	4	8	13	24	15	0	0,00	0	0	0	0	28	19	5
21 - 30 years old	881	669	504	75	78	72	387	322	207	63	11	4	37	17	225	187	109
31 - 40 years old	1326	1185	1143	91	79	89	505	472	340	75	13	16	68	43	108	109	92
41 - 50 years old	1215	1080	994	51	53	56	300	274	213	20	3	3	21	14	16	17	14
Over 50	314	267	247	33	30	32	126	116	85	8	1	1	5	5	5	6	6
<b>Total</b>	<b>3825</b>	<b>3285</b>	<b>2919</b>	<b>254</b>	<b>248</b>	<b>262</b>	<b>1342</b>	<b>1199</b>	<b>845</b>	<b>166</b>	<b>28</b>	<b>24</b>	<b>131</b>	<b>79</b>	<b>382</b>	<b>338</b>	<b>226</b>

\*Company started in 2015

### By job category

Position	BARREIRO TUBES MILL*			VMN			VFL			TSA			VSB-ES*		VTS		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2015	2016	2014	2015	2016
Superintendent/Manager	106	104	94	6	6	6	10	9	8	8	2	2	4	2	7	8	8
Supervisor	125	105	87	26	28	27	20	20	12	11	1	1	10	5	19	15	14
Technician/Administ. Staff	801	738	668	50	45	44	136	117	86	44	5	6	33	20	49	56	50
Operations	2793	2338	2070	172	169	185	1176	1053	739	103	20	15	84	52	307	259	154
<b>Total</b>	<b>3825</b>	<b>3285</b>	<b>2919</b>	<b>254</b>	<b>248</b>	<b>262</b>	<b>1342</b>	<b>1199</b>	<b>845</b>	<b>166</b>	<b>28</b>	<b>24</b>	<b>131</b>	<b>79</b>	<b>382</b>	<b>338</b>	<b>226</b>

\*Company started in 2015

# Commitment to Sustainable Development



At <http://www.vallourec.com/COUNTRIES/BRAZIL/PT/Sustainability/Paginas/default.aspx>.

– Vallourec do Brasil seeks to guaranty the sustainability of its business, with competitive and innovative products, keeping sustainable relationships with the stakeholders, protecting the environment and rationally using its natural resources. This commitment is in the company's Sustainable Development Charter.

The document brings together initiatives and guidelines for the Vallourec companies all over the world, in order to support, comply and endorse global principles, agreements and goals focusing on sustainability and the protection of human rights, described in the Earth Charter and in the UN Millennium Development Goals. Vallourec is also a signatory of the Global Pact and the Coal Sustainability Protocol, headed by Instituto Aço Brasil, with the participation of other companies in the industry.

## GREEN STEEL

The commitment to sustainability is at the heart of the Vallourec strategy, which is proud to have a product 100% produced from charcoal mostly supplied by Vallourec Florestal - Green Steel. The product comes entirely from planted forests and contributes to reduce GHGs. This process reaffirms the company commitment to control impacts on climate change.

In recent years, Vallourec Florestal has worked to fully meet the demand for charcoal by the steel mills, but, as a result of the reduction of the demand for tubes, the planning of the Forestry unit had to be altered and the forecast of the supply of 480 thousand tons in 2016 was readjusted to 288.4 thousand tons, for the Barreiro and Jeceaba steel mills, currently made into a single company, Vallourec Soluções Tubulares do Brasil.

## Management Results and Goals

TRAINING						
	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
Barreiro Mill	100%	96%	96%	100%	100%	99,8%
VMN	95%	98%	95%	100%	95%	100%
VFL	95%	53%	60%	90%	90%	93%
TSA	60%	50%	-	-	-	-
VSBS-ES*	-	-	-	-	-	-
VTS	-	-	-	95%	100%	100%

\*Company started in 2015

## Work Safety G4-LA6

Company	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
<b>LOST-TIME INJURY RATES</b>						
Barreiro Mill	2,05	1,6	1,5	0,55	0,55	0,5
VMN	0	1,9	0	0	0	0
VFL	0,9	1,6	0,9	0,8	0,93	2,19
TSA	0	0	0	17,1	0	0
VSBS-ES*	Not applicable	Not applicable	0	0	0	0
VTS	1,4	0	0	0	0	0
<b>RATES OF LOST-TIME ACCIDENTS+ WITHOUT LOST-TIME</b>						
Unidade Barreiro	3,3	3,3	3,2	1,66	1,55	0,66
VMN	0	1,9	0	2	0	1,85
VFL	1,5	2	1,5	1,19	1,24	2,19
TSA	2,4	5,3	0	17,1	0	0
VSBS-ES*	Not applicable	Not applicable	0	0	0	0
VTS	2,9	0	3	1,4	0	0

\*Company started in 2015

## Occupational health G4-LA6

	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
<b>ABSENTEEISM DUE TO SICK LEAVE (%)</b>						
Barreiro Mill	<=1,25	1,22	<=1,25	1,12	<=1,25	1,24
VMN	<=2	1,36	<=1,6	0,99	<=1,6	1,33
VFL	1	0,7	1	1	1	1
TSA	1,12	1,36	Not applicable	1,35%	Not applicable	1,31
VSBS-ES*	Not applicable	Not applicable	Not applicable	1,35%	Not applicable	1,31
VTS	<= 1	0,84	<=1	0,76	0,85	0,53
<b>SOCIAL SECURITY LEAVE RATE (%)</b>						
Barreiro Mill	<=11	9,37	<=12	6,41	<=12	6,42
VMN	<=12	3,78	<=8	5,87	<=8	3,71
<b>PERIODIC EXAMINATION ATTENDANCE RATE (%)</b>						
Barreiro Mill	>=98	100	>=98	100	>=98	100
VMN	>=97	100	>=97	100	>=97	100
VFL	100	100	100	100	100	100
TSA	100	100	100	100	100	100
VSBS-ES*	Não se aplica	Não se aplica	100	100	100	100
VTS	100	100	100	Not applicable	Not applicable	Not applicable
<b>RATE OF REAPPOINTMENT OF PERIODICAL EXAMS</b>						
Barreiro Mill	<=16	10,27	<=13	9,16	<=13	11,03
VTS	<=15	30	<=10	8,2	8,5	3,3

\*Company started in 2015

\*\* In VMN, VFL, TSA and VSBS-ES, the indicator: Rate of Resetting Periodic Exam is not measured



— ENVIRONMENT

Barreiro Mill

Indicator	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
Electricity (KW/h/t steel)	**		458	387	402	386
Electricity (KW/h/t tube)			131	145	167	147
Natural gas (KW/h/t steel)			321	243	328	255
Water (m <sup>3</sup> /t steel + tube)			930	771	961	941
Water (m <sup>3</sup> /t steel + tube)	2,09	2,4	2,58	2,46	2,58	3
Recycled/ reused waste (%)	Increase the % of waste recycling at Barreiro Mill to 94%	94%	95%	96%	96%	97%
Carbon Credits	Conclude the Carbon Footprint Project	Concluded	Validate the project with ONF International	Project validated with International ONG	Dissemination	Project internally and externally disseminated in the 1 <sup>st</sup> Seminar of "Sustainable Steelmaking" Project

\* Drop in terms of specific consumption

\*\* Due to a change in the methodology for reporting the data on the consumption of electricity and natural gas in 2015, the 2014 data are not available.

VMN

Indicador	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
Water (m <sup>3</sup> /t ore)	1,55	1	1,4	0,81	1,3	0,83
Recycled / reused waste (%)	Increase recycling percentage by 30%.	64,3%	50%	83,90%	70%	70,3%*

\* In 2016 it was recorded in the calculation of the sludge waste of sewage treatment plants/septic tank and grease box, not recorded in previous year, in which 50% was considered recyclable and 50% non-recyclable, with an effect on reducing the 2016 percentage.

VFL

Indicator	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
Electricity (KW/h/t coal)*	11,98	10,40	10,30	8,38	5,70	5,00
Water (m <sup>3</sup> /t coal)**	1,52	1,01	1,08	0,75	0,52	0,40
Recycled / reused waste (%)**	65%	75%	83,56%	81,00%	87,00%	51,30%

\*Energy consumption dropped considerably with the phase-out of Carboval, which accounted for a large part of the consumption of VFL.

\*\* The drop in water consumption was mainly because of the stoppage in the production of eucalyptus seedlings.

\*\*\*The reasons for the drop in the percentage of recyclable waste are:

- 1 - Elimination of asbestos 2016 (21.9 Ton);
- 2 - Reduction of recyclable waste generation associated to plantation, to charcoal production plants and Carboval, that were closed (ex.: metal scrap, chemical packaging and contaminated earth);
- 3 - On the other hand, non-recyclable waste generation (not directly linked to production), remained constant in the last 3 years.

TSA e Vallourec-ES

Indicador	2014 Goal	2014 Results	2015 Goal	2015 Results	2016 Goal	2016 Results
Global TSA Electricity (mWh)/ month	590kWh	433kWh	Monthly goal based on annual production plan	5074 Mwh	2760 Mwh	2483 Mwh
Global TSA water consumption (m <sup>3</sup> ) / month	1.161 m <sup>3</sup>	1347	Monthly goal based on annual production plan	11593	8297	6338
Recycled/ Reused Waste (%)	Increase recycling percentage of solid waste to 83,8%	77,55%	87,7% (based on production plan)	86,14%	37%	17% (low production in 2016)
Recycled/ Reused Waste (%)	Increase recycling percentage of solid waste to 83,8%	77,55%	87,7% (based on production plan)	86,14%	91%	57% (low production in 2016)

# — MAIN ENVIRONMENTAL IMPACTS BY SECTOR

## Forestry

Activity	Aspect	Impact	Measures
<b>Forestry</b>	<ul style="list-style-type: none"> <li>• Soil compaction</li> <li>• Water consumption</li> <li>• Fixation of CO<sub>2</sub></li> </ul>	<ul style="list-style-type: none"> <li>• Biodiversity alteration</li> <li>• Alteration in soil quality</li> <li>• Reduced concentration of CO<sub>2</sub> in the air</li> </ul>	<ul style="list-style-type: none"> <li>• Program for the monitoring of the fauna and flora</li> <li>• Monitoring of watercourses</li> <li>• Training of employees</li> <li>• Maintaining ecological corridors and preserving native vegetation</li> </ul>
<b>Harvest</b>	<ul style="list-style-type: none"> <li>• Soil compaction</li> <li>• Noise emissions</li> <li>• Generation of solid waste</li> </ul>	<ul style="list-style-type: none"> <li>• Alterations in the quality of water and soil</li> <li>• Sound pollution</li> <li>• Alteration in biodiversity (fauna)</li> </ul>	<ul style="list-style-type: none"> <li>• Preventive maintenance of machines and equipment</li> <li>• Training of forest operators</li> <li>• Program for the monitoring of the fauna and flora</li> </ul>
<b>Carbonization</b>	Gas emissions	<ul style="list-style-type: none"> <li>• Alterations in air quality</li> </ul>	<ul style="list-style-type: none"> <li>• Improved carbonization technology, increasing gravimetric yield and reducing emissions (MDL Project).</li> </ul>

## Steelmaking

Activity	Aspect	Impact	Measures
<b>Use of vehicles</b>	GHG emissions	<ul style="list-style-type: none"> <li>• Alteration in air quality</li> </ul>	<ul style="list-style-type: none"> <li>• Fleet monitoring and measurements</li> <li>• Use of less pollutant fuels</li> </ul>
<b>Receiving raw materials</b>			<ul style="list-style-type: none"> <li>• Regular monitoring</li> <li>• Dedusting system</li> <li>• Preventive maintenance of systems</li> </ul>
<b>Steel production</b>	<ul style="list-style-type: none"> <li>• Air emissions</li> <li>• Water/Energy consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration in air quality</li> <li>• Use of natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial filters, such as hoses and gas cleaners</li> <li>• Recirculation of 99% of the water and treatment in water treatment plants</li> <li>• Used oil recycling plant</li> <li>• Effluent Treatment Station / energy generation</li> </ul>
<b>Operating heating and reheating furnaces</b>			
<b>Maintenance and lubrication of equipment</b>	Generation of hazardous waste	<ul style="list-style-type: none"> <li>• Alteration in soil quality</li> </ul>	<ul style="list-style-type: none"> <li>• Employee training on the correct disposal of waste</li> <li>• Identification of adequate collectors and storage sites</li> <li>• Containment basins</li> <li>• Impermeable floors</li> <li>• Final disposal duly licensed</li> </ul>
<b>Acid pickling</b>			
<b>Rolling</b>	Generation of industrial liquid effluents	Alteration in the quality of soil and beds	<ul style="list-style-type: none"> <li>• Containment basins</li> <li>• Industrial galleries that direct the effluents to the Effluent Treatment Stations (ETSS)</li> <li>• Impermeable floors</li> <li>• Treatment and recirculation of process water</li> </ul>
<b>Handling/ transport of tubes</b>	<ul style="list-style-type: none"> <li>• Noise generation</li> </ul>	<ul style="list-style-type: none"> <li>• Sound pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring</li> <li>• Employee training on the correct handling of tubes</li> <li>• Control to avoid unnecessary maneuvers and accelerations</li> <li>• Use of lighting at night replacing the backup sound signal</li> <li>• Use of transtainer</li> <li>• Sound-proofing of workshop</li> <li>• Lining of benches and workshops</li> <li>• Sound barrier on company perimeter</li> </ul>

## Mining

Activity	Aspect	Impact	Measures
<b>Traffic of vehicles, machines and trucks</b>	<ul style="list-style-type: none"> <li>• Emission of fugitive dust and GHGs</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration in air quality</li> </ul>	<ul style="list-style-type: none"> <li>• Use of automatic sprinkling by water trucks on internal roads</li> <li>• Use of polymer on roads and slopes</li> <li>• Paving of access roads from BR-040 to the Mine</li> <li>• Regular maintenance of light and heavy vehicles</li> <li>• Monitoring of black smoke and air quality (Total Particles in suspension)</li> <li>• Use of wheels and chassis washer</li> <li>• Maintenance of tree curtain</li> <li>• Awnings on trucks</li> </ul>
<b>Ore processing</b>	<ul style="list-style-type: none"> <li>• Emission of fugitive dust and GHGs</li> <li>• Noise emission</li> </ul>	<ul style="list-style-type: none"> <li>• Sound pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of tree curtain</li> <li>• Monitoring of vibration and noise</li> <li>• Continuous search for technologies with less noise and vibration</li> </ul>
<b>Removal of vegetation from soil and removal of mineralized substrate</b>	<ul style="list-style-type: none"> <li>• Creation of erosion and entrainment of solids</li> </ul>	<ul style="list-style-type: none"> <li>• Visual and landscape alteration; water and soil quality; biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Surface drainage systems directed to sediment containment structures</li> <li>• Network of water monitoring stations</li> <li>• Financial provisioning for mine closure activities</li> <li>• Propagation of native species and revegetation of reforestation management.</li> </ul>
<b>Digging of pit and disposal of sterile and waste</b>	<ul style="list-style-type: none"> <li>• Building of dams and piles of sterile</li> <li>• Use of water</li> </ul>	<ul style="list-style-type: none"> <li>• Visual and landscape alteration</li> <li>• Depletion of natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Control of physical stability and erosion and geotechnical monitoring of dams and piles of sterile</li> <li>• Environmental rehabilitation in mining areas</li> <li>• Engineering design of these structures, establishing a geometry closer to the original topography</li> <li>• Systematic monitoring and hydro-geological studies to monitor the water courses and the operations to lower the underground water</li> <li>• Reuse of industrial water using thickeners and pumping of dam</li> </ul>
	<ul style="list-style-type: none"> <li>• Dam failure</li> </ul>	<ul style="list-style-type: none"> <li>• Damage to fauna, flora, water, soil, landscape and community</li> </ul>	<ul style="list-style-type: none"> <li>• Control of physical stability and erosion, and geotechnical monitoring of dams</li> <li>• Regular inspections</li> <li>• Installation of waste treatment system (dewatering grid, thickener and press filter).</li> </ul>

## Metal-Mechanical

Activity	Aspect	Impact	Measures
<b>Manufacturing large diameter steel tubes</b>	<ul style="list-style-type: none"> <li>• Generation of hazardous and non-hazardous solid waste</li> <li>• Industrial effluents</li> <li>• Energy consumption</li> <li>• Water consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Contamination of soil and water</li> <li>• Use of natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Employee training on the correct management of waste</li> <li>• Final disposal of waste and industrial effluents adequately carried out</li> <li>• Awareness campaign to reduce energy consumption</li> <li>• Treatment and recirculation of process water</li> </ul>
<b>Tube lining</b>	<ul style="list-style-type: none"> <li>• Emission of FBE dust</li> <li>• Generation of hazardous and non-hazardous solid waste</li> <li>• Energy consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration in the quality of the air, water and soil</li> </ul>	<ul style="list-style-type: none"> <li>• Exhaust system with hose filters</li> <li>• Employee training on the correct management of waste</li> <li>• Final disposal of waste adequately carried out</li> <li>• Treatment and recirculation of process water</li> </ul>
<b>Lining of tubes Mechanical/ electrical maintenance</b>	<ul style="list-style-type: none"> <li>• Generation of used lubricant oil</li> <li>• Generation of hazardous and non-hazardous solid waste</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration in the quality of the water and soil</li> </ul>	<ul style="list-style-type: none"> <li>• Sending used oil for new refining</li> <li>• Employee training on the correct management of waste</li> <li>• Final disposal of waste adequately carried out</li> </ul>
<b>Transport and movement of tubes and materials</b>	<ul style="list-style-type: none"> <li>• Emission of black smoke</li> <li>• Generation of nonhazardous waste</li> </ul>	<ul style="list-style-type: none"> <li>• Alteration of air quality</li> <li>• Alteration of soil quality</li> </ul>	<ul style="list-style-type: none"> <li>• Regular evaluation using Ringelmann Scale (to measure the density of the smoke) and Opacimeter</li> <li>• Employee training on the correct management of waste</li> <li>• Final disposal of waste adequately carried out</li> </ul>

The challenges that drive us

# Material themes

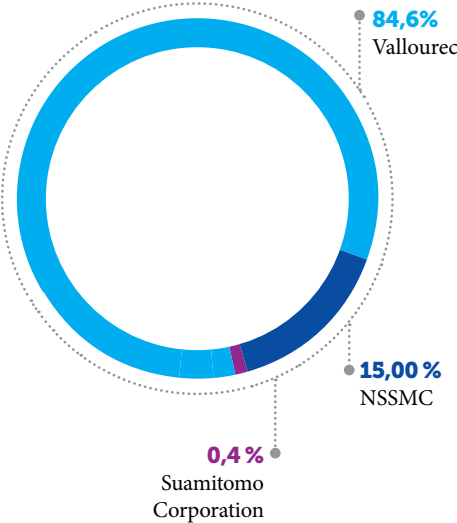
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# Governance and Transparency

## — CORPORATE STRUCTURE

**E**stablished in October 2016, Vallourec Soluções Tubulares do Brasil S.A. is the result of the merger of Vallourec Tubos do Brasil – Barreiro Tubes Mill (totally controlled by Vallourec) and Vallourec & Sumitomo Tubos do Brasil Ltda. (VSB), a joint venture of Vallourec and Nippon Steel & Sumitomo Metal Corporation – NSSMC. Starting with this new partnership, NSSMC begins to have a strategic shareholding structure with Vallourec not only locally but also internationally.

### Shareholding structure



## — DECISION MAKING

Vallourec has two levels of governance:

### 1) BOARD OF DIRECTORS

The Board of Directors sets the course of the business, defining the strategic planning, the acquisition of assets, inspecting the management actions of the executive directors, deciding on changes in the capital structure of the Company, hiring independent auditors, giving their opinion about the Administration Report, as well as auditing the accounts of the Executive Committee and electing and dismissing its members. The implementation of the strategies defined by the Board of Directors is ensured by the Group Management Committee, made up of six executives.

### High Management —



**Philippe Crouzet**  
Chairman



**Olivier Mallet**  
Chief Operating Officer

### Group Management Committee —



**Philippe Cartier**



**Nicolas de Coignac**



**François Curie**



**Stéphanie Fougou**



**Édouard Guinotte**



**Didier Hornet**



**Alexandre Lyra**



**Jean-Pierre Michel**



**Hubert Paris**

**2) EXECUTIVE BOARD**

G4-34 e G4-38

The Executive Board monitors the daily management of the business and the performance of the various areas. It is made up of superintendents, managers and other managerial functions of the Vallourec companies in Brazil, which privilege internal recruitment, including high management positions. The Executive Board follows recommendations of the Vallourec Group and the guidelines of the Vallourec Management System (VMS), a corporate platform that brings together the norms to manage the business in its decision-making process.

**Executive Board** —



**Alexandre de Campos Lyra**  
Director President



**Manfred Ernst Leyerer**  
Chief Financial Director



**João Perez Júnior**  
Commercial and Downstream Operations Director



**Lothar Birkhäuser**  
Industrial Upstream and Technology Director



**TECHNICAL COMMITTEES**

The Board is supported by the technical committees and the Strategic Environment Group (Gema), in issues related to sustainability. These groups meet periodically and as required.

These decisions are supported by the Total Quality Management (TQM), the plan to monitor processes and performance indicators; by the Continuous Improvement Groups (GMCs), which mobilize employees around the same goals; and by the Piloting Committee, through which the Board members monitor and guide the attainment of goals.

- including anonymous notifications - can be made through the “Talk to Us” (of Stakeholders Communication Register). (p.XX). It is also possible to call on members of the Employee Representative Council (In Portuguese, CRE), Human Resources advisors, welfare workers of the Sidertube Foundation, as well as company managers.

Information relating to conflicts of interest and other cases that cannot be immediately solved by management, are referred to the Ethics Committee, that is responsible for clarifying doubts, providing interpretation parameters for critical issues, guiding and deciding on these issues.

**ETHICAL CONDUCT**

The Vallourec Group does not tolerate any kind of anti-ethical behavior, that refers to corruption, price-fixing, unfair competition, non-compliance to existing legislation and norms by its employees (its own and outsourced) and partners. To avoid the occurrence of these practices, the company has a Code of Ethics, which all employees sign up to. In 2016, the document was revised according to the most recently published version of the Group, with adjustments mainly on administrative issues and corporate rules, without significant changes.

To ensure compliance in everyday activities, the main aspects of the document are covered in the inception training of newly contracted employees. During 2015-2016, the training sessions covered issues related to compliance, antitrust, ethics and anti-corruption. In 2017, a large initiative throughout the company will be carried out to reinforce the importance of this document among the employees.

The company also invests in other training on this theme, in order to prepare the team to identify and deal with situations that threaten ethical behavior. Antitrust, corruption prevention and environmental training are good examples. This activity is for directors, superintendents and managers in the areas of Supplies, Sales and Marketing, as well as Research and Development engineers, to provide knowledge of (national and international) legal requirements related to these issues, as well as presenting internal guidelines.

Vallourec’s ethical conduct is also ensured through internal and external audits that verify and prevent acts of corruption. Any notification

**Ethics Committee**

Made up of staff from the Human Resources and Internal Communications; Accounting and Finances; Legal Counsel; Institutional Relations and External Communications; and Audit and Organization the group meets regularly twice a year and, if necessary, extraordinarily.

Disclosures are shared with the heads of the areas responsible for the issues and treated confidentially and impartially. Very complex cases and urgent cases are submitted to the evaluation of high management.

Cases of disclosures of discrimination in the Vallourec companies in Brazil are dealt with in this sphere and reported through the same channels above. All the notifications recorded in 2015 and 2016 were duly referred and dealt with. There were no cases of corruption in the period.

G4-SO5

**RISK MANAGEMENT**

Integrated to the context of Governance and Internal Control of the organization, Risk Management identifies, monitors, anticipates and takes measures in the face of risks and adverse events, in order to assure control, mitigation and adequate alignment to the strategies of the business unit. In order to do this it receives support from different (executive and director) committees in Vallourec.

Risk Management was structured according to the best practices established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), an American non-profit organization created to prevent and avoid fraud in the internal procedures and processes of companies.

Among the initiatives in the reported period is the implementation of a Strategic Committee of Operational Risks, focusing on the management



**RELATIONS WITH STAKEHOLDERS**

G4-25 e G4-26

Vallourec seeks sound, close and lasting relationships with its stakeholders and has specific tools and channels to facilitate the dialogue with its audiences, and is open to receive suggestions, opinions, criticism, complaints and denouncements, among other manifestations.

**Employees:**

- Organizational environment Survey
- Health, Safety and Environment Communications Register (Rossm).
- Employees Representative Council
- Coffee with the Superintendents
- Campaigns and events
- Communications/Environment Facilitators' Group

**Customers:**

- Annual Customer Satisfaction Survey (p.30)
- Technical seminars, visits, fairs and conferences, meetings and other relationship forums

**Suppliers:**

- Online or face-to-face Supplier Evaluation

**Communities:**

- “Comunidade Viva”: Regular face-to-face presential forums and committees with community representatives (Barreiro), Mobilizers' Group
- G+ (Barreiro)
- Cultural Entrepreneurs
- Programs: Environmental Education, Income Generation, Volunteers, etc
- Community Action and Integration Plan (PAIC)
- Visits: community members are invited to general or specific visits to the company
- Communication of impacts: meetings for prior communication about procedures, interventions and projects of interest to the neighborhood

**Social and environmental organizations:**

- Meetings and events
- Social and environmental projects

**Government:**

- Participation in Sustainable Development Municipal and State Councils
- Projects and Partnerships
- Meetings and events

**Media:**

- Interviews, communications and releases

**All stakeholders:**

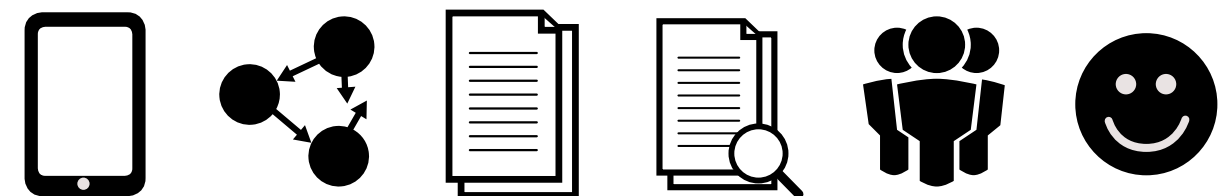
- “Fale com a Gente” (Talk to Us) Form: accessed on the company site, in the corporate Inside (intranet) or in printed forms available at the company gates. The person is free not to give their name.
- e-mail (contato-bra@vallourec.com)

of the main operational, environmental and safety risks, which carries out key control tests on the main risks reported in the Enterprise Risk Management - High Administration.

There was also the inauguration of the Calibrator Project for the improvement of Risk Management in Vallourec Soluções Tubulares and affiliates. An initiative of the Financial Director, together with the Department of Internal Auditing, Risks and Controls, the project seeks to strengthen the control of internal environment and compliance practices to meet the new market requirements, allowing timely and consistent responses, as well as preventive measures for the effective management of risk.

— **STEP BY STEP**

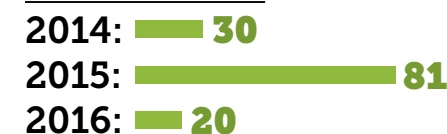
The Integrated Management System of Vallourec describes, for each stakeholder (employees, communities, customers and suppliers) the flow of the processing of each communication sent to the company, and may be summarized:



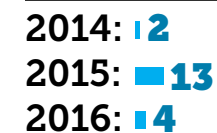
1. The company receives the complaints through channels such as «Talk to Us», over the telephone or face-to-face.
2. The Human resources (internal audience), Marketing (customers) or Community Relations (external audience) team contacts the most relevant technical area asking for measures.
3. A file describing the issue/problem in detail is entered in the Management System (SAP).
4. The issue is investigated and, if necessary, corrective measures are taken through action plans.
5. Critical cases are referred to the Board for evaluation in regular and extraordinary meetings.
6. All stakeholders that identify themselves receive feedback on measures taken, over the telephone, email or face-to-face. The company also monitors stakeholders' satisfaction through a monthly survey.

— NOTIFICATIONS RECEIVED —  
**“FALE COM A GENTE” (TALK TO US)**

**Environmental notifications**



**Social notifications**



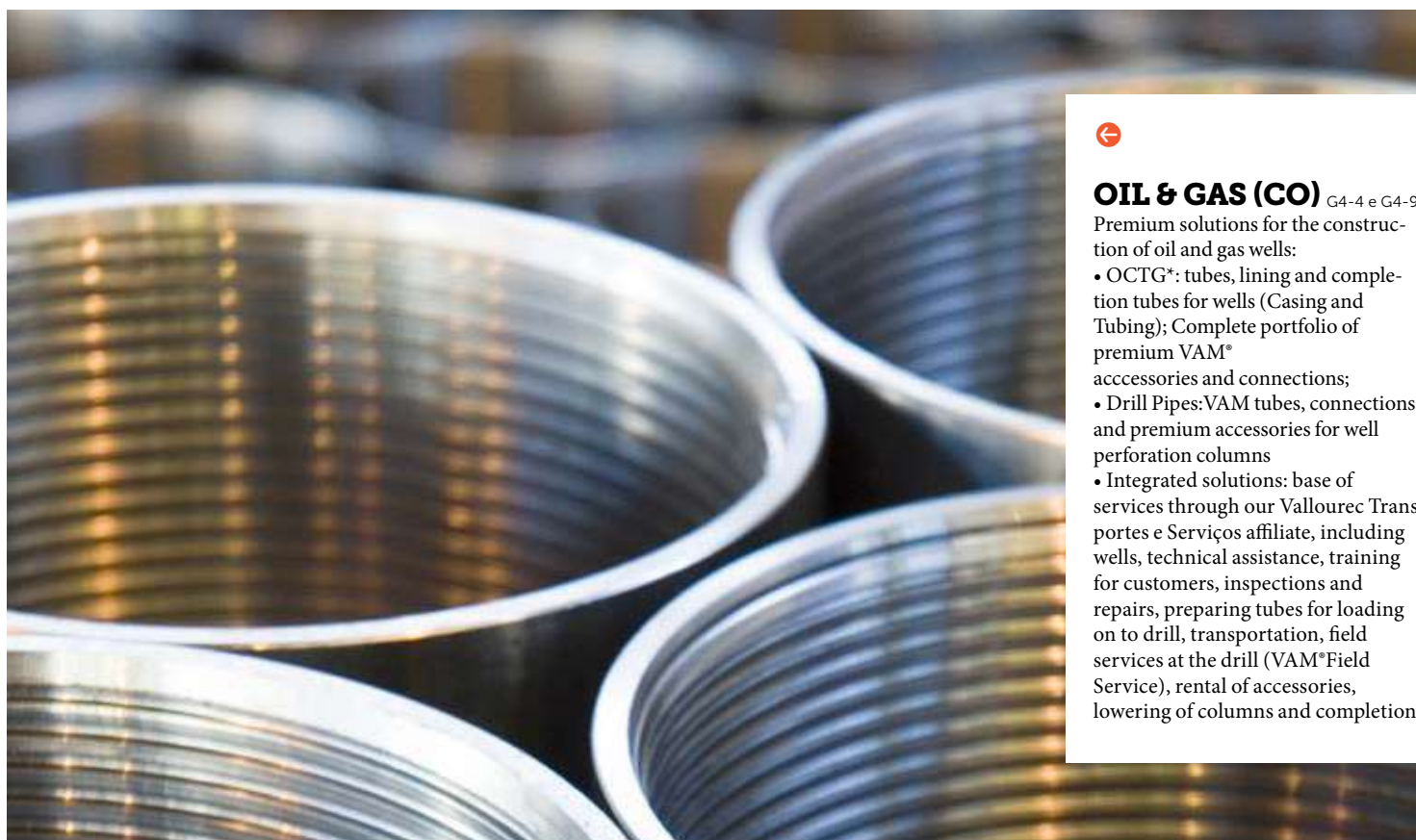
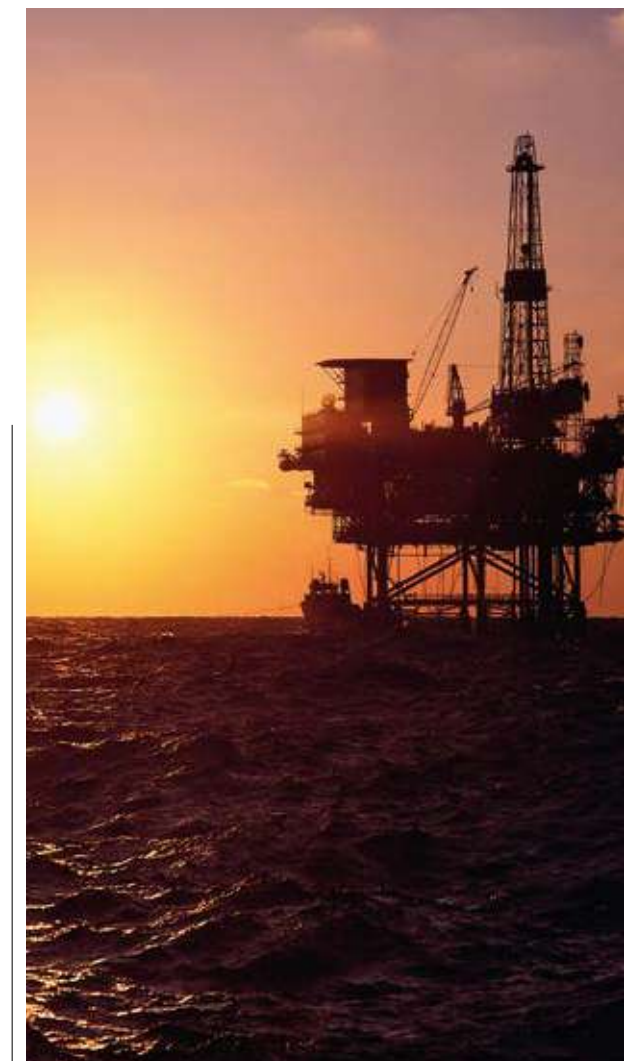


# Innovation, Quality and Processes

**B**ased on the Transformation Plan of the Vallourec Group (p.XX), the products and services portfolio of Vallourec Soluções Tubulares do Brasil was classified according to three large markets: Oil & Gas (CO); Energy and Industry (CE) and Projects (CP).

In spite of the political and economic crisis and the Car Wash (Lava Jato) Operation which have directly impacted the sectors of the economy where Vallourec operates - oil and gas and civil construction - and the economic crisis faced by the automotive industry, the company has maintained its investments in research and development (R&D).

Recognized by its high technology premium products and solutions, Vallourec believes that, in moments of crisis and limited resources, the market becomes ever more demanding with the solutions offered to assure the reduction of costs, gains in quality (durability, resistance and lightness) and increased productivity. In fact, this forecast was confirmed in the review of the year, especially in supplies to the oil and gas market, to the sugar and ethanol industry and for rail transportation.



## OIL & GAS (CO) G4-4 e G4-9

Premium solutions for the construction of oil and gas wells:

- OCTG\*: tubes, lining and completion tubes for wells (Casing and Tubing); Complete portfolio of premium VAM\* accessories and connections;
- Drill Pipes: VAM tubes, connections and premium accessories for well perforation columns
- Integrated solutions: base of services through our Vallourec Transportes e Serviços affiliate, including wells, technical assistance, training for customers, inspections and repairs, preparing tubes for loading on to drill, transportation, field services at the drill (VAM\*Field Service), rental of accessories, lowering of columns and completion;



## ENERGY AND INDUSTRY (CE) G4-4 e G4-9

- Process: applied in the manufacturing of piping for conveyance and processing of fluids, mainly in oil and gas processing plants, such as refineries, petrochemical plants, topsides and FPSO platforms (Floating Production Storage and Offloading), processing and gas distribution plants. Also applied in other industrial plants, such as sugar and ethanol mills, mining, steelmaking, paper and cellulose plants.
- Powergen: used in the construction of equipment for heat exchange (heat exchangers) and energy generation (boilers and evaporators) used in refineries, petrochemical plants, aluminum mills, sugar and ethanol, paper and cellulose plants.
- Automotive: tubes for applications in suspension, steering and transmission, as well as complete shafts, halfshaft carcasses and cardan shafts for motorcycles, light vehicles, trucks and buses.
- Industry: tubes used for the manufacturing of hydraulic circuits and cylinders, perforation rods in mining, high-pressure cylinders and mechanical parts in general.
- Structural: structural tubes used in civil construction in general, applied in roofing, pillars and foundations; for agricultural and construction machines, structure of industrial equipment, railroad wagons and offshore structures.



## PROJECTS (CP) G4-4 e G4-9

- Line Pipe Offshore Projects: underwater pipes used in manufacturing risers (pipes used to collect the oil, linking the wells to the platform ships) and flowlines (pipes that link wells or underwater structures) for the transportation of oil and gas. They may also be used for exportation lines of oil and gas from the production unit to the continent.
- Line Pipe Onshore Projects: pipes used in the construction of land gas and oil pipes for the distribution and transportation of oil, gas and derivatives.
- TSA One Stop Shop: center for supplementary services for line pipe - machining and measurement of ends (End Truing), welding (Double Joints), anticorrosive and thermal insulation lining.
- Structural Projects: square or round tubes used in civil construction of industrial plants and infrastructure projects, such as ports, airports, foot bridges, sports arenas (football stadiums and water parks) and commercial buildings (shopping malls).
- Sanitation and Irrigation Projects: applicable on aqueducts, underwater outfalls and irrigation systems.



## — HIGHLIGHTS

### OIL & GAS

G4-4 e G4-9

The highlights in 2015-2016 are products that bring together leading technology and greater aggregated value with the running service on pre-salt wells of Petrobras, among other solutions for the production of oil in deep waters.

Over the coming years, Petrobras apparently will increase production. According to the 2017-2021 Strategic Plan published by the company, there is the forecast of reducing debt through the optimization of investments, the sale of non-strategic assets and the development of production in deep water fields, especially the pre-salt. These outlooks are promising for Vallourec, since they show a recovery and market opening to the company products.

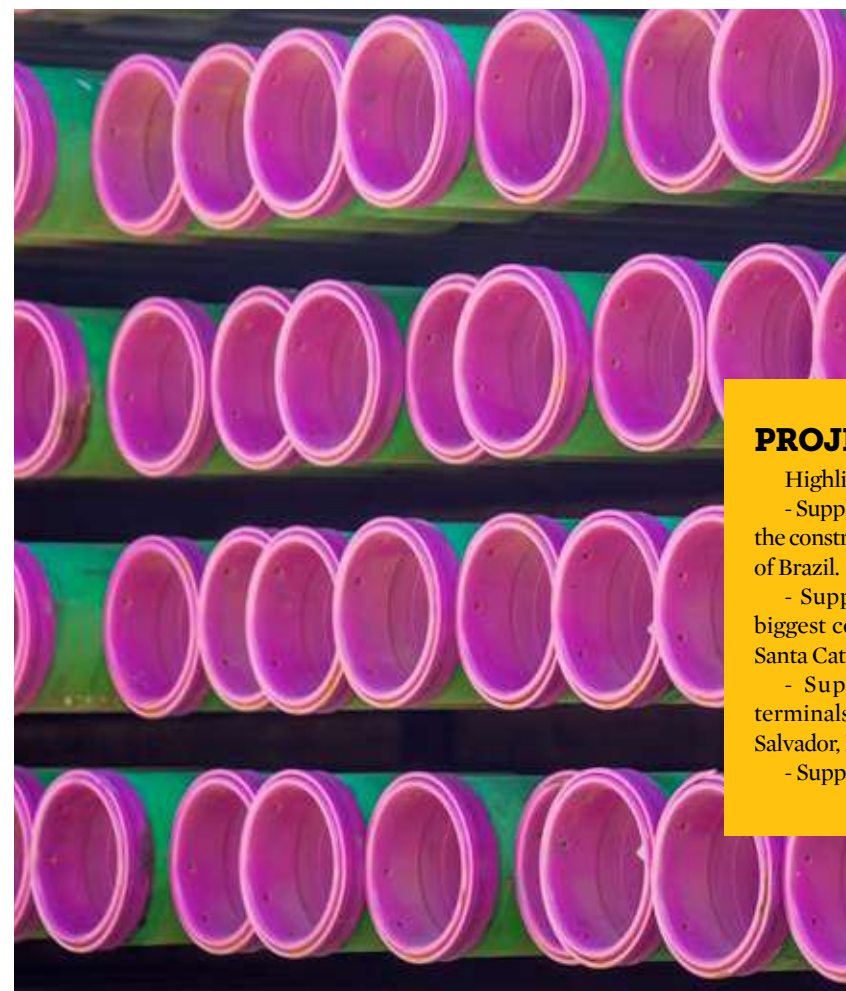
### ENERGY AND INDUSTRY

G4-4 e G4-9

As part of the innovation strategy adopted by the Vallourec Group throughout the world, Vallourec Soluções Tubulares do Brasil carried out two important events in 2016, in partnership with customers, using Front-End Innovation (FEI) methodologies and tools. In general terms, FEI seeks to accelerate the development of solutions to meet the main needs of customers through multidisciplinary work of professionals in research and development, marketing and sales and engineering. The differentiated format of the meetings made possible a deeper discussion on the expectations and opportunities for joint development of new products and services.

To the sugar and ethanol sector, Vallourec offered a new solution to reduce the maintenance costs of the pre-air systems of the boilers: the VBRMo4. The product has a greater resistance to wear from corrosion and abrasion in air pre-heaters of the sugar and ethanol mills, assuring better results than seamless carbon and stainless steel tubes.

Another highlight was the sale of railroad tubular shafts to be used in new wagons for the Vale S11D Project, in Pará (state of Pará), one of the biggest mining projects in the world.



### PROJECTS

Highlights in 2015-2016:

- Supply of lined tubes in record time for the construction of gas line in the Northeast of Brazil.
- Supply for the construction of the biggest convention center of the state of Santa Catarina.
- Supply for the construction of terminals and access footbridges for the Salvador, Bahia, metro.
- Supply of large diameter welded tubes

- for sanitation project for the improvement and modernization of the irrigation system of Valle de Azua in the Dominican Republic.
- Supply of structural welded tubes for the foundations of the expansion of the Cotegipe Terminal in Salvador, Bahia – “Base de Aratu”.
- Supply of welded structural tubes for Concórdia Corporate, a 43-storey building, the highest in the state of Minas Gerais, in the Sereno valley, in Nova Lima.

## CERTIFICATIONS AND COMPLIANCE

Vallourec Soluções Tubulares do Brasil has certification in national and international norms in its business. These requirements are covered by the Vallourec Management System (VMS) and are part of the scope of the Integrated Management System of the company, audited yearly.

In 2015-2016, it was not fined or sanctioned for non-compliance with laws, norms and regulations in its supply and use of its products and services. G4-PR9

### Certifications

Theme	NORMS/CERTIFICATION	VALID UNTIL
<b>Energy Efficiency</b>	• ISO 5001:2011	Nov/2019
<b>Quality Management</b>	• ISO 9001:2008 • API Spec. Q1 • ISO/TS 16949:2009	Sept/2018 Jul/2017 Sept/2018
<b>Environment</b>	• ISO 14001:1999 • Cerflor (VFL – Vallourec Florestal)	Sept/2018 Jan/2018
<b>Health and Safety</b>	• OHSAS 18001: 2007	Oct/2019
<b>Management of Test Laboratories</b>	• ISO IEC 17025:2005	May/2019
<b>Management of Calibration Laboratories</b>	• ISO IEC 17025:2005	Jul/2019
<b>Social Responsibility</b>	• SA 8000	N/A

**RELIABILITY IS THE KEY WORD**

Complying to the requirements of the oil and gas sector, Vallourec Brazil is focused on developing safe and efficient solutions to assist its customers to overcome technological challenges. Therefore, in 2015, the first Connections Test Center VAM® in Brazil was inaugurated: Vallourec Research Center Connections Brazil (VRCCB). It covers an area of 1.8 thousand m<sup>2</sup> in the Barreiro Mill, in Belo Horizonte (MG). The center was equipped to carry out normative tests in order to qualify new tube products and assure the performance of VAM® connections, assuring an ever safer and more reliable use in the oil and gas industry. The center carries out qualification essays of tube connections, according to the norms of the industry, used to classify the level of performance of the products. The structure includes a warehouse, an administrative area and a kind of bunker in which tests are carried out to check the sealing quality of the connections in extreme conditions of traction/compression, flexion and high temperatures. The site of the tests is 100% protected and monitored through a control room, assuring total safety to the employees working in the plant. As well as VRCCB, Vallourec has another five international research centers, engineers and technicians dedicated to R&D processes. Besides meeting the complex operations in oil and gas, the research also applies to the improvement of efficiency of energy mills and the mechanics of lighter equipment and structures. The investment in VRCCB was about R\$ 45 million.



3/8

# Customer Service

**P**art of the permanent work of Vallourec Soluções Tubulares do Brasil is to have an in-depth knowledge of the expectations of our customers, how they evaluate our products and services and to identify opportunities to provide new solutions to meet market demands. This was reinforced after the implementation of the new innovation strategy. Therefore, a significant advance were the events that use techniques of the Front End Innovation (FEI) program.

The last customer satisfaction survey concluded in December, 2016, showed that customer perception improved considerably compared to the previous year. With 5.00 as the highest grade, in 2016 the grade that was 4.08 (2015) went to 4.46 (2016). Besides this survey, Vallourec customers have formal channels to express themselves about products and services, such as "Fale com a Gente" (Speak to Us) - Stakeholders Communication Register (p.30), visits and technical seminars. G4-PR5

**PRODUCT TAGGING AND SAFETY**

A highlight in tracking product applications in offshore operations - a direct result of a joint initiative with our customer Petrobras - is the Radio Frequency Identification (RFID) system. This technology will be applied to OCTG tubes used in the construction of offshore oil wells. A high resistance electronic tag is applied to the tubes, providing the customer instant access to important data, such as steel grade, type of connection, diameter and length.



# Economic Performance



**T**he Brazilian economy continued a downward trend in the last years, with worrying performances in 2015 and 2016. This recession affected most production sectors in the country, including the steel segment and Vallourec activities.

The Brazilian GDP has dropped to 3.8% in 2015 and 3.6% in 2016 (forecast: 3.4%), reaching a threshold of approximately 7.4% in the reported period. On the other hand, the accumulated inflation in the period reached 16.96%.

In this scenario, the steel production market faced difficulties. According to Instituto Aço Brasil, 33.3 million tons of raw steel were produced in 2015 and 30.2 million, in 2016, an accumulated drop of approximately 9.2% compared to 2014.

As expected in this environment, the Brazilian steel mills operated below their installed capacity, requiring a series of measures to adapt to the business environment. There was a drop in the sales to the home market, in apparent consumption and exports, taking the total volume of sales to the levels of 10 years ago.

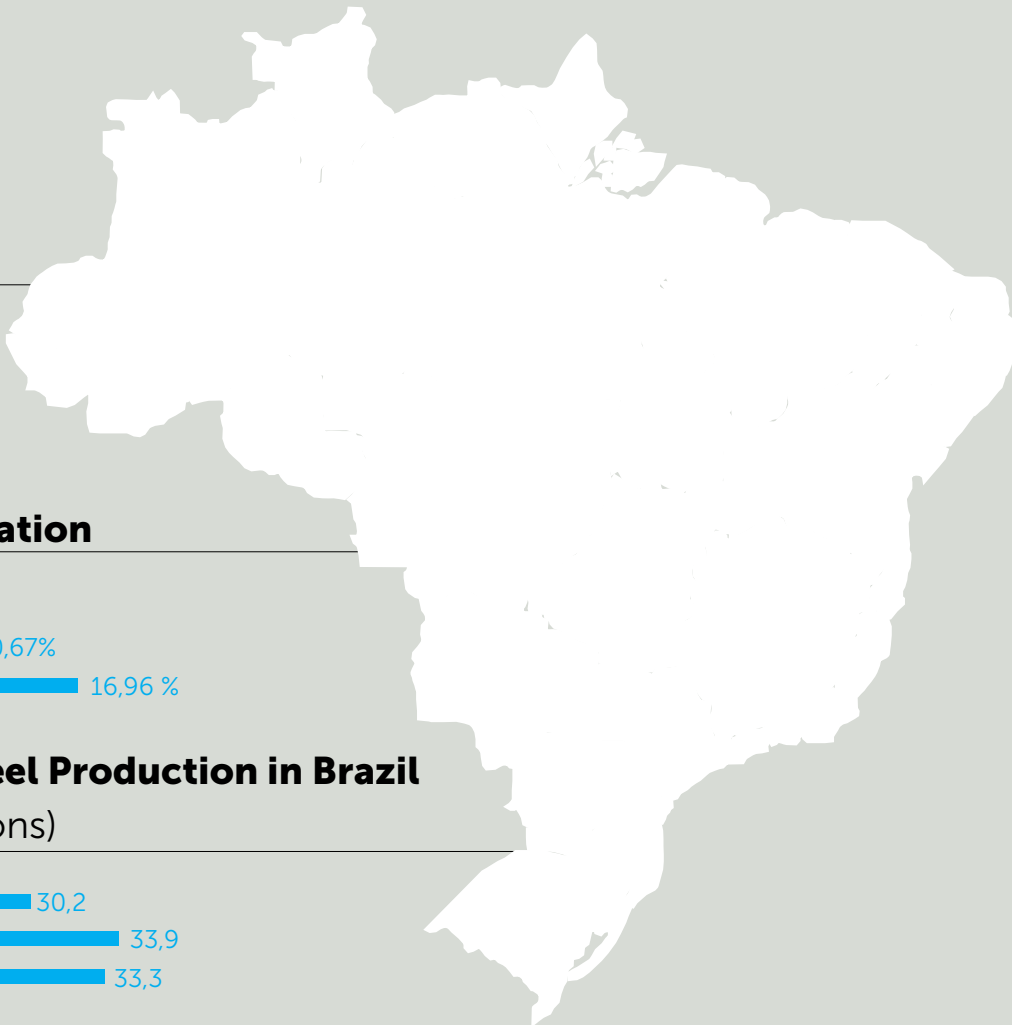
## — OUR PERFORMANCE

G4-EC1

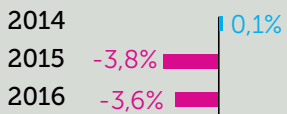
The steel tube market is going through a severe crisis which directly affects the business of Vallourec in Brazil. The years 2015 and 2016 were very challenging to the company. Similarly to other companies in the industry, Vallourec in Brazil lacks investment projects and there is a global reduction in sales prices.

In this scenario and following the Group guidelines, Vallourec rapidly repositioned itself and, in response, integrated its steel assets in Brazil, optimizing its structure (p 8). The company is entirely focused on the continuous reduction of costs and absolute control of the funds for investments and inventory building.

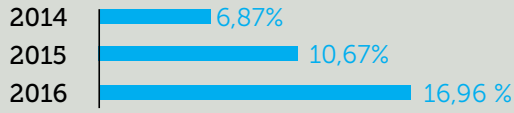
The expectation is that there will be a stabilization in the business environment, starting in 2017, and the gradual recovery both in trust and demand in the home and foreign markets. When this recovery materializes, Vallourec will be prepared to provide innovative solutions and high technological standard products, with agility and competitive costs.



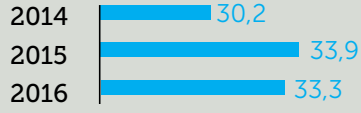
### GDP



### Accumulated inflation



### Gross Steel Production in Brazil (million tons)



# Environmental Commitment



<http://www.vallorec.com/EN/GROUP/COMMITMENTS/Pages/default.aspx>

**B**ased on the sustainable operation premises of the Group, Vallorec Brazil is focused on sustaining competitive and innovative business, protecting the environment, the rational use of natural resources, promoting social development with the stakeholders and the continuous improvement of its processes. The objective is to reduce the environmental footprint of its activities, whether in the steel, forestry and mining processes, according to the Sustainable Development Charter that guides the operations of the Group companies.

In 2015-2016, the company revised its environmental investments plan, based on production levels and the needs of each unit. In general, this period was marked by an increase in funds for prevention and management and a reduction in funds for disposal, treatment and mitigation. In 2016, the drop was sharper in the Barreiro Plant, as a result of the reduction in steelmaking activities.

## — ENVIRONMENTAL INVESTMENTS G4-EN31

(PER TYPE AND PLANT)

Type	Barreiro Mill (R\$)		
	2014	2015	2016
Disposal, treatment, mitigation	15.516.833,48	21.789.465,06	10.669.787,38
Prevention and environmental management	5.940.274,34	4.729.352,00	4.054.209,9
<b>Total R\$</b>	<b>21.457.107,82</b>	<b>26.576.485,06</b>	<b>14.696.002,28</b>

Type	VMN (R\$)		
	2014	2015	2016
Disposal, treatment, mitigation	2.270.184,00	2.426.171,48	2.614.246,61
Prevention and environmental management	2.381.500,00	2.784.201,75	2.425.429,71
<b>Total R\$</b>	<b>4.651.684</b>	<b>5.210.373,23</b>	<b>5.039.676,32</b>

Type	VFL (R\$)		
	2014	2015	2016
Disposal, treatment, mitigation	1.645.864,00	1.375.334,73	937.226,71
Prevention and environmental management	6.826.239,00	5.740.934,66	4.676.525,70
<b>Total R\$</b>	<b>8.472.103,00</b>	<b>7.116.269,39</b>	<b>5.613.752,41</b>

Type	TSA (R\$)*		
	2014	2015	2016
Disposal, treatment, mitigation	341.073,00	177.945,77	83.682,73**
Prevention and environmental management	0	0	0
<b>Total R\$</b>	<b>341.073,00</b>	<b>177.945,77</b>	<b>83.682,7</b>

\* includes Vallorec-ES  
\*\* dropped with reduced production

Type	VTS		
	2014	2015	2016
Disposal, treatment, mitigation	403520	341.881,59	263.000,00
Prevention and environmental management	78.426	41.654	43.882,60
<b>Total R\$</b>	<b>481946</b>	<b>383.535,59</b>	<b>306.882,60</b>



### CARBOVAL

A significant advance in 2016 was the successful conclusion of the pilot project that may mean a significant strategic direction for the coming years: the Carboval project. It is a company patent that brings together the most modern and technological of charcoal production, exponentially increasing the productivity of this material, with an equally exponential reduction of emissions. This pilot project follows the idea of continuous carbonization and uses the methane from combustion for the cogeneration of electricity. The next steps include the strategic evaluation and formulation of a transition plan.

Besides the planted forests (productive, decommissioned or under management), the Forestry unit has a large legal reserve area, permanent preservation areas or spontaneous reserves. Both the tree cultivation activity and maintaining native vegetation contribute to absorb carbonic gas from the atmosphere and for the company carbon balance. The decommissioning of some of the productive farms of the Forestry unit did not involve the cutting of forests.

## EMISSIONS

Aware of the actual and potential impacts of its activities on the environment, Vallourec Brazil strictly follows, controls and monitors the levels of air emissions, with special attention to the steel and forestry units, because of the carbonization processes. In line with the Group guidelines, the company implements actions of the ISO 50,001 program for the management of energy and energy efficiency, for the improvement of energy performance in its processes, reducing the CO<sub>2</sub> emissions.

In 2016, after 20 years of study, the company concluded its carbon balance, a document that compiles historical data over 30 years and defines its carbon footprint in the Brazilian units of the Group. The results went beyond expectations and proved, with numbers, facts and data, what experience showed in practice: the green steel tube produced from charcoal taken from a forest unit - "captures" more carbon from the atmosphere than it emits, resulting in a positive carbon balance.

In the reported period, Vallourec continued the corporate inventory of greenhouse gases (GHGs), with the objective of knowing, quantifying and analyzing emissions from the units of the Group in Brazil. In 2016, there was a global reduction of about 7% in the volume of direct emissions of GHGs as a result of the decline in production in the Barreiro Mill. G4-EN19

VFL has most of the emissions in its carbonization processes and continued to lead even with the end of production in some of its farms. In 2016, it was responsible for 82.42% of total direct emissions of GHGs among the companies (6.5% higher than recorded in 2015 - 77.01%). Therefore, it works on advancing in the use of ever more sustainable technologies and, in this way, to minimize impacts. Among these, there is the Clean Development Mechanism project in carbonization, recorded at the UNFCCC in March 2013. The project involves the increase of gravimetric yield in the production of charcoal, which means that the Company produces more charcoal with less greenhouse gases emissions.

**100%** of the charcoal produced by Florestal comes from renewable sources.

Vallourec Florestal sequesters an average of **5.8 tons of CO<sub>2</sub> equivalent tons of charcoal produced**

## – DIRECT EMISSIONS OF GHGS

G4-EN15

### Barreiro Mill

Year	Direct emissions of GHGs (t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t steel)	% emissions compared to Group totals in Brazil
2014	112.144	0,28	22,80%
2015	83.524	0,32	19,15%
2016	57.259	0,27	14,23%

### VFL

Year	Direct emissions of GHGs (t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t charcoal)	% emissions compared to Group totals in Brazil
2014	362.347	1,16	73,70%
2015	335.804	1,12	77,01%
2016	331.566	1,15	82,42%

### VMN

Year	Direct emissions of GHGs (t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t iron ore)	% emissions compared to Group totals in Brazil
2014	16.738	0	3,40%
2015	16.633	0,004	3,81%
2016	13.467	0,003	3,35%

### TSA\*

Year	Direct emissions of GHGs (t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t steel)	% emissions compared to Group totals in Brazil
2014	101,23	0	0,00%
2015	87,79	0,004	0,02%
2016	14,16	0,005	0,00%

\*includes VSB-ES

### TOTAL

Year	Direct emissions of GHGs (t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t product)	% emissions compared to Group totals in Brazil
2014	491.332,12	1,21	100,0%
2015	436.048,69	1,70	100,00%
2016	402.306,55	1,10	100,00%

# — INDIRECT EMISSIONS OF GHGS

G4-EN16

## Barreiro Mill

Year	Indirect emissions of GHGs(t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t product)	% emissions compared to Group totals in Brazil
2014	38,713.50	0.10	85.50%
2015	31,235.25	0.12	83.96%
2016	17,538.64	0.08	83.44%

## VFL

Year	Indirect emissions of GHGs(t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t product)	% emissions compared to Group totals in Brazil
2014	433.88	0.00	1.00%
2015	361.17	0.00	0.97%
2016	119.37	0.00	0.57%

## VMN

Year	Indirect emissions of GHGs(t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t product)	% emissions compared to Group totals in Brazil
2014	5,443.55	0.00	12.00%
2015	4,977.04	0.00	13.38%
2016	3,235.54	0.00	15.39%

## TSA\*

Year	Indirect emissions of GHGs(t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t product)	% emissions compared to Group totals in Brazil
2014	694.88	0.03	1.50%
2015	629.06	0.03	1.69%
2016	127.02	0.04	0.60%

\*includes VSB-ES

## TOTAL

Year	Indirect emissions of GHGs(t CO <sub>2</sub> )	Specific emission (t CO <sub>2</sub> / t product)	% emissions compared to Group totals in Brazil
2014	45,285.81	0.13	100.00%
2015	37,202.52	0.14	100.00%
2016	21,020.56	0.10	100.00%



## VEHICLE EMISSIONS

In order to reduce air emissions of diesel vehicles and equipment - that contribute to the emissions of GHGs into the atmosphere - all Vallorec Brazil plants monitor their internal and external fleet. This monitoring routine includes the evaluation of emissions of black smoke and oil leakage of vehicles (tractors, trucks and forklifts).

For the external vehicles, there is a monthly quota of vehicles to be inspected, which are selected by sampling, at fixed points. If any non-conformity is found, the vehicle is taken out of circulation until its emission issues are solved. The companies have trained teams to solve problems related to the leakage of oil or other products in vehicles.

The Mining Plant gives priority to conveyor belts to transport the material from the pile to the Ore Treatment Station. In this way, it helps to reduce traffic in the internal roads, reducing noise, using less water for the water truck and the burning of diesel oil and dust into the atmosphere.

## Clean Development Mechanism

In 2015-2016, although the company did not sell carbon credits, it received and accumulated credits for future CDM projects. In 2014, Vallorec was among the 11 Brazilian companies that contributed to the GHG Emissions Compensation Strategy of the federal government and received the seal of Low Carbon Company.

## Monitoring Stations

Vallorec has two air monitoring stations near the Barreiro Mill, in Belo Horizonte. The information collected by the stations is sent to FEAM (State Environment Foundation) in real time, and is used in projects and studies to improve the quality of the air in these regions.

## ENERGY

Vallourec Brazil has enhanced its energy efficiency practices, aligned to ISO 50.001, by which it has been certified since 2012. Therefore, the energy management and energy efficiency program ISO 50.001 continued in the reported period, based on the premises of the Valens Program for the global reduction of costs.

In the Barreiro Mill, a wide survey in all the large energy consumption areas mapped the losses for the implementation of energy efficiency measures. Over 300 suggestions were given, some became projects and resulted in a 5% reduction of energy consumption in the mill.

In 2015-2016, with the drop in production and the shutdown of blast-furnace 2 in the Barreiro Mill, there was the need to go out on the market to buy more energy (natural gas), since the generation of blast-furnace gas (byproduct used for the production of internal energy) was reduced to almost half. As a result, in 2016, the company started to use more energy from the National System and use the blast-furnace gas to supply equipment where the use of gas is more efficient.

Vallourec Florestal maintained the levels of energy consumption. However, the conclusion of the Carboval Project (p.42) resulted in a reduction of over 50% of energy consumption in the last two years, from 3,249,422 kWh in 2014 to 1,444,800 kWh in 2016. G4-EN6

Continuing to invest in more modern equipment, Vallourec Mining has directed its efforts at projects to improve processes and refurbishing structures and equipment in order to increase its energy efficiency. In the reported period, it carried out studies in several pieces of equipment, in the Mineral Treatment Station and found opportunities for improvement. In 2016, due to improvements in the process, ten high-power pieces of equipment in the Spirals Building were shut down. The lighting was also refurbished, with the replacement of 1000 W bulbs by 400 W.



### Energy Consumption G4-EN3

Mill	Energy	Energy source	2014	2015	2016
			Absolute consumption		
Barreiro Mill	Renewable	Charcoal (t)	278,563	226,240	158,940
		Tar (t)	-	-	-
		GAF (Nm <sup>3</sup> )	613,857,661	460,123,612	310,030,483
	Non-renewable	Purchased electricity (kWh)	180,979,911.17	143,220,650.71	149,528,095.03
		Produced electricity (kWh)	81,104,281.45	54,061,345.29	54,201,518.29
		Purchased electricity (kWh)	27,042,975	22,343,278.57	23,798,405.74
		Natural gas (Nm <sup>3</sup> )	53,558,063	38,240,910	26,320,929
		Gasoline (l)	147,277	124,473	100,119
		Diesel oil (l)	1,834,012	1,349,351	783,131
VFL	Renewable	Purchased electricity (kWh)	2,822,021	2,525,022	1,256,976
	Non-renewable	Alcohol (l)	6,236	-	-
		Purchased electricity (kWh)	421,681	377,302	187,824
VMN	Non-renewable	Gasoline (l)	470,889	508,071	414,998
		Diesel oil (l)	8,310,029	9,178,906	7,827,190
	Renewable	Purchased electricity (kWh)	35,405,838	34,795,610	34,071,433
	Non-renewable	Energia Elétrica Comprada (kWh)	5,290,527	5,199,344	5,091,134
		Gasolina (l)	119,875.69	131,634	127,090
TSA*	Renewable	Diesel (l)	6,178,740.61	6,519,056.56	4,943,116
		Purchased electricity (kWh)	4,519,650	4,397,894	1,337,549
	Non-renewable	Purchased electricity (kWh)	675,350	657,157	199,864
		Gasoline (l)	0	0	0
		Diesel oil (l)	38,026.03	32,980.00	5,319
Liquefied oil gas	33,518	14,137	4,63		

\*includes VSB-ES

### Total electricity consumption\* G4-EN3 e G4-EN4

Year	Barreiro Mill			VFL	VMN	TSA**
	Purchased (kWh)	Produced (kWh)	Total consumption (kWh)	Purchased (kWh)	Purchased (kWh)	Purchased (kWh)
2014	208,022,886.40	81,104,281.45	262,084,192.62	3,243,701.96	40,696,365.00	5,195,000.00
2015	171,871,373.60	54,201,518.29	226,072,891.89	2,902,324.00	39,994,954.00	5,055,050.00
2016	183,064,659.55	4,894,816.65	187,959,476.20	1,444,800.00	39,162,567.00	1,537,412.88

\* Because of significant changes in operational standards in 2015 (reduction of shifts in rolling operations and increased production stoppages in steel making, for example), the Barreiro Mill established a new energy baseline in 2015.

\*\*includes VSB-ES



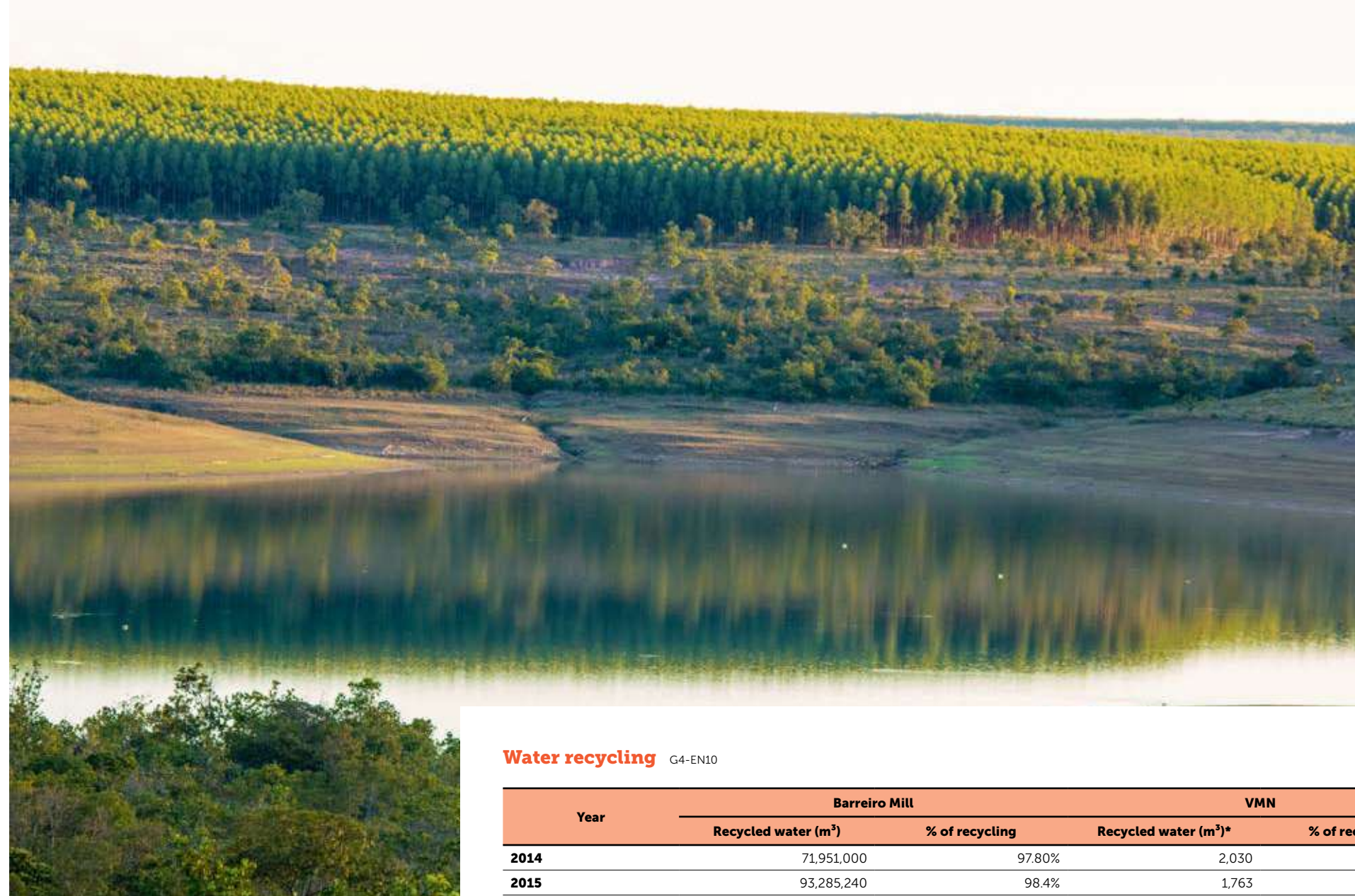
## WATER RESOURCES

Aware of its responsibility with water resources - and according to the Strategic Environment Plan for the 2014-2019 cycle - Vallourec Brazil is constantly searching for solutions to optimize the use of water in its industrial process. The mills have different sources (see table), all duly licensed by the relevant environment agency.

At the Barreiro Mill and Forestry Unit, no water sources are significantly affected by the water consumption in the companies. Artesian wells and rivers are the main source of water on the farms; uptake is duly licensed and the amount of water used is within the authorized limits. There are also Permanent Preservation Areas of native vegetation to protect the springs and, as a result, they protect wildlife.

Because of the nature of its processes, water consumption in the Mining Unit is a significant environmental issue. The water is tapped directly from two sources for human and industrial consumption. One is from surface pumping at the Fundo stream, in the micro-basin of the Paraopeba river. The other is the result of the lowering of the water table through wells on the basin of the Paraopeba river. VMN carries out regular quantitative and qualitative monitoring of the streams and springs around the Pau Branco Mine.

TSA and Vallourec-ES use water from a public utility (Cesan) that takes water from the Santa Maria River basin (State of Espírito Santo). No water source at VTS is significantly affected by the company consumption.



### Water recycling G4-EN10

Year	Barreiro Mill		VMN	
	Recycled water (m³)	% of recycling	Recycled water (m³)*	% of recycling*
2014	71,951,000	97.80%	2,030	85%
2015	93,285,240	98.4%	1,763	84%
2016	91,538,183	99.0 %	1,642	86%

\*calculation of water circulation at the ore processing facility

### Water tapping sources

Company	Source	
	Industrial Use	Human consumption
Barreiro Mill	Copasa – Paraopeba System: Artesian wells - Minas Gerais Water Management Institute (IGAM)	Copasa – Paraopeba System
VMN	Wells resulting from the lowering of the water table** Surface tapping	Own well resulting from the lowering of the water table*
VFL	Artesian wells and surface tapping ***	Artesian wells and Copasa ***
TSA-Vallourec ES	Cesan	Cesan
VTS	CEDAE Artesian wells	CEDAE Artesian wells

\*Human consumption - source: surface tapping and well (lowering of the water table).

\*\* Lowering is necessary to meet the safety conditions for the mine operations.

\*\*\* Sources authorized by the environmental body

Because of the water shortage in 2015, the Barreiro Mill implemented a series of actions to reduce human consumption, including devices to reduce the flow from faucets and showers in the dressing rooms of the mill, as well as, timers in urinals, and the gradual replacement of common toilets by water-efficient toilets. Measures were also taken to reduce the consumption of industrial water, such as consolidation of water replacement in the Effluent Treatment Plants, more regular inspection and maintenance in hydraulic equipment systems and accessories, replacement of dedicated cir-

cuits and COPASA (utility) water cooling towers by recycled water. There was also an internal campaign focusing on the role of each one for the responsible management of water. This resulted in a 25% reduction in total consumption of water in 2015, compared to 2014. Considering only human consumption, the reduction was 38%. In 2016 we had a 23% reduction, compared to 2015. The campaign was implemented in the Mining, Forestry, Transports and Services and TSA units.

In the Mining Unit, the water reuse rate in industrial processes

has been rising each year, using technology and changes in the process. Effluents from the refinery, dressing rooms and toilets are also reused after going through the Sewage Treatment Plants, to be later used in revegetation areas.

In 2016, the reductions were maintained and intensified in all the units. At Vallourec Florestal, a region often affected by drought and highly dependent on water for its activities, a Continuous Improvement Group (CIG) was established, that drew a map of the water in the plant

from the uptake from artesian wells through to its use in the main industrial processes. All points were carefully controlled and gave rise to action plants developed throughout the year. The first results will be presented in 2017.

A further study was done monitoring the quality of water in 10 spots of waterways in the region, in order to assess the impacts of forestry. The results did not show disturbances and proved that the activities of this unit have negligible impacts on the river basins in the region.

# — ANNUAL WATER CONSUMPTION PER SOURCE (M<sup>3</sup>) G4-EN8

## Barreiro Mill

Year	Industrial Water	Drinking water	Water tapped from underground wells	Total consumption
2014	1,633,556	97,206	100,541	1,831,303
2015	1,257,809	52,110	69,972.00	1,379,891
2016	956,850	43,912	41,100	1,050,862

## VMN

Year	Surface tapping	Water lowering*	Total consumption**
2014	514,908	3,837,810	4,352,718
2015	220,156	3,197,460	3,417,616
2016	176,602	3,127,520	3,304,122

\*It varies according to the needs and safety conditions of the mine operations.

\*\* VMN does not use all the water trapped in its ore processing operations. Part of it returns to the environment with an adequate quality. This is true for all years - not only 2014.

## VFL

Year	Drinking water	Industrial water		Total consumption
		Nurseries	Various uses at farms	
2014	2,955.00	143,951.00	170,141.00	317,047.00
2015	2,818.00	84,131.95	137,744.00	224,693.95
2016*	1,793.00	10,040.54	104,074.25	115,907.79

\* The large reduction in water consumption resulted from the end of planting and the reduction of charcoal production. Also the seedling nursery of the Extrema Farm began to produce only a small number of native species in 2016.

## TSA e Vallourec-ES

Year	Total consumption
2014	16,175
2015	12,016
2016	115,907.79

## VTS

Year	Total consumption
2014	11,798
2015	11,352
2016	6,381

## EFFLUENTS

The plants of Vallourec Brazil have a strict management of effluents, providing the adequate treatment of each one before disposal. In the reported period no significant spillages were recorded.

Among the highlights of 2015-2016 is the beginning of the operation of the VMN Ore Tailings Treatment Installation that gave Vallourec a world first among the iron ore producers in the implementation of the dry stack, replacing dams for the storage of tailings.

The plant has six dewatering sieves (EVO Wash), one thickener and two press filters which, through dewatering and filtering processes, treat the tailings resulting from iron ore processing. With this structure, Vallourec moved forward in its intention to seek new methods for tailings disposal, for the future replacement of the Cachoeirinha Dam, which is still in operation.

The dam no longer receives solids inside the tailings pulp, but only the liquid part after clarification. Two thirds of the water from this process is recycled.

The solid waste follows two paths: part becomes a byproduct and part is filtered and transported to the sterile pile, where there is the dry stacking. The combination of this good geotechnical base and humidity below 20% of water allows the safe stacking of tailings from VMN operations.

This solution, considered efficient and safe from the environmental, social and economic point of view, was further highlighted after the failure of a tailings dam in Minas Gerais, which is the worst environmental disaster in the country. Choosing a more modern and lower risk technology had been studied since 2010, when it was found there was the need to raise the existing dam upstream. The equipment started to operate in the second semester of 2015 and the Tailing Treatment Plant was officially inaugurated in March 2016.

The investment - estimated at 20 million reais - was about 20% higher than the construction of a traditional dam, and was compensated by the reduction of the risks, according to the Strategic Plan for Vallourec Waste and Byproducts, and was decisive in the progress of activities of VMN.

## SEWAGE TREATMENT PLANT

The activities of the Barreiro, VFL, TSA and VTS plants do not impact the biodiversity of water bodies. In the Barreiro Mill, the effluents of the industrial process are sent to three internal sewage treatment plants and then returned to the production units. When disposal is necessary, the industrial effluent is sent to the COPASA Treatment Plant, a state utility, through the interceptor, which also deals with the company sewage. The rainwater is drained in a separate system.

The VFL effluents are disposed off in the septic tanks of the toilets and refectories. In the case of surface drainage, road maintenance methodologies are used, such as the building of small barriers, containment boxes and ridges that stop water rushes during rain and, consequently, the entrainment of solids to the beds of streams and rivers. The small dams hold the water so that it infiltrates the soil and feeds the water table. In TSA and VTS, industrial effluents are treated internally for reuse, not impacting biodiversity.

## DAM SAFETY

The three dams still run by VMN - a tailings dam and two others for sediments and water recycling - are systematically monitored, measuring stability indicators, weekly inspections and twice a month recording of data, monthly reports and annual external audits, according to the Dam Safety Plan. The results of this control show safety coefficients higher than the minimum required for the structures in operations. The results of the physical-chemical micro-biological and hydro-biological parameters of the water ecosystems around the mine were satisfactory in the reported period.

## TRAINING IN DAM EMERGENCY PLAN

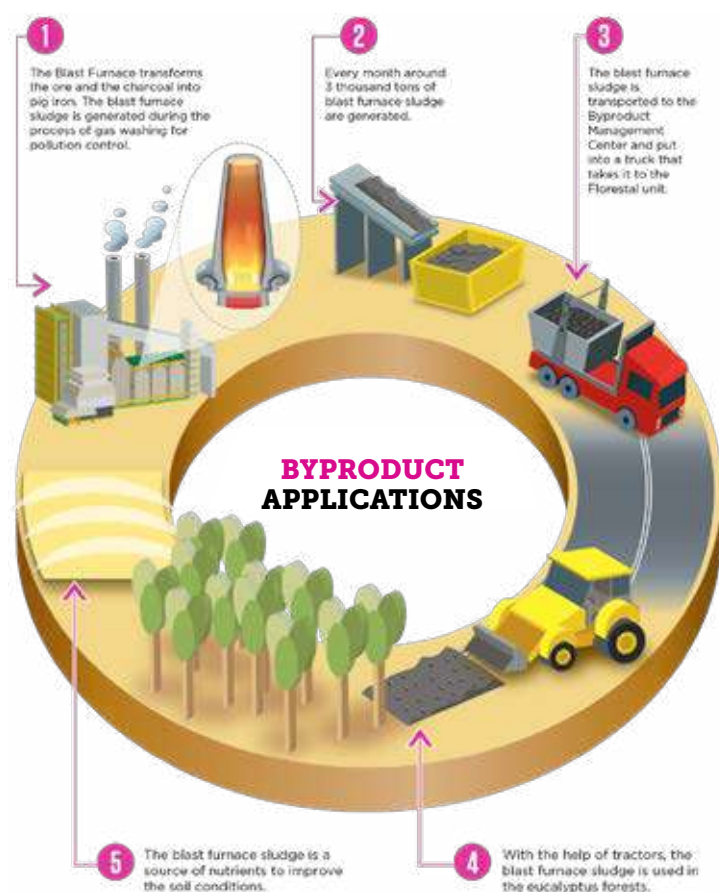
In order to qualify own employees and contractors in preventive and correction procedures in emergency situations on dams, training was given to all 258 mining employees in 2016. This training is also part of the routine for new employees, whether company or contractor employees.

The training covered preventive and corrective procedures, including detection, classification of emergency situations of dams, presenting flowcharts and notification procedures in emergency care, according to the legislation (national dam safety policy 12,334/2010), Decree 416/2012 and Decree 526/2013). The stages of the Emergency Response Plan (ERP) were presented, who is responsible for each stage, and the planning of the activities.

### WASTE AND BYPRODUCTS

Vallourec's Strategic Plan seeks to combine the maximum use of natural resources, generating minimal waste and tailings, prioritizing reuse and recycling. As well as making the operations more sustainable, this strategy contributes to generate value through the sale of byproducts. Vallourec Brazil does not export or import waste from other countries.

In 2015-2016, Vallourec Mining made further studies to increase the capacity to concentrate ore with low iron content. It has also tested the use of tailings to manufacture products for civil construction, such as paving blocks, curbs, concrete structures for marking roadsides and gullies, increasing the working life of piles of sterile. So far, mining byproducts are used for internal needs and donated to the community.



### Barreiro Mill

HAZARDOUS WASTE (t)				
Waste	Year			Destination
	2014	2015	2016	
Oily liquids	93.68	25.16	20.69	co-processing
Oily solids	262.15	271.08	270.23	co-processing
Oily sludge	1,864.31	1,845.13	1,220.27	co-processing
Lacquer waste	14.81	5.33	0	co-processing
Waste acid	1,846.93	1,775.85	1,791.69	external recycling
Light bulbs	1.1	1.33	0.76	external recycling
Health Clinic waste	0.4	0.38	0.33	incineration
PPE	46.96	14.84	11.52	External recycling
Electro-electronic scrap	99.27	63.8	33.77	external recycling
Battery scrap	0	7.54	6.14	external recycling
Soluble synthetic oil	0	63.93	14.72	co-processing
<b>TOTAL</b>	<b>4,229.61</b>	<b>4,074.37</b>	<b>3,370.12</b>	-
Specific generation (t/ t steel)	<b>0.01</b>	<b>0.02</b>	<b>0.02</b>	-

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NON-HAZARDOUS WASTE (t)				
Waste	Year			Destination
	2014	2015	2016	
Scale	16,340.01	11,638.3	7,713.75	External reuse and industrial landfill
Raw blast furnace slag	21,523.86	17,342.91	13,534	External reuse
Steel mill slag	86,150.64	64,805.21	57,073	External recycling
Granulated Blast Furnace slag	60,199.12	38,186.51	26,970	External reuse
Ore fines 1	21,675.83	20,057.24	11,586	External reuse
Phosphate sludge 2	39.62	88.21	38.20	External reuse
Steel sludge	36,200.19	33,881.18	32,789.49	Co-disposal and external reuse
Non-oily sludge	0.00	0	1,390.43	Industrial landfill
Neutralized sludge from used acid	398.02		0	Co-processing
Plastic material	44.59	71.07	3.86	External recycling
Ember from mill	5,178.54	9,992.18	3,679.56	External reuse
Sleeve filter	14.98	2.93	9.00	Co-processing
Catcher dust	8,413.234	9,308.88	7,210	External reuse
Steelmill dedusting powder	0	0	84	
Common garbage	929.97	739.09	599	Final disposal
Biomass waste	125.8	79.2	129.40	Final disposal
Civil construction waste	3,660.10	2,223.44	1,021	Final disposal
Vegetable grease waste	1.98	9.68	1.12	External recycling
Grease box cleaning waste	70.05	37.72	0.91	Effluent treatment plant
Wood waste	1,293.00	1,484.89	965.01	External reuse
Recyclable waste	246.9	168.92	114.78	External recycling
Food leftovers	168.27	142.64	105.09	Composting
Refractory scrap	2,078.29	3,443.87	1,319	External recycling
Metal scrap	14,859.68	22,283.8	9,096	External reuse
Chrome Scrap	842.66	0	1,831.11	External reuse
Non-ferrous scrap	36.63	19.21	12.26	External recycling
Big Bags scrap	0	10.11	8.10	External reuse
Benac scrap	0	0	38.25	External reuse
Bengusa scrap	0	0	1,282.99	External reuse
Grid waste - Aluminum oxide	0	0	23.27	External reuse
Waste from scrap bay cleaning	0	0	2,302.11	External reuse
Steel scrap with LD slag	0	0	291.38	External recycling
<b>TOTAL</b>	<b>280,492.07</b>	<b>236,017.19</b>	<b>181,221</b>	-
Specific generation (t/ t steel)	<b>0.69</b>	<b>0.91</b>	<b>0.87</b>	-

**VMN**

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<b>NON-HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (t/year)		
		2014	2015	2016
Paper/cardboard	External recycling	6.19	2.75	6.17
Plastic	External recycling	2.22	2.57	6.55
Used cooking oil and kitchen liquid waste	External recycling	2.22	1.45	0.46
Ferrous metal scrap	External recycling	289.43	75.91	79.74
Class II waste	Final disposal	259.9	56.04	67.03
Rubber scrap	External recycling	14.79	87.31	62.15
Copper scrap	External recycling	1.67		
Wood scrap	External recycling	7.98	19.85	11.51
Manganese scrap	External recycling	44.15	0	0
Computer scrap	External recycling	0	0.05	0
Car battery scrap	External recycling	0	0.8	0
Glass	Final disposal	1.13	0	0.47
Electrical scrap**	External recycling	0	0	2.83
Sewage plant /Cesspit sludge*	External reuse	0	0	139.98
Grease box sludge*	External reuse	0	0	77.16
Unserviceable tyres**	External destruction	0	0	3.3

\* Improved management of waste in 2016, more accurate weighing of waste from Sewage Treatment Plant/Cesspit and grease box.

\*\* Low generation of waste; disposal once every three years.

<b>HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (t/year)		
		2014	2015	2016
Light bulbs/glass	Recycling	0.24	0.050	0.17
Contaminated lubricant oil	Re-refining	4.7	3.5	6.35
Contaminated solid waste	Co-processing	94.49	99.47	129.89

\* Increase in 2016 due to maintenance demands

**VFL**

<b>HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (Kg/ano)		
		2015	2016	
Asbestos	Treatment	0	21,920	
Cesspit effluents	Sewage plant	88,090	131,326	
Packaging of agricultural chemicals	Used packaging stations	12,845	8,086	
Contaminated soil	Co-processing	42,070	17,050	
Oils	Re-refining	0	5,250	
PPE	Co-processing	1,390	1,000	
Light bulbs	Co-processing	510	0	

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<b>NON-HAZARDOUS (t)</b>				
Waste	Destination	Weight (Kg/ano)		
		2015	2016	
Paper/Plastic/Metals	Donation	133,936	40,239	
Tires	Recycling	390	289	
Household waste	Municipal landfills	46,817	46,443	
Civil construction - wood	Donation	13,550	0	
<b>TOTAL</b>		<b>339,598.00</b>	<b>271,603.00</b>	

**TSA\***

<b>HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (Kg/ano)		
		2015	2016	
Class I solid waste	Landfill	68.56	15.5	

<b>NON-HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (Kg/ano)		
		2015	2016	
Polyethylene mantle	Recycling	61.06	5.39	
FBE dust	Landfill - class II	29.4	5.42	
Brush dust with FBE	Landfill - class II	53.52	5.72	
Polyethylene sludge	Recycling	72.99	3.22	
Steel grit dust	Landfill - class II	33.23	15.55	
<b>TOTAL</b>		<b>318.6</b>	<b>50.8</b>	

\* includes VSB-ES

**VSB-ES**

<b>HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (Kg/ano)		
		2015	2016	
Batteries (t/year)	Industrial landfill - class I	0	0	
Health Clinic waste (t/year)	Incineration	0.11	0.03	
Hazardous liquid effluents (t/year)	Blending, landfill	5.24	0	
Contaminated lubricant oil (l/year)	Re-refining	1,200	0	
Fluorescent bulbs (UN)	Recycling	1,116	275	

<b>NON-HAZARDOUS WASTE (t)</b>				
Waste	Destination	Weight (t/year)		
		2015	2016	
Metallic scrap	Recycling	3,237.74	310.35	
Wood	Recycling	65.04	48.26	
Cesspit sludge	Industrial landfill - class II	81.91	116.73	
Grease sludge	Industrial landfill - class II	20.5	56.34	
Slag flow powder	Industrial landfill - class II	132.95	19.75	
Class II waste	Industrial landfill - class II	28.75	77.37	
<b>TOTAL</b>		<b>3572.24</b>	<b>628.83</b>	

**VTS**  
G4-EN23

HAZARDOUS WASTE (t)		
Waste	2015	2016
Industrial effluents	503,013 Kg	104,500 Kg
Construction rubble	150 m <sup>3</sup>	65 m <sup>3</sup>
Whole fluorescent bulbs	250 unidades	132 um.
Common garbage	31,728 Kg	24,056 Kg
Non-contaminated wood	146,206 Kg	56,516 Kg
Non-contaminated paper/cardboard	15,829 Kg	9,965 Kg
Batteries	14 Kg	34 Kg
Non-contaminated plastic	25,991 Kg	7,886 Kg
Waste contaminated with oil and/or chemical products	93,193 Kg	61,814 Kg
Electric/electronic scrap	685 Kg	195 Kg
Ferrous scrap	47,310 Kg	5,368 Kg

**BIODIVERSITY**

Built in a total area of approximately 234 thousand hectares, the Vallourec plants in Brazil have projects and measures for environmental protection. The forestry unit, which has the largest part of this area, meets legal requirements and certification for environmental agencies, with legal reserves, Permanent Preservation Areas (PPAs), as well as ecological corridors and spontaneous reserve areas with preserved native vegetation. The wild fauna is also continuously monitored.

The monitoring of flora in the Forestry Unit is carried out by the Federal University of Lavras (UFLA). So far, 494 species of native flora have been identified, of which 6 are protected by law.



**Monitoring of wild fauna at VFL**

<b>Medium and large sized mammals</b>	34 species, including nine on threatened species lists, whether the Minas Gerais List, the National List or the List of the International Union for the Conservation of Nature and Natural Resources - IUCN.
<b>Small mammals</b>	23 species, including only one (the tree rat -Phyllomys brasiliensis) - on the threatened species list.
<b>Birds</b>	398 different species of birds, of which 10 are threatened to different degrees, 8 are considered "almost threatened" and 2 species are classified as "lacking data".

**Environmental protection area**

Company	Total area	Protection area	Other green areas
<b>Barreiro Mill</b>	Barreiro Mill: 253.29 hectares	Barreiro Environment Education Center: 20 hectares	Sites at the Barreiro Mill and tree curtain: 120 hectares Av. Deputado Álvaro Antônio, Via do Minério and 6 green City Hall areas: 17.7 hectares
<b>VFL</b>	230,616.6 hectares, on 22 farms in the center, north and northwest of the state of Minas Gerais	108,190 hectares covering areas of legal reserve, spontaneous reserves, paths, ecological strips, water resources, areas of permanent preservation and others with native vegetation	Eucalyptus crops: 113,224.17 hectares
<b>VMN</b>	1,373 hectares	441,9 hectares in Pau Branco Mine, considered a Permanent Preservation Area, areas around caves and areas protected by municipal or state laws;  208.7867 hectares in Pedro Paulo, Management Plan of the Rola Moça State Park (PESRM), Permanent Preservation Area and legal reserve	Tree curtain: 7 hectares Recovered areas: 154 hectares
<b>TSA*</b>	17.10 hectares	TSA is in an area where a landfill was made, and does not have vegetation or surface water resources.	

\* includes VSB-ES

**PROTECTION OF NATURAL CAVITIES**

The Mining unit has tightened its criteria for making new piles of sterile and various operations of the mining industry, given that it is on land with 46 underground natural cavities (caves) with varying degrees of environmental importance.

Among the measures to preserve, monitor and protect these structures duly marked and signposted, are the review of the mine planning, defining and marking the area of influence, concluding studies of the importance of the caves and the conformation of the geometry of the piles according to the limits of areas of influence of the cavities.

Also in 2016, company employees and contractors received training in identifying and preserving these structures and areas. The preservation of underground natural cavities and their respective areas of influence is among the main conditions for the licensing of VMN projects.

Because they are underground ecosystems, these structures may have specific characteristics and are the object of specific management measures, as laid out in the legislation, and are the source of technical-scientific studies by Vallourec, in partnership with research institutions. An example is that in five of these caves, archeological sites were found and recovered, and referred to the Museum of Natural Sciences of the Pontifical Catholic University of Minas Gerais (PUC Minas), a well-established institution recognized for its research in this field.

**PARTNERSHIP IN RESEARCH**

In partnership with the State Forestry Institute (IEF), CREAD (Reference Center in Environmental Education and Development), the Federal Universities of Minas Gerais (UFMG), Ouro Preto (UFOP) and Viçosa (UFV) and the University of Salford-Manchester (United Kingdom), Vallourec is involved in a study of the Pecari tajacu, a kind of hog that is native to the Americas, commonly known as the "cateto". It can be found in all of Brazil, however, given the serious threat of hunting and destruction of its natural habitat, it came close to being considered in danger of extinction in Minas Gerais. Although it is not among national threatened species, it is important that preservation measures should be taken to protect fauna and all biodiversity. This study evaluates behavioral, genetic and parasite aspects of captive catetos, as well as raising ethno-zoological aspects about the species. The project started in 2015 and will last three years, with the main objective that the result provides input for the possible reintroduction into nature. This partnership between the institutions shows the commitment of Vallourec to encourage research for sustainable development.



### ENVIRONMENTAL EDUCATION

Aware of its role with employees and service providers, Vallourec has internal practices on environmental education. The main objective is to extend people’s awareness about their role to preserve natural resources and biodiversity. In the period of this report, there was training which was also given in schools near the Barreiro mill in Belo Horizonte.

In the same region, Vallourec Barreiro does the maintenance of the Barreiro Environment Education Center that belongs to the Belo Horizonte City Hall and is next to the mill. The area has 20 hectares and preserves the native vegetation of savanna, Atlantic Forest, Transition Forest, as well as species introduced to enrich biodiversity.

The other companies and units of the Group also have their Environmental Education Programs (EEP), for the employees and the nearby

communities. One of the highlights of the period were the activities by VMN with the internal community, employees and contractors, so as to extend the environmental responsibility of those who work on all stages of production in their daily routine. Activities were also carried out in the relationship with the external public, especially the Piedade do Paraopeba community which is closest to the company.

In VFL the proposal of the EEP is to insert environmental themes in the lesson plans in the courses taught by teachers in the state and municipal schools in the 19 neighboring municipalities. In order to do this, in 2015 and 2016, 440 teachers from 71 schools were given information on environmental themes such as deforestation, fires, fauna, etc., to the programmatic contents, to include in the materials previously established by the Ministry of Education. In the framework of the program a site was created that allows the exchange of experiences among teachers. It is estimated that the Program reached approximately 14,387 students.

# 6/8

## Occupational Health and Work Safety

### – WORK SAFETY INDICATORS



#### Barreiro Mill G4-LA6

Information	Employees			Contractors		
	2014	2015	2016	2014	2015	2016
Lost days	612	369	43	77	131	15
Lost-time accidents	13	4	3	7	2	1
No lost-time accidents with first aid	33	22	11	24	6	4
Fatal accidents	0	0	0	0	0	0
Severity rate	77	53	7	20	42	7
Frequency rate	1.6	0.55	0.5	1.78	0.65	0.5

#### VMN G4-LA6

Information	Employees			Contractors		
	2014	2015	2016	2014	2015	2016
Lost days	14	0	0	233	171	0
Lost-time accidents	1	0	0	1	1	0
No lost-time accidents with first aid	1	2	8	1	0	2
Fatal accidents	0	0	0	0	0	0
Severity rate	26	0	0	277	202	0
Frequency rate	1.9	0	0	1.2	1.2	0

**VFL**

G4-LA6

Information	Employees			Contractors		
	2014	2015	2016	2014	2015	2016
Lost days	37	224	446	41	9	4
Lost-time accidents	4	2	6	4	2	1
No lost-time accidents with first aid	9	7	1	3	0	0
Fatal accidents	0	0	0	0	0	0
Severity rate	15	89	468	21	6	3
Frequency rate	1.6	0.8	3.01	2.1	1.4	0.83

**TSA**

G4-LA6

Information	Employees			Contractors		
	2014	2015	2016	2014	2015	2016
Lost days	0	29	0.00	3	0	0.00
Lost-time accidents	0	1	0	1	0	0
No lost-time accidents with first aid	2	0	0	0	0	0
Fatal accidents	0	0	0	0	0	0
Severity rate	0	496	0	17,9	0	0
Frequency rate	0	17.1	0	6.0	0	0

**VBR-ES\***

G4-LA6

Information	Employees		Contractors	
	2015	2016	2015	2016
Lost days	0	0.00	0	0.00
Lost-time accidents	0	0	0	0
No lost-time accidents with first aid	1	1	0	0
Fatal accidents	0	0	0	0
Severity rate	0	0	0	0
Frequency rate	3.6	6.4	0	0

\* Empresa criada em 2015

**VTS**

G4-LA6

Information	Employees			Contractors		
	2014	2015	2016	2014	2015	2016
Lost days	0	0	0.00	0	77	46.00
Lost-time accidents	0	0	0	0	1	1
No lost-time accidents with first aid	3	1	0	2	0	0
Fatal accidents	0	0	0	0	0	0
Severity rate	0	0	0	0	322	325
Frequency rate	4.5	0	0	0	4.2	7.1



— COMMITMENT TO LIFE

**"E**nsure the safety and protect the health of our employees; provide each of them with good working conditions". This premise of the Sustainable Development Charter guides the work of all Vallourec employees in Brazil.

In 2015-2016, the company maintained its safety commitment and investments, to a total of R\$ 5 million/year, reinforcing the value the company gives to the health and safety of its teams. These investments gave priority to training and updating tools related to critical risks.

At Vallourec Mineração, the amount invested was slightly higher because of the installation of housing for conveyor belts and life lines (devices to make working at a height safer).

In the reported period, Vallourec Brazil had a significant improvement in its safety performance. This is the result of contributions

from specialized consultants in the units and companies of the Group in Brazil, based on the best market practices.

Significant tools were reviewed and implemented, such as risk and process analysis, change management, mechanical integrity of equipment and assured quality of the projects. A procedure was also created for technical managers of contracts and safety procedures were reviewed in the management of contractors.

The Barreiro Mill was a highlight in the application of concepts and reducing accidents. In 2015 it was recognized as one of the best Vallourec units in the world, and a finalist in the Group awards.

On the other hand, Vallourec Florestal had the worst safety performance in the period. In 2016, it had seven lost-time accidents (six with its own employees and one contractor), which put it above the goal and the historical average. These

events impacted the severity rate and were carefully analyzed, bringing learning to all the companies of the Group. The leaders moved quickly and came together to discuss the events, evaluate indicators, define corrective measures and prepare an action plan involving the employees throughout the year. Among the results was the establishment of ten safety facilitators, covering all the areas of the company and preparing the matrix "Who Does What", which makes clear what is the safety responsibility of each one in the company.

At Vallourec Mining, these two years were not typical. VMN usually beats records of time without incidents, but VMN had a lost-time accident with a contractor in May 2015. For its own employees, even with records of minor accidents, there were no lost-time accidents. Measures were taken after the accident and, until the finalization of this report, there are over 2 million hours without lost-time accidents.



<http://www.vallourec.com/EN/GROUP/COMMITMENTS/Pages/default.aspx>

## HIGHLIGHT CAMPAIGNS AND PROGRAMS

One of the highlights in the period was the Immediate Attention Test at Vallourec Mineração, covering employees involved in activities that are considered critical, such as electricians, maneuverers, operators of moving sieves and Madal crane operators. The practice already established in the Barreiro Mill involves a daily test of a minute and a half evaluating several factors that can affect safety, such as the level of lack of attention, impulsiveness, lack of concentration and time of reaction. The objective is to check if the employee is able to safely keep his attention and his activities. Recurring issues give rise to guidance passed on to all employees, through lectures, training and campaigns. Among the more common problems are poor sleep quality, alcohol consumption, inadequate use of mobile phones and financial problems.

The Vallourec units in Brazil also carry out campaigns and regular projects for accident prevention. In 2015 and 2016, the companies invested in creating Software SisOpa for the online scheduling of the OPA Walks, control of activities and

generating statistics of reported deviations in educational campaigns. Resources were also directed at educational campaigns focused on the behavioral aspect of safety and the management of CAPTEN+Safe, a corporate safety program implemented in 2008, using management methodologies to assure the improvement of results (see table).

Vallourec Mining has updated its road map – which is a safety assessment of its areas – involving supervisors, coordinators and construction managers in a critical assessment of current safety conditions and surveying gaps and opportunities for improvement. The work guided the strategic safety plan of the company in the two years. The teams examined the Vallourec safety practices (see table) and defined priorities, norms and rules; permitting system, recognition and consequence and accident analysis. The action plan also made use of data provided by GMC feedback and emphasized the strengthening of rules, review of procedures and initiatives related to recognition and consequences, including the implementation of TAI.

### Highlights

Action	Description	2014*****	2015	2016
<b>OPA Walks</b>	Visit by directors, superintendents, managers, engineers, coordinators, safety technicians, supervisors and leaders to promote dialogue and reaffirm the importance of safety in the operations	Walks: Barreiro Mill: 7.335 VMN: 376 VFL: 2.032 TSA: 369 VTS: 621	Walks: Barreiro Mill: 6.397 VMN: 414 VFL: 1956 TSA: 156 Vallourec-ES: 242 VTS: 580	Walks: Barreiro Mill: 5.939 VMN: 332 VFL: 1552 TSA: 71 Vallourec-ES: 186 VTS: 714
<b>Daily Safety Dialogues (DSD)</b>	Brief meetings focusing on safety before the employees start work, which is a widely spread initiative in the companies.	DSDs carried out: Barreiro Mill* VMN***: 5.740 VFL* TSA: 3.078 VTS: 1.868	DSDs carried out: Barreiro Mill* VMN***: 4.195 VFL* TSA: 1.222 Vallourec-ES: 805 VTS: 2773	DSDs carried out: Barreiro Mill* VMN***: 4.574 VFL* TSA: 462 Vallourec-ES: 1.051 VTS: 1686
<b>Improvement Groups</b>	Groups dedicated to occupational health and work safety themes.	Participants Barreiro Mill: 609 VMN: 16 VFL: 28 TSA**: 44 VTS: 27	Participants Barreiro Mill: 744 VMN: 21 VFL: 8 TSA**:31 Vallourec-ES: 30 VTS: 18	Participants Barreiro Mill: 352 VMN: 23 VFL: 10 TSA**: Vallourec-ES: 25 VTS: 25
<b>Walk with Leaders****</b>	Groups of safety supervisors and technicians dedicated to surveying and proposing immediate solutions.	-	-	Participants VMN****: 84

\* There is no information about the number of DSDs, which are organized by the areas.

\*\* Monthly meetings with managers to discuss health and safety themes and to propose improvements.

\*\*\* Total DSDs by shift supervisors in the months of 2014.

\*\*\*\* Created at VMN in 2016 with the objective of finding opportunities for improvements in the areas, as well as short-term solutions, involving work safety supervisors and technicians.

\*\*\*\*\* Does not include data from Vallourec-ES, established in 2015



### Safety Committees

Company	Committees*
<b>BARREIRO MILL</b>	Corporate Safety Committee, Corporate Medicine Committee, Ergonomics Committee, Health Committee, Health Management Committee, Audiology Committee, Internal Accident Prevention Committee (CIPA), Continuous Improvement Groups (GMCs) and Emergency Preparedness and Care Group.
<b>VMN</b>	Internal Accident Prevention Committee in Mining (CIPA) Mining (Cipamin), Emergency Brigades, GMCs and Management Health and Safety Committee
<b>VFL</b>	Continuous Improvement Groups, Monthly Safety Committees, CIPATRs and Sectoral Safety Committees
<b>TSA</b>	Corporate Safety Committee, Ergonomics Committees, Cipa, GMCs and GPAE.
<b>VBR/ES</b>	Corporate Safety Committee, CIPA, GMCs and GPAE.
<b>VTS</b>	Superintendence Safety Committee, Ergonomics Committee, Cipa, GPAE and GMCs

\*The formal occupational health and safety committees represent 100% of the LA-5 employees

## — HEALTH INDICATORS

### Por categoria funcional

Rates	Barreiro Mill			VMN			VFL*			TSA			VSB-ES			VTS		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Severity	77		7	26	0	0	15	59	293	77	0	0	0	0	0	0	0	0
Occupational diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dias perdidos	612		43	14	0	0	37	233	450	612	0	0	0	0	0	0	652	405
Absenteeism	1.22%	1.12	1.24%	1.36%	0.99	1.33%	0.70%	1.0%	1.0%	1.22%	0.96%	0.0135	0.96%	0.0135	1.31	0.84%	0.76%	0.53%
Deaths	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

\* In 2015, VFL started to collect its health data considering its own employees and contractors.



## OCCUPATIONAL HEALTH

Continuous epidemiological studies show that the biggest issue for lost time of employees in production is due to the musculoskeletal system. At Barreiro, because it is an old mill, workstations lacking ergonomics improvements need care to avoid illness and/or worsening of the people involved.

Vallourec seeks to continuously enhance occupational health management in its companies and units, as can be seen in the evolution of indicators and where there is a gradual drop of rates of sick-leave, general absenteeism and formal sick-leave. This results from a very detailed mapping of gaps and proposing improvement plans. According to the legislation, all units have ergonomics programs and have regular examinations to check the health conditions of workers.

Employees of the Barreiro Mill also have access to a Medical Clinic inside the company, where they can be seen by several medical specialties, such as clinical, cardiology, orthopedics, ear and throat, dermatology, endocrinology and ophthalmology. This means they miss less time off work. Urgency and emergency cases are referred to local hospitals. Muscle strengthening sessions resulting from workplace wear may also be done inside the mill at the internal physical therapy clinic.

Care with working conditions is one of the items of the worker health protection program. In the reported period, there was training and care for new employees and employees transferred from other work stations. The objective is to facilitate adaptation and indicate the required improvements. In 2016, 95 employees were monitored.

Throughout the years, the company has strengthened its partnership with the National Social Security Institute (INSS) in order to reduce the cases of work related sick leave.

As a result, the APF (Accident Prevention Factor) of Vallourec is well below the goal (see table). Jointly with the INSS – and aligned to the workplace evaluation initiative – the company has the Occupational Rehabilitation Program directed at the adaptation of the workplace to receive rehabilitated and disabled employees.

## VACCINATION

In 2015 and 2016, two influenza vaccination campaigns were held, covering 100% of the relevant employees and contractors in the Brazilian units. A total of 2,307 people were inoculated in 2015 and 2,114 in 2016. Also, relevant employees and their dependents in the Sidertube Foundation prevention programs were vaccinated against HPV and asthma (through the Asthmatic Child Program).

## AGREEMENTS WITH UNIONS

These are examples of themes related to health and safety covered by formal agreements with Unions at Vallourec: maintenance of Internal Accident Prevention Committees (Cipa), provision of PPE (Personal Protection Equipment), channels to communicate accident risks, maintenance of emergency equipment, training in safety for employees and contractors, reorientation programs for returning employees, general conditions for meals, maintaining medical and dental care plans.

### Prevention in numbers\*

Exams	Employees tested		
	2014	2015	2016
Cardiovascular test	495	106	62
Musculoskeletal test	69	22	47
Dermatologic evaluation	55	138	100
Immediate Attention Test	2,203	3,043	2,170
Detailed Attention Test	775	420	499
Occupational exams	5,847	6,066	5,012
Sick-leave reports received	5,543	3,982	3,639

\*Programs carried out at the Barreiro Tubes Mill.

## HEALTH AND WELLBEING

The Sidertube Foundation was established to provide life quality for employees, families and retired employees – totaling 26 thousand beneficiaries. In 2015, 126 thousand people benefitted from the leisure, arts, sports, volunteering, health promotion and professional training activities held by the Foundation.

This figure is 80% higher than that of 2014 (70 thousand beneficiaries). The projects include support to educational, sports, life quality and vocational training activities (See complete report on page xx)



# Talent Attraction and Retention



The salary practices of Vallourec Brazil are compatible with the market.

**100%** of the employees are paid above the local minimum salary. G4-EC5

**Average training hours per employee** G4-LA9

Year	Barreiro Mill	VMN	VFL	TSA	VSB-ES*	VTS
2014	23	27	18	28		12
2015	30	27.8	21	11.05	19.92	08
2016	55	30.35	20	29.25	80.25	12

\* Established in 2015.

## — MAIN INDICATORS

**Turnover Rate (%)**

Year	Barreiro Mill	VMN	VFL	TSA	VSB-ES**	VTS
2014	0.75	0.98	1.60	2.25		0.79
2015	1.55	1.52	2.05	0.28	2.16	1.72
2016	1.14	0.89	3.11	1.97	5.16	3.97

\*The turnover rate is defined by the equation: total number of admissions in the period multiplied by 100, divided by the average of effective employees in the company, divided by 12.

\*\* Established in 2015.

**% of Employees whose performance is reviewed** G4-LA11

Year	Barreiro Mill	VMN	VFL	TSA	Vallourec ES	VTS
2015	25.09%	20.23%	11.95%	28.57%	35.90%	21.44%
2016	100%*	18.58%	12.31%	37.50%	34.20%	28.57%

\* starting in 2016 the review at the Barreiro Mill included 100% of employees.

**Total Training hours** G4-LA9

Year	Barreiro Mill	VMN	VFL	TSA	Vallourec ES*	VTS
2014	95,605	6,947	26,081	4,641		4,885
2015	111,762.3	5,789	27,729	309**	2,609.7	4,669
2016	306,264.86	8,801.66	25,563	702**	6,339.75	6,272

\* Established in 2015.

\*\* Part of the employees of TSA was trained by TSA and the others by Vallourec-ES

## COMMITMENT TO PEOPLE

G4-LA10

In 2015-2016, Vallourec Brazil sought to keep its employees engaged, considering the challenges of an unfavorable economy and made efforts to map and motivate its employees. Therefore, for the first time in the history of the company - and a first in the steel market - the steel plants of the Group (Barreiro and Jeceaba) implemented a temporary lay off, according to the legislation and with the agreement of the Union.

For three months, employees from these two units left their activities and went through a training program. This is part of a Group strategy to contain costs and balance production. During the period the work contract is suspended, the employees received an allowance from the Federal Government, which was voluntarily supplemented by Vallourec so that salaries were not reduced, even if for a period.

Training was given in languages, technical qualification in electrical and mechanical maintenance, rolling, steelmaking, electricity, among others, as suggested by the managers and the workers themselves. The classes given in the company were through e-learning. With the exception of the language courses, all the training was given by internal instructors, especially trained for the role. Overall, 187 instructors were trained.

In the reported period, there was a minimal schedule for mandatory qualification for all employees, including training in the cultural change Vallourec is going through. The managers were prepared and multiplied the desirable behavior and archetypes of the new culture in their teams (p.9). The training and commitment to continuous education are seen by the company as strategies to retain and attract talent.



## TRAINING

G4-LA10

In 2015 and 2016, there was a large training load because of the temporary lay offs. Training was given to managers focused on essential competencies for effective leadership (MOP), training in self-management for analysts and technical professionals (SMP) and qualification for supervisors (FSP).

One of the emphases given was qualification in effective communication in the Daily Safety Dialogues (DSDs). Leaders from all operational areas of the companies of the Group took part in workshops on the importance of the time with the team and the role of the leader. The mandatory safety training was also continued and 100% of its schedule was fulfilled.

Barreiro mill employees participated in **306 thousand hours** of qualification training

The **training and commitment** to **continuous education** are seen by the company as strategies to retain and attract talent.

**REMUNERATION**

Vallourec Brazil pays salaries and benefits compatible to the market, including medical and dental care, private pension, life insurance, profit sharing/bonus. The company does yearly salary surveys comparing similar sized companies to identify and correct possible variations. During the reported period, no significant discrepancies were found.

**LEAN METHODOLOGY**

The Vallourec Management System continued in 2015-2016, advancing in the implementation of the Lean Methodology at the Barreiro Mill. The teams invested in the optimization of processes, more productive routines and increasing the autonomy of operators. As a result of the enhancement of this methodology, specific training modules were held based on the reality and challenges of the employees.

**INTERNAL ENVIRONMENT**

In 2016, an internal environment survey was carried out at the Barreiro Mill. It was a qualitative survey with the intention of checking employee satisfaction with the measures implemented after the global Environment Survey of the company in 2013. Involving 94% of the employees, the survey, which had 10 questions, raised strengths - such as "more freedom to give opinions and express ideas with managers" and "satisfaction with improvements in refectory meals" - and weaknesses - such as, "a lack of clarity in career opportunities offered by the company".

At the Forestry Unit, an environment survey was carried out in 2016 only in Carbonization and Harvesting processes, which are strongly impacted by the changes brought about by the dismissals and shut-downs of operational units, with a favorability reduction from 86% to 82%.

For 2017, Vallourec Brazil is planning to advance in preparing for succession, identifying and training talents to take on management positions. There is also the objective of improving performance evaluation with more frequent feedback. At the Mining and Forestry units, this includes analysts, coordinators, engineers, technicians and administrative assistants. In 2017, the intention is to extend it to operational personnel.



# Local Development of the Communities in which we Operate

Vallourec creates and nourishes relationships of trust with the communities surrounding its operations in Brazil. At the steel plants, the Forestry and Mining units, TSA and VSB-ES, and at VTS, in Rio das Ostras/RJ, the company seeks to strengthen its commitment and to build a positive and enduring legacy for society.

The fact that the operations are close to some communities is a significant driver for this commitment. For example, the growth of the Barreiro region, in Belo Horizonte, State of Minas Gerais, coincides with the beginning of the steel plant in the region (today the Barreiro Mill). With 350 thousand inhabitants, today approximately 50 thousand people live in an area of 2 km which is under the direct influence of the company.

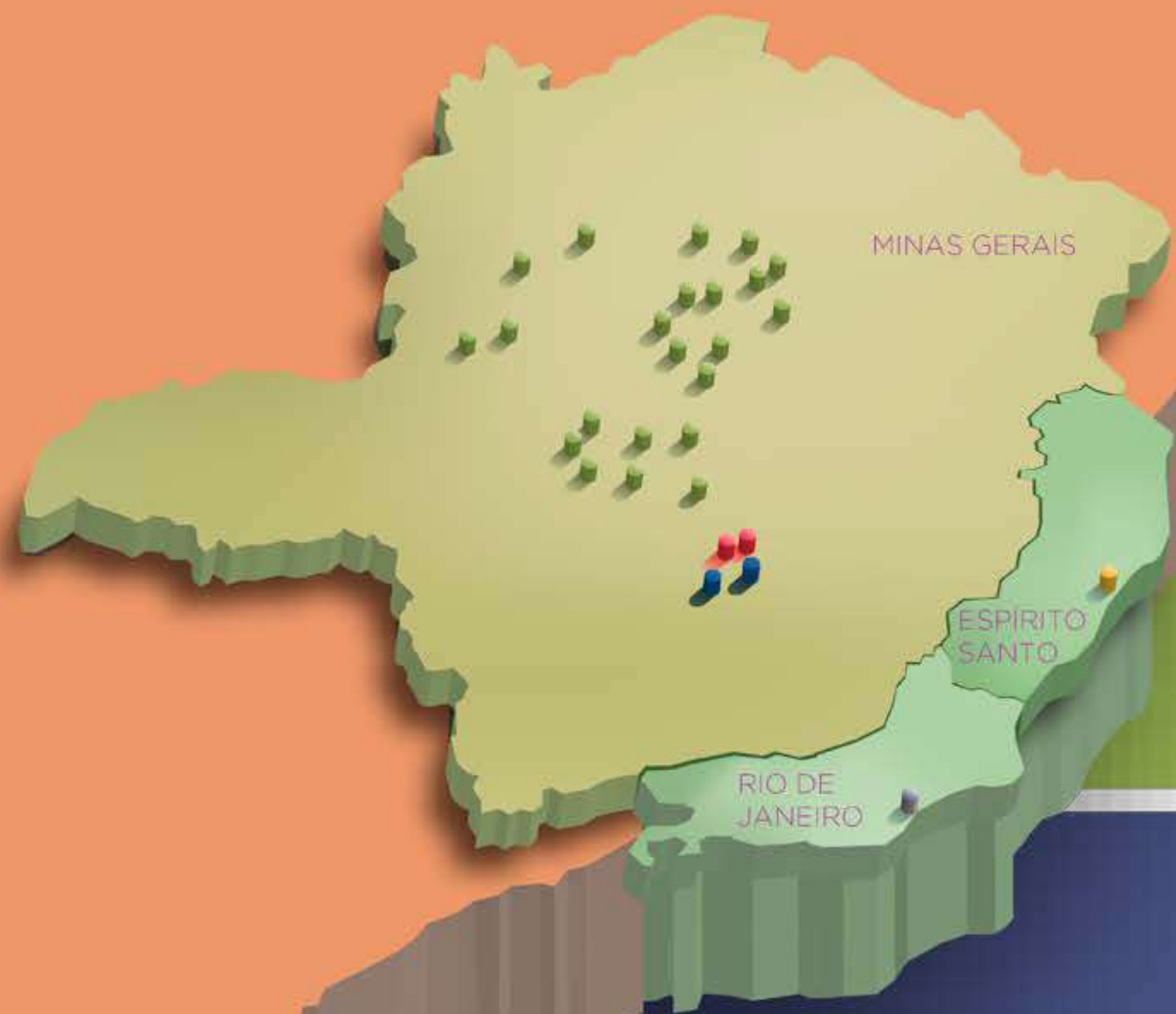
Vallourec Florestal and Vallourec Mineração are both in a similar situation. Vallourec Florestal has a direct and close interface with 93 communities that are mainly rural, in 22 towns where the company has farms and management areas. The Mine, on the other hand, lies close to the urban area of Brumadinho (state of Minas Gerais), and the districts of Piedade do Paraopeba, Aranha, Suzana, Palhano and Casa Branca, besides the Alphaville residential condominium, in Nova Lima.

In 2015-2016, in the areas under the influence of the companies, in which live most of the employees, were strongly affected by the business environment and the loss of jobs and income. With the exception of the Mining plant - which, in spite of the difficulties faced by the iron ore market, has managed to maintain levels of production in the period, as well as its personnel - the Vallourec companies had to review their work and supplier contracts (p. 84), which brought a downturn in the local economy.

A lot of work was done with the suppliers to revise contract items, expected volumes and sanctions, according to the reduction in production. The whole process was done with clarity and in partnership with our workers, unions and communities, in order to minimize the impacts.



# — PROFILE OF OPERATION REGIONS



## VALLORECTRANSPORTES E SERVIÇOS LTDA.

Rio das Ostras/RJ

Population: 136,626  
IDH: 0.773  
Monthly per capita income: R\$ 1,051.19

### Profile of the town

Population distributed in an area of 229.5 km<sup>2</sup>, 90% in the urban area.

## TUBOS SOLDADOS ATLÂNTICO E VALLOREC ESPÍRITO SANTO

Serra/ES

### Region profile

Located in the Piracema Industrial Hub, far from urban centers, the company does not have a direct impact on the local communities.

### City profile

Population: 494,109  
IDH: 0.739  
Monthly per capita income: R\$ 705.89

## VALLOREC SOLUÇÕES TUBULARES DO BRASIL S.A. UNIDADE BARREIRO (ANTIGA VALLOREC TUBOS DO BRASIL S.A.)

Belo Horizonte/MG (Barreiro Region) and Contagem/MG (Jardim Industrial)

### Region profile

Mixed neighboring communities, including residents, businessmen and members of social institutions. The target area is 2km around the Barreiro Mill, focusing on areas of greater social vulnerability.

### City profile

Population: Belo Horizonte (2,513,451) / Barreiro (282,552)  
HDI: 0.810  
Monthly per capita income: R\$ 1,497.29

## VALLOREC FLORESTAL LTDA.

Headquarters: Curvelo/MG

### Region profile

93 mostly rural communities, with average schooling and low purchasing power, in 22 towns in the center, north and northwest of the state of Minas Gerais.

### Profile of the towns

População: between 360 thousand and 4.7 thousand  
HDI: 0.810 - 0.626  
Monthly per capita income: entre R\$ 598.00 e R\$ 280.00

## VALLOREC MINERAÇÃO LTDA.

Brumadinho/MG and Nova Lima/MG

### Region profile

Mixed communities, divided into rural people with low level of schooling and purchasing power and people living in closed

condominiums with high level of schooling and purchasing power.

### Profile of the towns

Brumadinho – MG  
Population: 38,373  
IDH: 0.747

Renda per capita: R\$ 910.31

Nova Lima – MG  
Population: 91,069  
IDH: 0.813

Monthly per capita income: R\$ 1.731,84

## COMMUNITY DEVELOPMENT

In order to keep a good relationship with the communities, Vallourec Brazil focuses on generating shared value. The company invests in regional development through its own and incentive resources, always with transparency, positioning itself as a partner of the community, and not as the only provider of development or of resources.

In 2015, because of the challenges in the economy, there was a significant reduction in investments, mainly due to tax incentives. Project tenders, an important means to partnership for community development, for example, were reviewed and became invitation tenders.

At the end of the reported period, only nine projects were sponsored, of which six through State Tax Incentive (ICMS tax) and three through Federal Tax Incentive (Rouanet Law). In 2017, the temporary suspension of ICMS tax incentive sponsorships is expected and only strategic projects with federal tax incentives will be maintained within the limits of existing resources.

In order to minimize the negative impact of this temporary suspension, the company has expanded other work fronts. Therefore, volunteer work has grown and has shown itself an important means to contribute to community development, especially the Knowledge Volunteers Program, besides the existing social programs.

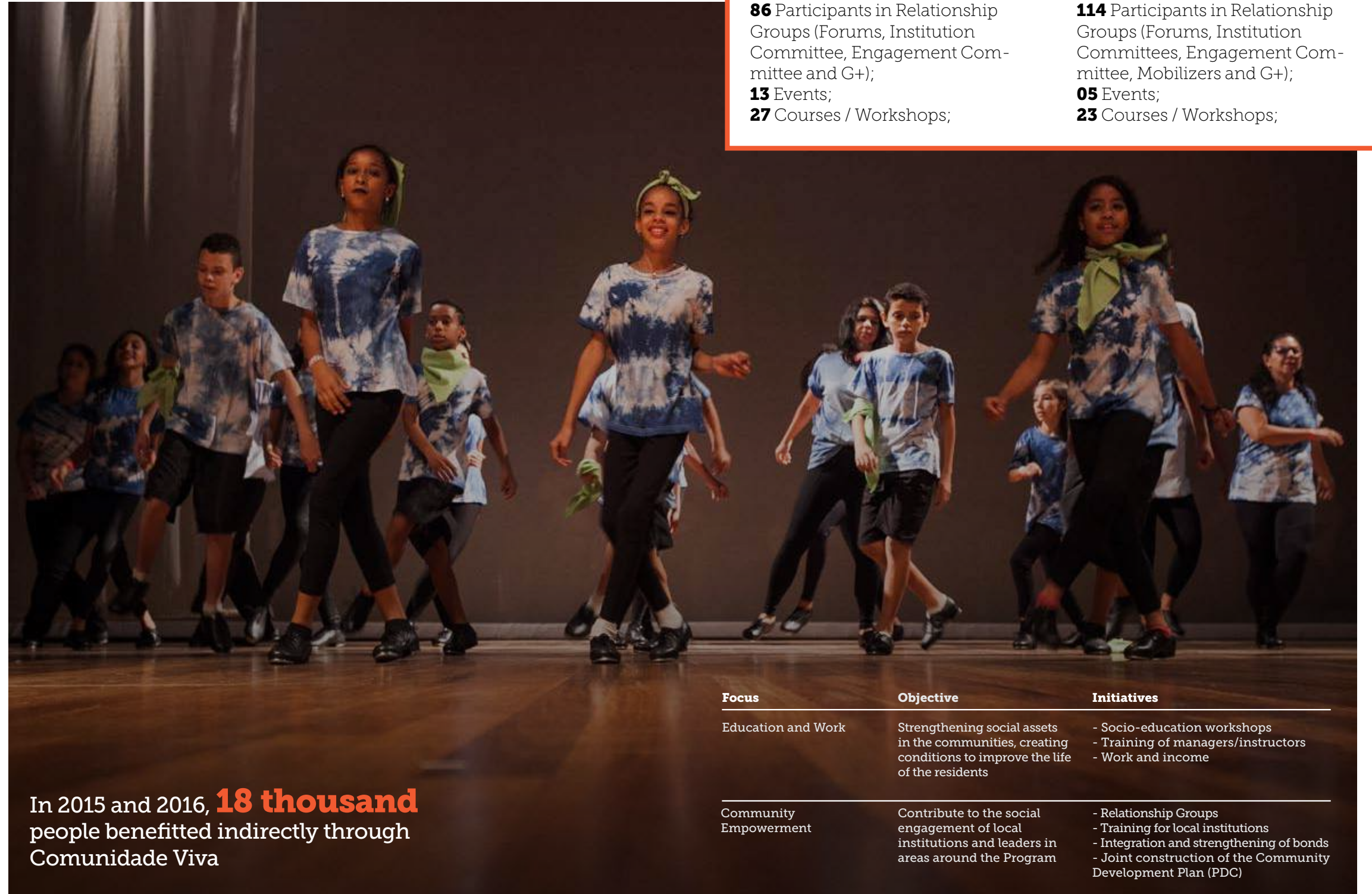
The incentives and programs are directed mainly in two directions: community development - including generating work and income; and sociocultural and environmental investments.

### “COMUNIDADE VIVA” (LIVING COMMUNITY)

In 2016, the “Comunidade Viva” program - one of the main relationships programs of Vallourec Brazil with its communities - completed ten years. Its objective is to contribute to social development and to consolidate local institutions and leaders focused on education and work, and the empowerment of the communities. To celebrate a decade of intense work, drama, music and percussion workshops were held, culminating in a great show with the title: “What if the Living Community did not exist?”. There were over 90 actors from the community performing on the stage of the Cine Teatro Brasil Vallourec, to an audience of over 900 people from their communities, as well as partners and company representatives.

In spite of the reduction in investments, in 2015 the program reached Curvelo (an area of direct influence of Vallourec Florestal), through volunteer work; and in 2017, it is expected to be extended to the region of Brumadinho (an area under the direct influence of Vallourec Mineração). This will begin with the mapping of the community profile and the setting up of relationship groups. In the coming years the idea is to take the “Living Community” Program to Jeceaba, making Vallourec Brazil work closer and more aligned to the communities.

Show celebrating the 10 years of Comunidade Viva (Living Community), at Cine Teatro Brasil Vallourec



In 2015 and 2016, **18 thousand** people benefitted indirectly through Comunidade Viva

## 2015-2016 HIGHLIGHTS

### 2015

**18.000** Indirect beneficiaries;  
**964** Direct beneficiaries;  
**179** Local partner institutions;  
**94** Public partner institutions;  
**86** Participants in Relationship Groups (Forums, Institution Committee, Engagement Committee and G+);  
**13** Events;  
**27** Courses / Workshops;

### 2016

**18.000** Indirect beneficiaries;  
**639** Direct beneficiaries;  
**173** Local partner institutions;  
**75** Public partner institutions;  
**114** Participants in Relationship Groups (Forums, Institution Committees, Engagement Committee, Mobilizers and G+);  
**05** Events;  
**23** Courses / Workshops;

Focus	Objective	Initiatives
Education and Work	Strengthening social assets in the communities, creating conditions to improve the life of the residents	- Socio-education workshops - Training of managers/instructors - Work and income
Community Empowerment	Contribute to the social engagement of local institutions and leaders in areas around the Program	- Relationship Groups - Training for local institutions - Integration and strengthening of bonds - Joint construction of the Community Development Plan (PDC)

## IMPACT SURVEY

G4-EC8

In 2015, an impact survey was carried out in 364 households, involving about 1,400 people in the area of operation of the «Living Community» program, in order to evaluate the results of the work carried out from 2009 to 2015 and also to support the design of the next phase of the program (2015-2018). The survey showed a positive evaluation of 92% of the program actions. It also showed that 68% of the beneficiaries improved their commitment to work; 72% improved communication; 66% improved school performance and relationships with teachers. Another important aspect was that 71% of the community recognized the existence of opportunities for dialogue and socialization, among other positive ratings (see below).



### Impact survey (\*) 2005 - 2009 - 2015

2005	2009	2015(*)
Vila Dom Bosco	Vila Dom Bosco	New scope of the Program**
<b>Formal Schooling (years of education)</b>		
5.6	6.15	8.76 ▲
<b>Nominal family income</b>		
R\$652.39	R\$1,039.31	R\$2,597.44 ▲
<b>Deflated family income - July 2015 (72,9% of actual increase)</b>		
-	R\$1,502.34	R\$2,597.44 ▲
<b>Integration in the labor market</b>		
-	45%	53,3% ▲
<b>Socialization/community organization</b>		
23% see opportunities for this practice	49.1% see opportunities	56.3% see opportunities for socialization ▲

\* The table compares data collected at Vila Dom Bosco before the intervention of Residencial PAC Arruda.

\*\* includes suburbs: Residencial PAC Arruda, Bairro das Indústrias, Bairro Novo das Indústrias/Adalberto Pinheiro (2011-2015)

## KNOWLEDGE VOLUNTEERS

Within the Volunteer Program of the Sidertube Foundation, “Mãos de Valor” (Hands of Value), the initiative of the Knowledge Volunteers is a highlight in the Barreiro Mill and the Florestal Unit (in Curvelo), which grew in the two years 2015-2016. It has become one more alternative and resource to maintain and strengthen the presence and engagement of the company with the communities, in order to promote local development. Considering the specific skills and knowledge of its employees, the program meets demands from educational institutions in the areas of influence of Vallourec, with significant results in the learning skills of the beneficiaries and in school management. In 2016, the groups that did the workshops at the Barreiro Mill attained scores of up to 87%. In Curvelo, it was 69%.



### Knowledge Volunteers Project

Barreiro and Curvelo	2014	2015	2016
<b>Direct beneficiaries</b>	100	121	100
<b>Volunteer employees</b>	43	42	36

## VALLOUREC AND KAIRÓS

Vallourec has been a partner of the Kairós Institute since 2010, when it established the first sponsorship focusing on socio-cultural actions and projects in Piedade do Paraopeba. Through this partnership, the institution built project headquarters in the district to house two projects: Casa Escola (Home School) and Comunidades em Rede (Network Communities). Both projects are sponsored by Vallourec, through the Child and Adolescent Fund (FIA) and the Minas Gerais State Cultural Incentive Law. In 2016, the activities started in late May.

### HOME SCHOOL

Besides the sponsorship of Vallourec, the Home School Project is also supported by the Municipal Education Office of Brumadinho in partnership with the Padre Xisto Municipal School. This initiative provides social, educational and cultural training to 240 children and teenagers who live and go to school in the area. Some of them have free music, arts, literature, cooking workshops, as well as environmental education and games in the home school. At school they have Afro-Brazilian culture workshops with the objective of reaffirming our roots and identity and the life stories of the children and teenagers involved. These activities are in the elementary school curriculum and are held once a week. The Padre Xisto School is also supported in its cultural events. The project organizes exhibits and prepares ornaments for the events and thematic celebrations.

### NETWORK COMMUNITIES

The project provides training in production, socio-educational and cultural activities for adults and elderly people from the Piedade do Paraopeba Region. Through its Social Incubator, Kairós offered free workshops and courses to the residents, who were able to train in cooking, handicrafts and social entrepreneurship. There were also several socio-cultural activities to strengthen the agro-ecological networks, traditional knowledge of herbal medicines and popular health education activities.



### VALLOUREC SMALL GREAT READERS

The Vallourec Small Great Readers project started in April 2016 in the cities of Curvelo, João Pinheiro and Bocaiuva. Eight hundred 6th grade students are encouraged to make a habit of reading. The Vallourec Small Great Readers is a six-month project in two phases: the first involves reading, discussion and a review of each title in one of the many text genres: news, short stories, poems, cartoons, letters, fables, etc. In the second phase the reader is encouraged to write an essay on the theme: "The importance of reading in my life". The activities are held in the classroom and attain a score of up to 100. At the end of the project, in November 2016, the three students of each class who got the highest score receive medals and the one in first place receives a bicycle. The project will continue in 2017.

### SOCIO-CULTURAL INVESTMENTS

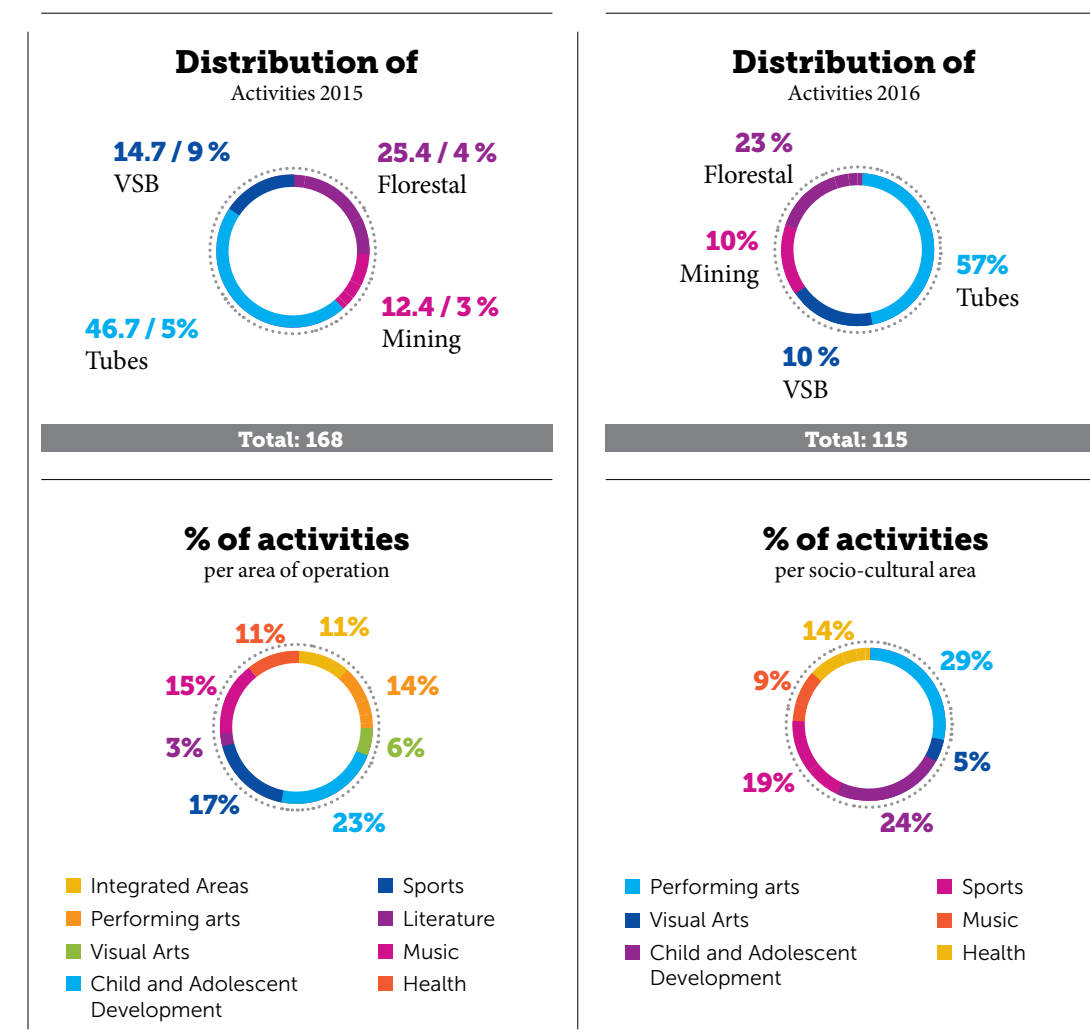
In 2015-2016, Vallourec Brazil invested R\$ 22.4 million (compared to R\$18 million in 2014) in socio-cultural and educational projects, using tax incentive mechanisms and its own funds. This reduction is explained in the drop of state and federal taxes linked to the sale of products, which was smaller in the period.

The investments are mainly directed to the Vallourec Cultural Circuit, an integrated set of art and culture activities that bring together the communities in which Vallourec operates, with the circulation of artistic events sponsored by the company in a wide range of cultural spheres. There are also sports projects and activities in the teaching institutions in the area where the company operates.

#### QUANTITATIVE SUMMARY OF VALLOUREC CULTURAL CIRCUIT

Description	2015	2016
Number of projects that make up the Vallourec Cultural Circuit	10	6
Local activities in the program of Vallourec Cultural Circuit.	168	115
Cities/towns involved	30	30
Beneficiaries	57,000	27,815

## – ACTIVITIES DISTRIBUTED PER VALLOUREC UNITS\*



\* includes VSB Jeceaba Unit

#### Tax Incentive Mechanisms and Laws

Rouanet Law; Tax on the Circulation of Goods and Services (ICMS); Child and Adolescent Fund (FIA); Federal and State Sports Incentive Laws; National Program Supportive of Oncological Care (Pronon); National Program for Health Care for Disabled Persons (Pronas - up to 2016); and Elderly Citizens Fund.

#### Investments in R\$ million

Tax incentive laws	2014	2015	2016
Rouanet Law	3.5	1.4	2.8
State Culture Incentive Law * (ICMS - MG and RJ)	2.7	2.3	1.1
State Sports Incentive Law ICMS MG	0.8	0.4	0.3
Child and Adolescent Fund(FIA)	0.9	0.3	0.6
Federal Sports Incentive Law	0.9	0.3	0.6
National Program Supportive of Oncological Care (PRONON)	0.8	0.3	0.6
National Program for Health Care for Disabled Persons(PRONAS)	0.8	0.3	0.0
Elderly Incentive Law	0.8	0.3	0.6
Own funds allocated for donations and sponsorships	7.3	6.7	3.3
<b>TOTAL</b>	<b>18.2</b>	<b>12.5</b>	<b>9.9</b>

Vallourec also supports and sponsors socio-cultural initiatives through direct funding in response to various requests from local institutions involved with the company. These initiatives are evaluated and approved by internal committees, such as the Community Integration Committee (Cinco), made up of representatives from different areas of the company. In 2015-2016, Cinco benefitted 55 institutions in the Barreiro Region.

Reaffirming its commitment to education, academic training and the applicability of its products, Vallourec also continued its partnership with universities. Through its Inventta Project, the company donates seamless steel tubes from the automotive line to engineering students to encourage and build competition off-road vehicles, at the state, federal and international levels. It is an interdisciplinary work, encouraging the training of young professionals and innovations in the use of the products. In 2015, through an invitation tender, 26 teams were approved. The next cycle is planned for 2017.

**Highlights** G4-EC8

Project	Description	Audience	Nr of beneficiaries - 2015	Nr of beneficiaries - 2016
<b>CINCO (Community Integration Committee)</b>	Assistance to social institutions; donations of materials, items not used by the company, services and funds, considering: the social impact of the project; project directed at formal and environmental education; culture and income; costs; number of beneficiaries	Community	43 donations 36 institutions	24 donations 19 institutions
<b>MinerAção Community Integration Program</b>			1.900 people	2.100 people
<b>PAIC - Community Integration Action Plan</b>	Communication channel with stakeholders where requests, complaints and suggestions are recorded, then analyzed and dealt with by an internal committee. This tool strengthens the relationship of the company with its stakeholders.	23 towns	48 people serviced Average audience: 10,000 people	50 people serviced Average audience: 10,000 people
<b>Live Community Program</b>	Social development based on two axes: strengthening institutions, education and work.	Youths, adults and elderly people from the following districts: Bairro Indústrias; Novo das Indústrias/ Adalberto Pinheiro and Jardim Industrial (Residencial Arrudas).	Direct: 964 Indirect: 18.000	Direct: 639 Indirect: 18.000
<b>Music at School</b>	Classical music project: setting up of youth orchestras, didactic concerts, music lessons (theory and practice) in various instruments: violin, cello, oboe, flute, etc.	Children and young people (from 7 years old on) in the Barreiro Region	120 students 29 music shows 20 students playing in events 3 students approved in undergraduate music courses	120 students 32 music shows 1 student approved in an undergraduate music course.
<b>Green Savings Project</b>	Fostering small rural farmers in eucalyptus crops and other farming activities so that the population can work with wood and have raw materials for the maintenance of their small farms, without affecting the local ecosystem.	Small land owners around the company.	23 small farmers	23 small farmers continue
<b>Field Day</b>	Technical visit for the dissemination of the commitment of the company and its responsible work with the environment responsible operations, involving workers and communities. They also undo the prejudice that eucalyptus is damaging to the environment, emphasizing the importance of reforestation for the development of the country.	Students from technical and college courses	10 institutions 195 students	03 institutions 38 students

Project	Description	Audience	Nr of beneficiaries - 2015	Nr of beneficiaries - 2016
<b>Human Development Project</b>	Promoting socio-economic development in the towns where the company operates, in partnership with local and government entities.	Rural and urban population of Brasília, Augusto de Lima, Joaquim Felício, Engenheiro Navarro and Guaraciama	331 courses and 3.768 students	Project closed in 2016
<b>Beekeeping</b>	Income generating project for the communities around the Forestry unit, through associations that work with beekeeping in company areas.	Residents from Bocaiuva, Paraopeba, João Pinheiro, Montes Claros.	46 beekeepers - Production of around 28.3 tons of honey	79 beekeepers - Production of around 25 tons of honey
<b>Back to School Project</b>	Encouraging the inclusion and training of youths and adults, through partnerships with FIEMG and the Government of the State of Minas Gerais and the Regional Education Superintendence	Residents from Estiva community in Curvelo	26 students	Project closed in 2016
<b>Human Development Project - "Quilombolas" communities</b>	Promote the socio-economic development of the two quilombola communities close to the Company, through professional training.	Pontinha and Sant'Ana do Caatinga Communities	-	103 participants 09 courses + 250 students





Project	Description	Audience	Nr of beneficiaries - 2015	Nr of beneficiaries - 2016
<b>Vallourec Small Great Readers</b>	Encourage 6th graders from state schools in towns where Vallourec operates (Forestry Unit) to read, with a view to improving their education and school performance in areas that demand reading and interpretation.	03 cities – Curvelo, João Pinheiro and Bocaiuva	-	820 students
<b>Partnership with Associations of collectors of recyclable materials</b>	Transfer of recyclable waste that brings work and income to the population. The transport is done by partners and the materials are transferred to 4 associations duly registered (with corporate inland revenue registration and environmental licenses).	Local residents from Bocaiuva, João Pinheiro, Curvelo and Pompéu	60 families Approximately 145.486 tons of material	60 families - Approximately 80 tons of material
<b>Kairós Home School</b>	Music, arts, literature and recreation workshops (handicrafts, games and toys).	Children and youths from Padre Xisto Municipal School	809 activities	299 activities 6.461 students serviced
<b>Widening Horizons - Home Kindergarten</b>	Supplemental education for elementary school students; new school activities for children in kindergarten; training for family members and teachers from local schools; help with school work, networking, social mobilization for individuals, groups and social organizations.	Families and children		60 families 60 children per month
<b>Entertainment, Networking, / Welcoming (Casa Guará)</b>	Percussion, drama, arts and creativity workshops, Agro-farming and gardening, taekwondo, «capoeira», street dance, social economy and movie theater (educational videos)	Children and teenagers	25 child and teenage students per month	115 children and teenagers per month
<b>Admirável Mundo Novo/ Welcoming Home (Pai Joaquim de Aruanda Spiritist House)</b>	Music, percussion, battery, keyboard, flute, guitar workshops, choir, dance, theater, arts, digital inclusion and school tutoring for local children in Brumadinho	Children and teenagers	100 child and teenage students per month	107 children and teenagers per month
<b>Rio das Ostras Jazz Festival</b>	Free music festival with national and international artists held in Rio das Ostras.	Mixed	About 120 thousand people	*
<b>SPORTS</b>				
<b>Sports For a Better World III and Citizen Sports</b>	Encourage children and teenagers to engage in sports - five-a-side football and volleyball (Teixeira Dias and Vila São Paulo).	Children from 7 to 15 years old.	300 people	300 people
<b>Sports Excellence Center II</b>	Five-a-side football and volleyball workshops for children and teenagers (São Brás do Suaçui).	Children from 7 to 15 years old.	150 people	150 people

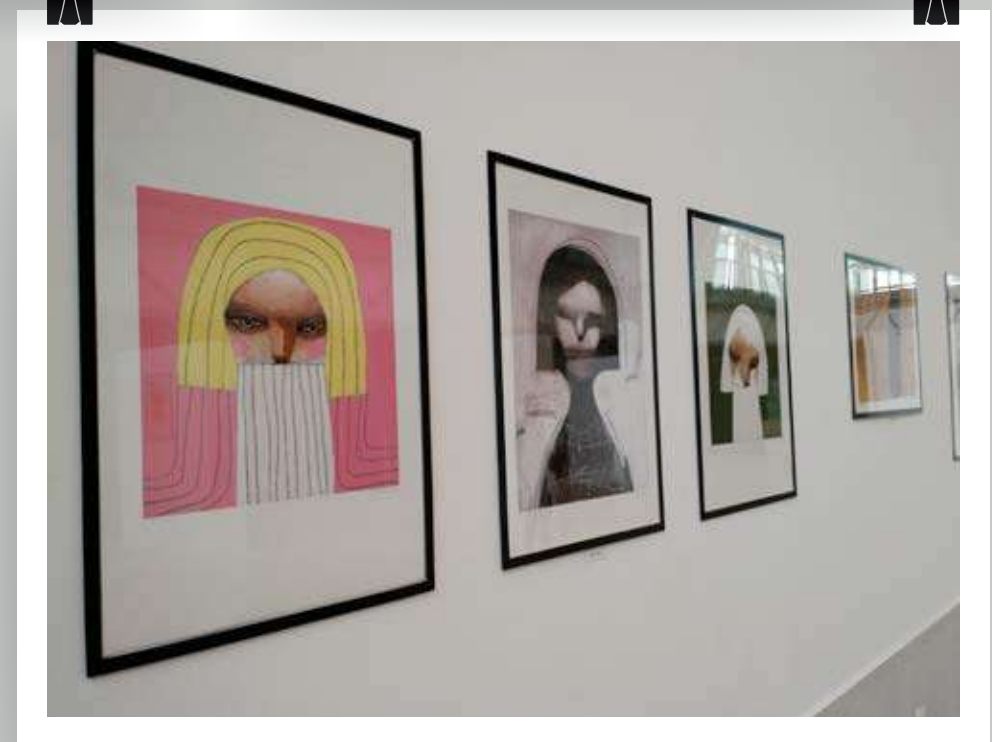
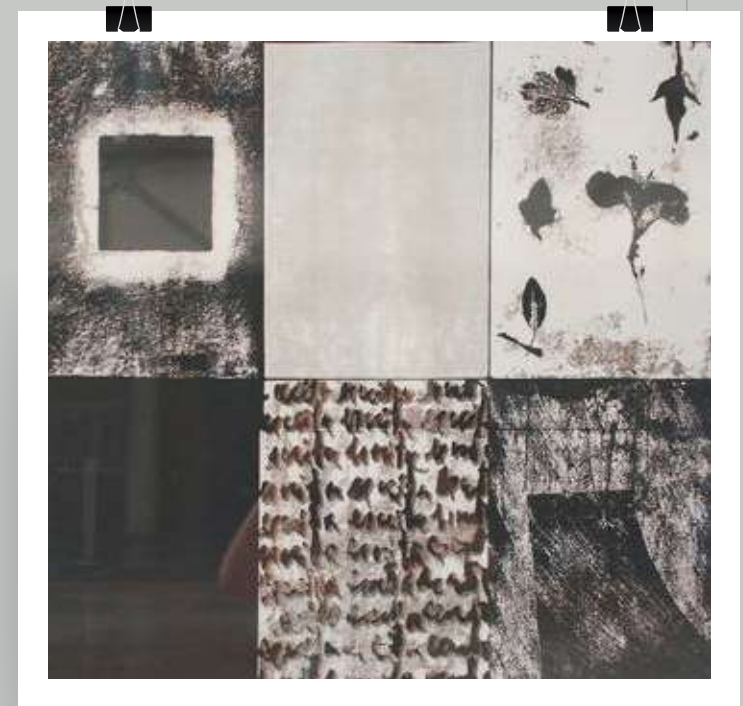
Project	Description	Audience	Nr of beneficiaries - 2015	Nr of beneficiaries - 2016
<b>City Sport</b>	Five-a-side football, handball, volleyball, basketball and judo workshops and events to bring the teams together.	Children and teenagers from 7 to 17 - held in public schools in Barreiro and Contagem, Piedade do Paraopeba and Suzana, in Brumadinho	763 people	515 people
<b>Citizen of the Future</b>	Football project in Brumadinho (Cohab, Tejuco, Corujão and Canto do Rio)	Children and teenagers from 6 to 16	516	526
			380	190





**CINE THEATRO BRASIL VALLOUREC**

Open since 2013, Cine Teatro Brasil Vallourec has the objective of fostering and disseminating culture through the theater, dance, music, visual arts, audiovisual, literature and other cultural manifestations. From 2015 to 2016, Cine Teatro Brasil Vallourec had 265 shows (theater plays, music shows, dance performances, musicals and standup comedy shows and 418 ticketed shows (177 in the Grande Teatro and 241 in the Chamber Theatre), with a total audience of over 200 thousand people.



**CULTURE AT HOME**

In 2016, the cultural space of the Administrative Center completed ten years of existence, popularizing art in the mill, driving new talents, breaking paradigms and giving visibility to local artists. Installed in the hall of the Administrative Center of the Barreiro Mill, it is open to visits by employees, suppliers, customers, partners and communities (in guided tours). During this period, it received over 100 exhibitions of well-known artists, such as Iara Tupinambá, Iberê Camargo, Cícero D'Ávila – new talents and in-house artists - employees who are painters, sculptors and photographers in their moments of recreation. Another line are thematic exhibitions, literary and institutional collections, showing the company assets from an artistic angle.

## — RELATIONS WITH SUPPLIERS



Based on the values of integrity and transparency from the Code of Ethics, Vallorec seeks to establish transparent and trust based relationships with all its suppliers of materials and services. The company prizes clarity in the purchasing and contracting processes, always seeking to build relationships of trust and mutual profit.

In 2015 and more strongly in 2016, Vallorec had to make adjustments in its structure and also in its supplier chain, bringing direct impacts on the purchase partners. As a result, the Supplies area did a very careful analysis of existing contracts and mapped opportunities for renegotiation, both in terms of volume and prices and deadlines. The process was carried out with transparency and partnership, seeking to minimize its impacts. A total of 450 contracts were reviewed without default or judicialization.

### VALLOUREC BRAZIL SUPPLY CHAIN

Vallorec follows a vertical production model, which means that the supply of the main raw materials of the steel process comes from the affiliates: Vallorec Mining and Vallorec Forestry. Therefore, a significant amount of the expenses of the purchase of raw material goes to the companies of the same Group, that supply the ore and charcoal used in the Barreiro and Jeceaba steel mills.

Besides these basic inputs, other raw materials, such as ferro-alloys and additives to adjust the quality of the steel, also appear in the list of the main supplies contracted by the company, also including semi-manufactured materials, such as bars, tubes and accessories supplied from companies of the Group and outside suppliers. Electricity and utilities are supplied by private and public sector companies.

Vallorec also has third-party suppliers of materials and services in construction, mechanical and electrical maintenance, automation and civil construction; various repairs; supply and shipment logistics. There is also the purchase of equipment used in the maintenance of the industrial park and consumables and spare parts which enable continuity of production.

Besides the technical and operational infrastructure requirements, all contracts include clauses requiring compliance to existing legal aspects of respect for human rights and anticorruption. The objective is to prohibit the contracting of minors, practices akin to slavery and other abusive labor practices.

In the case of any anomaly in non-compliance to these practices by the service provider, Vallorec assures the compliance of the relevant legal obligations.

Before contracting, the outsourced companies are assessed with regard to aspects such as health and safety, environmental management, human resources, finances and compliance to tax, social and labor obligations.

In order to assure compliance, a new methodology was implemented in 2016, to assess contracts, with a monthly review of 10 requirements. The review is done through the ERP system, according to how critical the supply is, and payment of the contract depends on the result of this evaluation.

In the case of suppliers' non-compliance, the company receives notifications and requests for corrections, review of causes, proposition of corrective measures and monitoring of results.

Quality, deadline, work conditions, work safety, occupational health, environment, social charges and taxes, certifications, organization and communication

### Local Purchases

Company	% of local suppliers			% of purchase budget for local suppliers			Site
	2014	2015	2016	2014	2015	2016	
Barreiro Mill	26.79%	33.93%	41.47%	36.61%	35.15%	40.94%	Greater Belo Horizonte
VFL	37.89%	33.38%	35.08%	27.57%	26.76%	29.95%	Cities up to 70 km from Florestal operations (headquarters and forests)
VMN	43.98%	86.18%	70.83%	30.34%	46.28%	57.60%	Greater Belo Horizonte
TSA*	43.30%	46.07%	56.25%	64.34%	74.04%	50.91%	Greater Vitória
VTS	22.74%	20.25%	26.87%	41.04%	15.31%	50.42%	Special Business Zone (ZEN); Rio das Ostras and Region

\* includes VSB-ES

## PREVENTION AND MITIGATION TOOLS FOR NEGATIVE IMPACTS RELATED TO SUPPLIERS

**Contract clauses:** based on a pre-established pattern, the contracts signed include clauses on compliance to current legal requirements and respect for human rights. It is also the responsibility of contractors to assure there is no kind of discrimination whether by race, social class, nationality, color, religious belief, gender, sexual orientation, belonging to unions, political parties, etc.

**Contract management:** this is shared by the technical manager (directly responsible for the routine contact with the service provider) and the commercial manager (who must assure compliance to commercial conditions). There is also collaboration in specialist areas: Health and Safety, Environment, Legal, Asset Surveillance and Taxes.

**Risk Management of Suppliers:** a monitoring tool that uses information from internal indicators, Serasa monitoring and checks documents from suppliers, selected according to the level of severity for the Vallorec process.

**Program for All:** directed at internal service providers, it gives equal treatment to Vallorec and outsourced employees. Its guidelines establish ethical behavior, transparency, encouragement to growth and satisfaction of those involved; worker health, hygiene and safety, compliance to common law, contracts and to legislation.

**Monitoring visits:** carried out both by the multidisciplinary team of the Company and contractors in order to evaluate suppliers. The purpose is to contribute to the development of our suppliers through suggestions in the final report of the visit. As well as issues relating to the management system and infrastructure, there is also the monitoring of human resources issues.

**Sustainability Evaluation:** An evaluation tool that uses the "Ecovadis" methodology, in which the most relevant suppliers are invited to participate. Twenty-one criteria are reviewed focusing on the themes: environment, working practices ethics and supply chain.

**Campaigns of Conflict Minerals:** Every year, suppliers of minerals who have a history of supplying are called on to answer a questionnaire on an online platform, on whether they use minerals from the zone of conflict of the Democratic Republic of Congo: gold, tantalum, tin and tungsten.

**Sidertube Foundation Projects 2015/2016**

CULTURE AND LEISURE			
Project	Objectives	Audience / Outcomes	
		2015	2016
<b>Cultural Trips</b>	Bring together employees, retired employees and their families.	1,893 participants 13 trips	2,373 participants 14 trips
<b>Itinerant Library</b>	Encourage reading and train new readers.	6 sessions and 514 loans.	10 sessions and 699 loans.
<b>Reading Station</b>	Encourage reading, making available new rooms in the refectories of the farms of the Forestry Unit.	3 bookshelves on VFL farms	04 rooms in the Barreiro Mill and 1 in Curvelo.
<b>Library and DVD Library</b>	Make available books, magazines, newspapers, educational films and access to the Internet to help with school research and encourage the cultural and intellectual growth of the employees.	13,379 people serviced 26,829 loans	31,192 loans
<b>Children's Day Kits</b>	Distribute kits with school supplies, toys and personal items on Christmas Day at Vallourec Florestal and in other units outside the State of Minas Gerais.	1,184 children.	*
<b>Christmas Toys</b>	Gifts for children of employees (aged 0-12) to celebrate Christmas.	3,446 children	3,027 children
<b>Music School</b>	Music lessons for employees and dependents: accordion, bass, drums, singing, flute, guitar, sax, keyboard and violin.	119 participants	83 participants
<b>Children's Party Barreiro Mill</b>	Celebrate Children's Day with leisure, culture and recreation	1,422 people	*
<b>Workers Party Barreiro Mill/ VFL / VTS</b>	Special events with typical food, shows and performances for employees and families	6,264 people	*
<b>Foundation Cup</b>	Sports championships involving Vallourec athletes and service providers (Barreiro, Curvelo, João Pinheiro and Rio das Ostras).	1,061 participants	499 participants
<b>Steel Athlete</b>	Participation in a sports championship organized by SESI, involving other companies in the industry.	69 participants	146 participants
<b>5-a-side Football School</b>	Five-a-side football project for the children of employees (aged 7-14).	81 participants	77 participants
<b>Change Project</b>	Free ballroom dance and zumba lessons	109 participants	64 participants (Zumba)
<b>Training*</b>	Provide free training for the beneficiaries of Sidertube Foundation	-	26 participants

\* Established in 2016

\*\*Projects cancelled because of the drop in the economy or because of new demands.

\*\*\*Not carried out because there were no anti-influenza vaccines on the market.

CULTURE AND LEISURE			
Projeto	Objetivos	Público / Resultados	
		2015	2016
<b>Children's Dance</b>	Encourage children and teenagers to learn free dance and hold dance shows.	109 participants	37 participants



SOCIAL				
Project	Objectives	Audience / Outcomes		
		2015	2016	
<b>Adolescer Barreiro Mill</b>	Provide training and education to teenagers aged 13-16 (children of the employees).	30 adolescents		**
<b>Support Barreiro Mill / VFL / VMN</b>	Loans of orthopedic and physical therapy equipment to employees and their families	67 people serviced (97% of the requests)	64 people serviced (100% of the requests)	
<b>Learning Barreiro Mill / VFL</b>	Workshops to improve quality of life and increase income.	16 workshops 229 participants	426 participants 14 workshops	
<b>Active Woman Barreiro Mill</b>	Talks and workshops focusing on personal relations, self-esteem, finances, family planning, affection, sexuality and the labor market	14 participants	24 participants	
<b>Conviver Barreiro Mill/VFL</b>	Encourage reflection on relationships, personal relations and work environment.	33 participants	52 participants	
<b>Back to School Barreiro Mill</b>	Technical/Electro technical courses: Foster the professional enhancement of students, in partnership with SENAI.	56 students/ employees	33 students/ employees	
<b>Healthy Friends</b>	Promote health education for people aged 60 and over	62 people	122 participants	
<b>Donate Blood Donate bone marrow VFL</b>	Encourage volunteers to donate blood and raise awareness about the register of potential bone marrow donors.	43 people	50 volunteers	
<b>Family in the Field VFL</b>	Give employees and their families an opportunity to visit VFL, providing leisure and interaction with the company.	150 participants	31 participants	
<b>Responsible Taxes Barreiro Mill</b>	Encourage employees to allocate part of their income tax to the Child and Adolescent Fund (FIA).	240 participants Funds raised: R\$ 249,392.58	157 participants Funds raised: R\$ 182,210.00	
<b>New Action Barreiro Mill</b>	Prepare the internal audience (retired employees or employees over 55), providing information about retirement planning.	61 people (32 employees and 29 spouses)		*
<b>Free Pass Barreiro Mill / VFL / VMN</b>	Provide free bus fares to employees and/or dependents involved in social projects or under bio-psychosocial treatment.	125 donations	111 donations	
<b>Financial and Family Planning Barreiro Mill / VMN / VFL / TSA / VTS</b>	Guidance to employees and their families on family finances and how to make a family budget.	3,872 participants	3,788 participants	
<b>Building the Future Barreiro Mill / VFL</b>	Guidance to employees and families on family finances and how to make a family budget	59 participants	48 participants (only in the Barreiro Mill)	

\* Established in 2016

\*\*Projects cancelled because of the drop in the economy or because of new demands.

\*\*\*Not carried out because there were no anti-influenza vaccines on the market.

SOCIAL				
Project	Objectives	Audience / Outcomes		
		2015	2016	
<b>Mãos de Valor Barreiro Mill / VFL / VMN / VTS / TSA</b>	Encourage volunteer actions of local employees in social and education institutions around Vallourec companies	589 volunteers	1,286 volunteers	
<b>Knowledge Volunteers VBR e Curvelo</b>	Carry out a continuous initiative of volunteers at the José Miguel do Nascimento State School, focusing on teaching Mathematics, and also in Curvelo.	46 volunteers – VSB Barreiro 42 volunteers - Curvelo	51 volunteers - VSB Barreiro 39 volunteers - Curvelo	
<b>Entrepreneurship VSB Barreiro</b>	Workshop focusing on business models and strategic planning tools, given by Sebrae.		*	33 participants



HEALTH PROMOTION			
Project	Objectives	Audience/ Outcomes	
		2015	2016
<b>Physical Activity</b>	Encourage the practice of physical activity and provide access to a partner gymnasium at low cost. Reduce the lack of physical activity through the Global Corporate Challenge (GCC), a program focused on changing habits and seeking a better life.	476 participants	369 participants
<b>Health Update</b>	Provide VFL beneficiaries with access to social actions, health prevention programs, leisure and culture.	1,147 participants	1,036 participants
<b>Healthy Maturity (Healthy Friends Group)</b>	Provide health education for people aged 60 and over	431 participants	426 participants (Barreiro)
<b>Monitoring of health conditions</b>	Assist people with chronic or acute diseases who need help in their daily routines	28 participants	no longer carried out
<b>Monitoring of Pregnant Women</b>	Guidance on healthcare during pregnancy, delivery, breastfeeding, newborn care, oral health and nutrition.	109 participants	100 participants
<b>Nutrition Barreiro Mill /VTS/ VFL/TSA</b>	Encourage nutritional reeducation among employees and their families	306 Participants	304 participants
<b>No-Smoking Barreiro Mill /VTS/VFL</b>	Encourage and support those who want to quit smoking, providing medical and psychological support and providing 70% of the medication.	55 participants	19 participants
<b>Dental Care for Children</b>	Identify children up to 14 years old who have not seen a dentist in the last 12 months and encourage them to have regular dental care.	1,122 children	1,060 children
<b>Asthmatic Children</b>	Anti-influenza vaccination for family members up to 18 years old who have respiratory conditions.	288 children inoculated	***
<b>Campaigns</b>	Raise awareness of the employees about: nutrition, smoking Health Day, Cancer Prevention (Pink October and Blue November), Dengue Fever prevention, psoriasis and STDs (during Carnival) and HPV.	20,402 participants	19,582 participants
<b>Experimental Kitchen</b>	Training agents for the Health Promotion programs through cooking lessons focused on healthy nutrition.	72 participants	46 participants
<b>Hypertension</b>	The program gives guidance to hypertensive beneficiaries on nutrition, physical exercises and the control of hypertension, encouraging them to have healthy habits.	31 participants	38 participants
<b>Health Patrol</b>	Disseminate the Health Promotion Programs, in partnership with the Occupational Health sector and calculate the Body Mass Index	448 participants	575 participants
<b>Cardiovascular Health</b>	Assist employees with significant risk factors for cardiovascular diseases.	-x-	* 35 people serviced
<b>Smile Program</b>	Identify those employees who have not seen a dentist in the last 12 months, raise awareness and encourage them to have clean teeth through the Clean Teeth Campaign.	4,700 folders sent 85 tooth cleaning sessions	1,800 folders sent 85 tooth cleaning sessions

\* Established in 2016

\*\*Projects cancelled because of the drop in the economy or because of new demands.

\*\*\*Not carried out because there were no anti-influenza vaccines on the market.



# — MATERIALITY: LIMITS OF ASPECTS

G4-20

Material Theme (G4-19)	GRI Indicators				Limits of the organization G4-21
	GRI Aspect	Indicator/Item	Description of Indicator	Public Impacts	
1. Economic Performance	Economic Performance	G4-EC1	Direct economic value – generated and distributed	Board of Directors and suppliers	Inside and outside the organization
		G4-EC8	Significant indirect, including the extension of impacts		
2. Local development of the neighbouring communities	Indirect Economic Impacts	G4-SO1	Percentage of operations with programs to involve the local community, evaluating the impacts and local development	Board of Directors and Community	Outside the organization
		G4-MM7	To what extent mechanisms to forward demands and complaints were used to solve conflicts of land use, consuetudinary rights of local communities and indigenous populations, and the results		
		G4-PR9	Monetary value of significant fines due to non-compliance to laws and regulations on the supply and use of goods and services		
3. Innovation, quality and products	Compliance	G4-PR9	Monetary value of significant fines due to non-compliance to laws and regulations on the supply and use of goods and services	Board of Directors, Employees and Suppliers	Inside and outside the organization
4. Saúde e segurança no trabalho	Work safety and health	G4-LA6	Rates of injuries, occupational diseases and lost days	Board of Directors and Employees	
5. Governance and Transparency	Profile and Governance items	G4-SO4	Communication and training in policies against corruption	Executives and regulating agency	
	Anti-corruption measures	G4-SO5	Confirmed cases of corruption and measures taken		
6. Attracting and retaining talent	Market Presence	G4-EC5	Variation of the proportion of the lowest salary, detailed by gender, compared to the local minimum wage	Board of Directors and Employees	Within the organization
	Training and Education	G4-LA9	Average hours of training per year		
		G4-LA10	Programs for management of competencies and continuous learning		
7. Customer Service	Customer Health and Safety	G4-PR1	Evaluation of impacts on health and safety during the life cycle of products and services	Board of Directors, Employees and Customers	
	Product and Service Labelling	G4-PR5	Results of surveys measuring customer satisfaction		

Material Theme (G4-19)	GRI Indicators				Limits of the organization G4-21
	GRI Aspect	Indicator/Item	Description of Indicator	Public Impacts	
8. Environment Commitments	Energy	G4-EN3	Energy consumption in the organization	Board of Directors and Community	Within the organization
		G4-EN4	Energy consumption outside the organization		
		G4-EN6	Reduction of energy consumption		
	Water	G4-EN8	Total take-up of water per source		
		G4-EN10	Percentage and total volume of recycled and reused water		
	Emissions	G4-EN15	Effect of direct greenhouse gases emissions (GEE) (Scope 1)		
		G4-EN16	Effect of indirect greenhouse gases emissions (GEE) obtained from the acquisition of energy (Scope 2)		
		G4-EN19	Reduction of greenhouse gases emissions (GEE)		
		G4-EN20	Emissions of substances that destroy the ozone layer (SDO)		
		G4-EN21	Emissions of NOx, Sox and other significant air emissions		
	Wastes	G4-EN23	Total weight of waste, broken down into type and method of disposal		
General	G4-EN31	Total investments and expenses with environmental protection, broken down into type			

# — GRI CONTENT INDEX

STANDARD CONTENT	PAGE/RESPONSE	EXTERNAL VERIFICATION
<b>STRATEGY AND ANALYSIS</b>		
<b>G4-1</b> Provide a statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability.	Page 6	
<b>G4-2</b> Provide a description of key impacts, risks, and opportunities	Page 6	
<b>ORGANIZATIONAL PROFILE</b>		
<b>G4-3</b> Name of organization	Page 27	
<b>G4-4</b> Primary brands, products, and services	Pages 32 - 34	
<b>G4-5</b> Location of the organization's headquarters.	Belo Horizonte, MG (Barreiro Mill)	
<b>G4-6</b> Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	Page 11	
<b>G4-7</b> Nature of ownership and legal form	Vallourec Tubos do Brasil S.A. is a private limited company, controlled by Vallourec Tubes.	
<b>G4-8</b> Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	Page 11	
<b>G4-9</b> Scale of the organization, including number of employees; net sales (for private sector organizations) or net revenues (for public sector organizations); Total capitalization broken down in terms of debt and equity (for private sector organizations); quantity of products or services provided.	Pages 10, 11, 32, 33 and 34	
<b>G4-10</b> Total number of employees by employment contract and gender; total number of permanent employees by employment type and gender; total workforce by employees and supervised workers and by gender; total workforce by region and gender; report whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed or by individuals other than employees or supervised workers, including employees and supervised employees of contractors; report any significant variations in employment numbers.	Most of the workers are own employees	
<b>G4-11</b> Percentage of total employees covered by collective bargaining agreements	100%	
<b>G4-12</b> Describe the organization's supply chain.	Pages 84, 85	
<b>G4-13</b> Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain, including: changes in the location or in operations, including facility openings, closings and expansions; changes in the share capital structure and other capital formation, maintenance and alteration operations (for private sector organizations); changes in the location of suppliers, the structure of the supply chain or in relationships with suppliers, including selection and termination.	Page 6	
<b>COMMITMENTS TO EXTERNAL INITIATIVES</b>		
<b>G4-14</b> Report whether and how the precautionary approach or principle is addressed by the organization	Vallourec applies the precautionary principle and constantly evaluates all aspects that may affect the environment, health and safety of its employees, customers and communities.	

STANDARD CONTENT	PAGE/RESPONSE	EXTERNAL VERIFICATION
<b>G4-15</b> List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	Page 20	
<b>COMPROMISSOS E INICIATIVAS EXTERNAS</b>		
<b>G4-16</b> List memberships of associations (such as industry associations) and national or international advocacy organizations	Vallourec has a seat in the main bodies and associations representing the sectors of activity, such as the Brazilian Metallurgy, Materials and Mining Association (ABM), the Brazilian Association of Producers (Abref), the Brazilian Association of Metal Tubes and Accessories (Abitam), the Minas Gerais Forestry Association (AMS), Aço Brasil Institute (IABr), the Brazilian Mining Institute (Ibram), among others.	
<b>IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES</b>		
<b>G4-17</b> List all entities included in the organization's consolidated financial statements or equivalent documents. Report any entities included in the consolidated financial statements or relevant documents of the organization which were not covered by the report.	The financial statements of Vallourec Brasil include all companies of the Group in Brazil and were audited by Deloitte Touche Tohmatsu	
<b>G4-18</b> Explain the process for defining the report content and the Aspect Boundaries	Page 5	
<b>G4-19</b> List all the material Aspects identified in the process for defining report content.	Page 92	
<b>G4-20</b> For each material Aspect, report the Aspect Boundary within the organization	Page 92	
<b>G4-21</b> For each material aspect, report the Aspect Boundary outside the organization, as follows: report whether the aspect is material outside of the organization; if the aspect is material outside the organization, identify the entities, groups of entities or elements for which the aspect is material. In addition, describe the geographical location where the aspect is material for the entities identified; report any specific limitation regarding the aspect boundary outside the organization.	Page 92	
<b>G4-22</b> Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	Page 5	
<b>G4-23</b> Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	Page 5	
<b>STAKEHOLDER ENGAGEMENT</b>		
<b>G4-24</b> Provide a list of stakeholder groups engaged by the organization.	Page 5	
<b>G4-25</b> Report the basis for identification and selection of stakeholders with whom to engage.	Page 5 and 30	
<b>G4-26</b> Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	Page 5 and 30	



STANDARD CONTENT	PAGE/RESPONSE	EXTERNAL VERIFICATION
<b>STAKEHOLDER ENGAGEMENT</b>		
<b>G4-27</b> Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns.	Page 5 and 31	
<b>REPORT PROFILE</b>		
<b>G4-28</b> Reporting period (such as fiscal or calendar year) for information provided	Page 4	
<b>G4-29</b> Date of most recent previous report (if any).	Page 4	
<b>G4-30</b> Reporting cycle (such as annual, biennial).	Page 4	
<b>G4-31</b> Contact point for questions regarding the report or its contents.		
<b>G4-32</b> Report the 'in accordance' option the organization has chosen; report the GRI Content Summary for the option selected; refer to the External Verification Report, in case the report has been submitted to this kind of verification.	Page 4	
<b>ASSURANCE</b>		
<b>G4-33</b> Current policy and practice adopted by the organization to submit the report for external verification.	Page 4	
<b>GOVERNANCE</b>		
<b>G4-34</b> Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	Pages 27 and 28	
<b>ETHICS AND INTEGRITY</b>		
<b>G4-56</b> Organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	Pages 11 and 14	

**SPECIFIC STANDARD DISCLOSURES**

MATERIAL ASPECTS	DMAS AND INDICATORS	PAGE/ RESPONSE	OMISSION	EXTERNAL VERIFICATION
<b>ECONOMIC CATEGORY</b>				
Economic performance	<b>G4-DMA</b> Form of management	Page 39		
	<b>G4-EC1</b> Direct economic value generated and distributed	Page 39		
Market Presence	<b>G4-DMA</b> Form of management	Page 67		
	<b>G4-EC5</b> Ratio of the entry level wage by gender at significant locations of operation to the minimum wage.	Page 67		
Indirect Economic Impacts	<b>G4-DMA</b> Form of management	Pages 72, 74 and 78		
	<b>G4-EC8</b> Significant identified positive and negative indirect economic impacts	Pages 72, 74 and 78		

MATERIAL ASPECTS	DMAS AND INDICATORS	PAGE/ RESPONSE	OMISSION	EXTERNAL VERIFICATION
<b>ENVIRONMENTAL CATEGORY</b>				
Energy	<b>G4-DMA</b> Form of management	Pages 46 and 47		
	<b>G4-EN3</b> Energy consumption in the organization	Page 46 and 47		
	<b>G4-EN4</b> Energy consumption outside the organization	Page 46		
Water	<b>G4-EN6</b> Reduction in energy consumption	Page 46		
	<b>G4-DMA</b> Form of management	Pages 49 and 50		
	<b>G4-EN8</b> Total volume of water withdrawn from sources	Page 50		
Emissions	<b>G4-EN10</b> Total volume of water recycled and reused	Page 49		
	<b>G4-DMA</b> Form of management	Page 42, 43 and 44		
	<b>G4-EN15</b> Direct emissions of GHG (Scope 1)	Page 43 The inventory of GHG emissions is carried out based on the GHG Protocol. The company reports direct emissions.		
Effluents and Waste	<b>G4-EN16</b> Indirect (Scope 2) GHG emissions from energy acquisition	Page 44		
	<b>G4-EN19</b> Reduction in the emissions of GHGs.	Page 42		
	<b>G4-DMA</b> Form of management	Pages 52 and 54		
Geral	<b>G4-EN23</b> Total weight of hazardous and non-hazardous waste, by disposal methods.	Pages 52 and 54		
	<b>G4-DMA</b> Form of management	Page 40		
Occupational health and safety	<b>G4-EN31</b> Total environmental protection expenditures by type	Page 40		
	<b>G4-DMA</b> Form of management	Page 61 and 63		
SOCIAL CATEGORY – LABOUR PRACTICES AND DECENT WORK UNGC	<b>G4-DMA</b> Form of management	Page 61 and 63		
	<b>G4-LA5</b> Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise occupational health and safety programs	Page 63		
	<b>G4-LA6</b> Type of injury and rates of injury, occupational diseases, lost days and absenteeism, and total number of work-related fatalities by region and by gender	Pages 21 and 59		

— EDITORIAL STAFF

MATERIAL ASPECTS	DMAS AND INDICATORS	PAGE/ RESPONSE	OMISSION	EXTERNAL VERIFICATION
<b>SOCIAL CATEGORY – LABOUR PRACTICES AND DECENT WORK UNGC</b>				
Training and education	<b>G4-DMA</b> Form of management	Pages 66 and 67		
	<b>G4-LA9</b> Average hours of training per year per employee, by gender and by employee category	Pages 66 and 67		
	<b>G4-LA10</b> Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	Page 67		
	<b>G4-LA11</b> Percentage of total employees by gender and by employee category who received a regular performance and career development review	Page 66		
<b>SOCIAL CATEGORY - SOCIETY</b>				
Local communities UNGC	<b>G4-DMA</b> Form of management	Pages 69 and 77		
	<b>G4-SO1</b> Percentage of operations with implemented local community engagement, impact assessments, and development programs	Pages 69 and 77		
Anti-corruption UNGC	<b>G4-DMA</b> Form of management	Page 29		
	<b>G4-SO4</b> Communication and training on anti-corruption policies and procedures	Page 29		
	<b>G4-SO5</b> Confirmed incidents of corruption and actions taken	Page 29		
<b>SOCIAL CATEGORY – PRODUCT RESPONSIBILITY</b>				
Customer Health and safety	<b>G4-DMA</b> Form of management	For Vallourec, building relationships of trust with customers is one of the premises for credibility and longevity in the market. Therefore, the company invests in technology to improve the quality of its processes, considering the use of its products in adverse conditions, such as corrosion and heating. Thus, the organization seeks to assure the safety and health of customers and to protect the environment. The rigour in meeting the contracted standards and observing non-conformities to eliminate risks are factors that reinforce the excellence we provide to the market.		
	<b>G4-PR1</b> Percentage of significant product and service categories for which health and safety impacts are assessed for improvement.	100%		
Product and Service labelling	<b>G4-DMA</b> Form of management	Page 37		
	<b>G4-PR5</b> Result of surveys measuring customer satisfaction	Page 37		
Compliance	<b>G4-DMA</b> Form of management	Page 35		
	<b>G4-PR9</b> Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.	Page 35		
<b>SECTORAL CATEGORY – MINING SECTOR</b>				
Community	<b>G4-DMA</b> Form of management			
	<b>G4-MM7</b> The extent to which mechanisms were used to resolve disputes relating to land use, customary rights of local communities and indigenous peoples, and the outcomes	No disputes in 2015-2016		

**2015-2016 SUSTAINABILITY REPORT OF THE VALLOUREC COMPANIES IN BRAZIL**

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**GRAPHIC PROJECT:**  
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**GRAPHIC EDITING:**  
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**TRANSLATION:**  
Tradusom Tradução e Sonorização Ltda.

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